NATIONAL TRIBAL AIR ASSOCIATION 2014 STATUS OF TRIBAL AIR REPORT

National Tribal Forum on Air Quality

May 2014

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The National Tribal Air Association (NTAA)

The NTAA is a Tribal membership organization whose mission is to advance air quality management policies and programs consistent with the needs, interests, and unique legal status of federally recognized Tribes. The NTAA also serves as a communication liaison and information conduit between Tribes, EPA, and other federal agencies. The NTAA exists to assist Tribes in air quality policy work while respecting the fact that each Tribe has the right to a government-to-government relationship at the federal level.

The goals of the NTAA:

- To advocate for and advance the development of Tribal air policy for the protection of environmental, cultural, and economic interests at all levels of government (Tribal, federal, state, local, and international);
- To promote the development, funding, and capacity building of Tribal air management programs;
- To promote and facilitate air quality policy and technical information that may include research, scientific and/or medical studies;
- To advance the recognition and acceptance of Tribal sovereign authority by conducting effective communication with and outreach to state, local, federal and international agencies, and to the general public; and
- To encourage and support appropriate consultation of state, local, federal and international agencies with all Tribal governments in accordance with Tribal structures and policies.

Table of Contents

Executive Summary

The National Tribal Air Association (NTAA) is pleased to present the Status of Tribal Air Report (STAR) to Tribal Nations, the U.S. Environmental Protection Agency (EPA), and to other federal agencies and interested parties. The STAR outlines current conditions in Indian Country with respect to air quality management and provides recommendations to EPA to address the critical air quality issues and needs that face Indian Country.

There are 566 federally recognized Tribes, including 229 Alaskan Native Villages (BIA, 2014). In addition, there are 13 Alaska Native Regional Corporations created under the Alaska Native Claims Settlement Act (ANCSA, 2013). Tribal governments and Alaska Native Regional Corporations have jurisdiction over 100 million acres of land and waters within the United States. Federally recognized Tribes occupy approximately 2.3% (52 million acres) of the U.S. land base, with Alaska Native Corporations owning another 1.8% (45 million acres) (Utter, 2001). Further, some Tribes control resources outside of reservations based on treaties, federal court decisions, and voluntary cooperative agreements that provide for a co-management relationship between Tribes and states.

These lands are called Ceded and Usual and Accustomed Areas and comprise more than 38 million acres. In these areas, Tribes maintain co-management jurisdiction with states for fisheries and wildlife management and use. Thus, Tribal lands coupled with the Ceded and Usual and Accustomed Areas compose a natural resource base of nearly 140 million acres (which contain more than 730,000 acres of lakes and impoundments) and more than 10,000 miles of streams and rivers (Native American Fish & Wildlife Society, ND). Combined, this land would constitute the fifth largest state within the United States.

Nationally, 55.4% of Tribal populations live within 50 miles of major mercury sources (NTAA, 2014); 82.3% live within 50 miles of major nitrogen oxide (NO_x) sources; and 65.8% live within 25 miles of particulate matter (PM_{10}) point sources (ALA, 2010). In addition, toxins such as lead present local concerns near existing or former mining operations. In EPA Region 6, the Quapaw Tribe of Oklahoma and other Tribes are near the Tar Creek superfund site, a major source of lead contamination. Particulate matter produced in wood smoke is another local concern for many Tribes. In some areas, such as southern California, the Phoenix metropolitan area in Arizona, and the upper New England states, Tribes are impacted by the transport of ozone and other pollutants. They often have little or no authority to regulate the sources of the pollution since most are located beyond reservation boundaries. In addition, many Tribal lands have major power plants and freeways that either bisect or abut reservations. The proximity of these major

sources of pollution impacts the health and welfare of Tribal members on a daily basis. Exposure to criteria pollutants and toxics or hazardous air pollutants (HAPs), is a major concern for Tribes.

Tribal environmental program accomplishments have been extraordinary, especially considering that a majority of Tribal EPA-funded programs have been in existence less than ten to fifteen years compared to nearly 30 years that EPA has funded state programs. Much more work remains to address fully the air quality issues facing Tribes, and it is clear that funding for Tribal air programs goes a long way.

Each Tribe should have the opportunity to assess the air quality of its air shed. Most states and counties receive funding support from EPA to support their air quality activities for monitoring, public outreach, policy development, and permitting. Tribes need comparable funding support to provide the same services to their members. For on-reservation sources of air pollution, funding and technical support must be made available for Tribes to regulate sources through a Tribal program or assist an approved EPA program. Jurisdictional gaps with respect to air quality protection and oversight will require innovative programs and partnerships between Tribes, EPA, and others to ensure that Tribal members have the same level of air quality protection that other U.S. citizen enjoy.

Summary of Recommendations

- The issues that face each Tribe can be as varied as the Tribes themselves, thus it is imperative that federal agencies consult with Tribal leadership individually.
- Federal agencies need to demonstrate their commitment to Tribal sovereignty through (1) appropriate allocation of funding for Tribal air programs, (2) engaging proactively in government-to-government consultation with Tribal nations, (3) upholding their Trust responsibility by developing and implementing air programs that are responsive to the feedback provided by Tribes, (4) and responding to Tribal requests and recommendations in a timely manner.
- Each Tribe should have the opportunity and resources necessary to assess the quality of its air shed in order to protect the health of Tribal members and Tribal lands; particularly in light of the many off-reservation sources of pollution.
- Monitoring and analysis partnerships between Tribes and other established air quality entities should be encouraged and funded.
- Tribes recognize that air quality funding is limited, but additional funding for Tribal air quality programs should be made available to minimize the need for Tribes to compete for federal air quality funds. As dependent sovereign nations, Tribes are entitled to separate funding, independent of the states.

Note: Topic-specific recommendations are included at the end of each section.

The Role of Tribal Governments in Protecting Air Quality

Tribes possess a unique legal status in the American system of federalism. Tribes are one of the three sovereigns recognized in the American political system, along with states and the federal government. The parameters of this sovereignty, as a matter of federal law, have been determined through the complex, vacillating, and often contradictory action of the three branches of the federal government: administrative, legislative, and judicial. Fortunately, when it comes to protecting air quality, Congress has provided clear authorization for Tribes to obtain delegation of federal authority under certain sections of the Clean Air Act (CAA).

The role of Tribal governments in environmental protection is poorly understood by many Americans. Even with the CAA expressly spelling out the role of Tribes, it remains misunderstood by a vast majority of most Americans, including environmental professionals.

Treatment in the Same Manner as a State (TAS)

When it comes to protecting air quality, EPA has provided clear authorization for Tribes to obtain delegation of federal authority under specific sections of the CAA through the Tribal Authority Rule (TAR) (U.S. EPA, 1998). Section 301(d) of the 1990 Amendments to the CAA authorized EPA to treat Indian Tribes as States, and required EPA to issue a rule by June 15, 1992 that specified the provisions of the Act for which it was appropriate to treat Tribes in this manner. In February 1998, EPA complied with this requirement by finalizing the TAR. The TAR authorizes Tribes within Indian Country to obtain delegation of federal authority to implement CAA programs, or parts of programs, as appropriate, based on their priorities, goals, and objectives. The TAR is one of the strongest examples of a Tribal government's ability to assert its right of sovereignty and self-determination over pollution sources within the exterior boundaries of its reservation. It also clarifies the assertion of Tribal jurisdictional authority within the exterior boundaries of a given reservation.

Treatment in the same manner as a state (TAS) is also known as Eligibility Determination. A Tribe can exercise authority under a particular CAA section, by demonstrating to EPA that it: (1) is federally recognized by the Secretary of the Interior; (2) has a governing body carrying out substantial governmental duties and powers; (3) the functions to be exercised by the Tribe pertain to the management and protection of air resources within the exterior boundaries of the reservation or other areas within the Tribe's jurisdiction; and (4) is capable of implementing the program consistent with the CAA and applicable regulations

(U.S. EPA, 2013). The Tribe must also identify the exterior boundaries of the reservation and, for non-reservation areas, must demonstrate its basis for jurisdiction.

Under Section 301(d) of the CAA and the TAR, eligible Tribes can be treated in the same manner as a state for elements of several CAA programs. To learn more about the number of TAS applications that have been submitted and approved to date, see Table 1., *National Tribal TAS Summary Report for Air Quality Programs.*

Priorities for Program Development and Capacity Building

Tribes in Indian Country

From a Tribal perspective, air quality includes more than monitoring, data management, inspections, regulatory oversight, and the protection of public health. Tribal air quality programs also include the protection and preservation of culture and spiritual beliefs and practices. Many Tribes take a holistic view and approach to their ecosystem and environment, connecting air quality, water quality, water quantity, waste management, soils, plant and animal health, and human health. This can be difficult for EPA personnel and others who have not worked with Tribes to fully comprehend although great strides have been made to share information and to educate one another in this integrated view of the environment. In a Tribal framework, it makes just as much sense to protect pristine air sheds as it does to clean up air sheds with poor air quality. This perspective coupled with their unique sovereign status makes Tribes strong and natural allies with EPA in protecting and improving the Nation's air quality.

Tribes are engaged in numerous CAA programs[1] with the intent of monitoring and improving air quality; they conduct air quality assessments, emission inventories (EIs), monitoring, and regulatory development. Examples of Tribal air quality efforts include monitoring for visibility, ammonia, and mercury; sampling for wet and dry acid or mercury deposition; engaging in smoke management programs conducted in cooperation with other air quality agencies and surrounding states; indoor air quality programs that address tobacco smoke, carbon monoxide, radon and mold; replacement of inefficient woodstoves with efficient models; and implementing diesel retrofit programs.

[1] Table 2., *National Tribal Air Quality Activities,* provides a region-by-region snapshot of Tribal air quality activities.

It is important to note that most Tribes rely exclusively on EPA for air quality program funding and do not have access to supplementary funding to support air quality management endeavors in Indian Country. Furthermore, most Tribal air programs are small and enjoy very limited staff support. Tribal nations depend on these programs for the management and maintenance of environmental quality on their respective Tribal lands, so although most Tribal air programs are small, they are critical components of any Tribal government. Regretfully, EPA budget cuts have profound impacts on these programs, which are already operating on a limited budget and are frequently unstaffed.

Despite funding constraints, the level of Tribal participation and involvement in EPA air quality programs has grown exponentially over the last 10-15 years, and Tribes have made great strides in their program development in a very short time with limited resources (*e.g.*, financial and human resources, access to current technology and infrastructure, legal support). Though Tribes now participate in air quality management on a local, regional, and national level, there are still significant unmet needs in Indian Country that must be addressed and supported.

Many Tribes are completing air quality baseline assessments while mature air programs are conducting monitoring activities and reporting data to EPA's databases, Air Quality System (AQS), Emissions Inventory System (EIS), and others. A handful of Tribes have developed their own regulations and permitting programs or have obtained approval to implement federal programs within their jurisdiction (i.e. CAA Title V Operating Permit program delegation).

Development of Tribal air programs with the technical and regulatory capacity to implement comprehensive air quality programs is the pinnacle achievement for a Tribe under the TAR. However, the ability to function in an independent capacity is a realistic objective for few Tribal air programs. For this objective to be realized, additional resources are needed to improve and sustain existing Tribal air programs as well as to expand the number of these programs operating in Indian Country. There are many Tribes with significant air pollution issues that do not have air quality programs, and in some cases, do not have an environmental program. It is important to note the remarkable progress that Tribes have made in addressing air quality, but this must be balanced with the understanding that there are significant issues that remain unresolved with respect to air quality in Indian Country. Continued partnership, collaboration, and support from EPA are needed to address the air quality concerns in Indian Country. As co-regulators, Tribes and EPA can build upon their successes and look forward to Tribal air quality program development with a hopeful and cooperative spirit.

Tribes can assume federally delegated authority to administer CAA programs. Three Tribes have implemented programs under delegated authority from EPA using the Direct Implementation Tribal Cooperative Agreement (DITCA): the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Navajo Nation.

Tribes also implement numerous programs, without Tribal Implementation Programs (TIPs) or delegations, to protect the health and welfare of their communities and citizens. Many Tribes use sovereign Tribal authority to address local air quality concerns such as implementing open burning regulations, imposing fugitive dust rules, or regulating local pollution sources such as agricultural operations and mining activities. Many of these activities are funded in part with grant funds from EPA.

In 2009, President Obama signed a Memorandum for the Heads of Executive Departments and Agencies on Tribal Consultation stating that pursuant to Executive Order 13175, executive departments and agencies must engage in "regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications" (Office of the Press Secretary, 2009). This memo was subsequently translated into specific directives in the 2010, "Guidance for Implementing E.O. 13175" document, which mandated, among other things, that executive departments and agencies consult with Tribes in a timely manner during rulemaking (OMB, 2010). Increasing Tribal involvement in the development and evaluation of EPA's rulemaking and implementation will require considerable funding and resources, however it is necessary to ensure continued Tribal participation in rule development and implementation.

Tribal air programs also focus on education and outreach as a major element of their programs. These programs have found innovative ways to inform Tribal citizens about the quality of the air that they breathe on a real-time basis. Innovative approaches for communicating information about air quality include electronic notifications regarding air quality using the AIRNow website, the Air Quality Index (AQI), the EPA-funded Tribal Exchange Network (TREX), Tribal website postings, state air quality websites, and non-technology options such as AQI color coded flags and sign boards to indicate the local air quality.

It is important to note that Tribes and their citizens' access to digital technology and resources such as the internet and email vary from Tribe to Tribe. Many Tribes enjoy high-speed internet access throughout their reservation with most households having access to computers and the internet. Other Tribes, such as the Makah Tribe, Quinault Indian Nation, Hopi Tribe, and the Navajo Nation, which have significant air pollution sources on or near their reservations, have limited or intermittent access to internet technology[2]. Nevertheless, Tribes are communicating the status of their air quality using both high- and low-technology methods.

Program Development and Capacity Building Recommendations:
EPA has come to the forefront as a model on federal-Tribal consultation; NTAA urges EPA to maintain this process in all its interactions with Tribes.
Provide resources and support for Tribal data analysis and technical trainings.
Increase CAA grant funding to enhance existing programs and support new programs within Indian Country.
Increase funding for Tribal permitting programs under the Tribal New Source Review rule, Prevention of Significant Deterioration (PSD), and Title V Operating Permit programs.
Increase funding to maintain and enhance the nationwide Tribal air pollution monitoring networks assessing for particulate matter, ozone, sulfur dioxide (SO_2), nitrogen (NO_x), lead, ammonia, and air toxics.

Alaska Native Villages

Alaska has 229 federally recognized Tribes, though only one of these Tribes has designated reservation lands. The matter of land base factors centrally into the discussion of federal support for Alaska Native air programs, without which said programs would not exist. All Alaska Native Villages are eligible to receive CAA funding, particularly 103 grants, however it is unclear whether the 228 Alaska Tribes without reservation lands are eligible for 105

[2] NTAA recently provided feedback to EPA on the proposed requirement to submit all grants to the website, www.grants.gov. Many Tribes with limited access to high-speed internet connections would not be able to apply for grants. Though NTAA has worked to educate EPA officials about the challenges faced by Tribes, a workable solution has yet to be developed and implemented.

grants. The Alaska Native Tribal Health Consortium's (ANTHC) mini-grant program is an example of a funding mechanism available to Alaska Native Villages, which has been very well received by Tribal partners. The grant disperses funding support for "air quality projects in rural tribal communities" using CAA 103 grant monies (ANTHC, 2013).

One of the leading air pollution problems within rural Alaska and its Native Villages is fugitive dust. Tribal populations suffer from high rates of asthma and respiratory problems, with elders and children suffering the most. Managing fugitive dust from unpaved roads in Native Villages is an ongoing challenge.

In addition, there are several proposed developments for mining, energy production and transportation. These industries are of deep concern to Alaska Native Villages because air emissions from mine sites and fossil fuel production have the potential to degrade the air quality and impact respiratory health in the surrounding communities.

Air Quality Programs in Alaska Native Villages Recommendations:
Partner with Tribal air quality programs in Alaska to explore viable, sustainable funding sources and mechanisms; Consult directly with Villages and with ANTHC to evaluate the advantages/disadvantages of current and past funding approaches in order to develop successful strategies for supporting Alaska Native air programs
Consider set-aside CAA 103 and/or 105 funding to support Tribal air programs in Alaska Native villages
Increase funding for Alaskan Tribes air quality programs

Effective Partnerships

Tribes know it is critical to maintain good working relationships and coordination between Tribes and non-Tribal partners. A national priority for Tribes is to obtain consistent funding for all Tribal air programs. This need can be better demonstrated by fostering more partnerships with non-Tribal partners.

Agencies like the Indian Health Service (IHS) and Centers for Disease Control (CDC) should become more active in assisting Tribal air programs. The U.S. Department of Housing and Urban Development (HUD) could provide more assistance on energy efficiency and indoor air quality concerns. The Department of Energy (DOE) could assist Tribes in the development of renewable energy resources. The potential for Tribes to develop partnerships with state and local governments as well as with non-governmental

organizations is great. Tribal involvement in Regional Planning Organizations (RPOs) has demonstrated such potential.

Tribes have also participated in multi-jurisdictional air quality projects such as the Joint Air Toxics Assessment Project (JATAP) in the Phoenix Metropolitan Area, along with the Institute for Tribal Environmental Professionals (ITEP), and several other partners. These multi-jurisdictional projects can serve as a model for other areas and agencies that have a desire to work together cooperatively to assess and address a common air quality concern.

Regional Planning Organizations (RPOs) are another important partnership mechanism for Tribes. RPOs were established because of national visibility concerns and the need to address certain air issues at a regional level. Regional air issues have been a longstanding issue with Tribes, states and EPA. Therefore, Tribes have actively engaged in the RPOs on a consistent basis.

Tribes across the country are faced with many air quality issues that involve long-range transport of air pollutants including PM, nitrogen oxide deposition, ozone, mercury deposition, and other air toxics. The results of long-range transport of air pollutants contribute to unhealthy ecosystems and public health. Tribes must address these issues with state, federal, and local partners because Tribes alone do not have the resources to conduct the modeling, monitoring and emissions inventory work necessary to perform the type of regional analysis that takes into account the many emission sources outside Tribal jurisdictions that impact Tribal populations.

Benefits from Tribal participation in RPOs include:

- Opportunities to shape federal, state and Tribal regulations regarding air quality.
- Opportunities to interact with federal, state and Tribal officials to learn about new developments or what technologies are available currently.
- Opportunities to make a difference at a local and regional level.
- Develop and foster relationships/partnerships with neighboring jurisdictions to collaborate on policy and technical issues.

Tribes view continued support and continuation of RPOs as a necessity.

Effective Partnerships Recommendations:
Encourage EPA regions, other federal agencies, and state agencies to work cooperatively with Tribes on environmental protection and air quality initiatives.
Restore funding to RPOs.
Build upon the successful structure of RPOs to focus on other regionally based air quality issues that could benefit from a similar approach.

Accomplishments of Tribal Air Programs

There are a variety of regulatory programs that Tribes may choose to develop and implement. Examples include CAA Programs such as the Title V Operating Permit Program, the New Source Review (NSR) Program and development of TIPs. These activities can be submitted to EPA for approval to make these requirements federally enforceable.

- Five Tribes have submitted regulations to EPA for approval. These regulations related to three TIPs and two permit programs that include Title V and NSR requirements.
- Six Tribes have delegation of a federal rule. Four of these Tribes have delegation of the Region 10 FARR rules and two have delegation of the Title V (part 71) Operating Permit program.

See Table 3., *National Tribal Regulation Submittal Summary Report*, for details on Tribal regulatory activities

Grants

Tribes compete for federal grant funds in order to establish, build, and maintain air quality programs. Unfortunately, CAA funding has slightly decreased over the past several years at the same time that the number of Tribes competing for such funding has increased. As such, a growing number of Tribes have been forced to rely on General Assistance Program (GAP) funds to carry out air quality activities including baseline assessments and EIs. It is also important to note that many Tribes obtain support in the form of staff and/or cash contributions from Tribal governments' operating budgets to support air quality activities. However, most Tribes are unable to provide contributions to their air quality programs due to limited resources and the significant needs of basic services for Tribal members. Table. 4., *National Tribal Grant Summary Report,* provides a snapshot of grants issued to Tribes in the third quarter of FY2014. The number of grants is larger than the number of Tribes due to overlap between subsequent grants to the same Tribe. It is important to note that the table only reflects CAA grants and not funds provided by GAP.

STAG Funding

State and Tribal Air Grants provide the majority of funds available to Tribes for air programs.

Indian GAP Grants

Indian GAP grants provide only enough funding for baseline assessments and some restricted training, education and outreach efforts on the part of Tribes.

Permitting Programs

Currently, there is very little data on the number of pre-construction permits in Indian Country. This is due to the fact that EPA only promulgated the Tribal NSR rule in June 2011. Permits are issued under the PSD program, the FARR in Region 10, and CAA Title V Operating Permit program. These permits are listed by EPA Region in *Table 5., National Tribal Permit Summary Report by Permit Type/Category*.

Emissions Inventory (EI)

Baseline air quality assessments and Tribal EIs are developed for different reasons and often are the first formal steps that a Tribe takes after obtaining EPA grant funding for air quality activities under a CAA section 103 or 105 grant or GAP grant. Table 6., *National Emission Inventory Tribal Totals,* illustrates the breakdown of the number of Tribes versus the number of completed EIs. It is important to note that the numbers only represent data that has been submitted to EPA Regions and there may be more EIs completed than indicated.

The National Emissions Inventory (NEI) is prepared every three years by EPA and is based primarily upon emission estimates and emission model inputs provided by state, local, and Tribal air agencies for sources in their jurisdictions and supplemented by data developed by EPA. The data produced in each Tribal EI contributes to an overall understanding of regional air quality.

Monitoring Programs/Data Sharing

Tribal air quality monitoring programs have evolved significantly over the last 10-15 years. The number of Tribes conducting monitoring activities and submitting data to the EPA AQS, the types and sophistication of the monitoring activities, and coordination with neighboring jurisdictions continues to change and evolve at a dramatic pace (see Table 7.A.). Some Tribal air quality programs have monitoring as a major component of their program and contribute to regional and national monitoring networks. Others are monitoring various criteria pollutants along with meteorological data. Some Tribes have begun to monitor for air toxics and there is a growing concern regarding indoor air quality that Tribes are trying to address, with limited EPA funding.

In Table 7.B., a lack of data is reflected for EPA Region 7 due to the fact that no Tribal air quality data is currently being submitted to AQS. This does not mean that there is no air

quality data being collected by Region 7 Tribes. In fact, Region 7 Tribal air gathering ambient air monitoring data in the following ways: IMPROVE-protocol sampler, NADP/MDN monitors, and CASTNET site. Additional monitoring plans in Region 7 include Passive ammonia (NADP) samplers and continuous $PM_{2.5}$ monitors.

Tribal Participation in National Monitoring Programs[3]

Sixteen Tribes are participating in national networks with a total of 26 monitoring sites:

8 - IMPROVE Monitors
7 - NADP/MDN Monitors
3 - CASTNET Monitors
2 - NCOR Sites
4 - NADP/NTN Monitors
2 – NADP/AIRMoN

By participating in these monitoring networks, Tribes gain tremendous insight into the health of their airsheds and play an important role in advancing the availability of regional air quality data.

Tribal Participation in School Air Toxics Monitoring Program

EPA has recommended air quality monitoring at 63 non-Tribal schools around the country as part of an initiative to ensure that children are breathing healthy outdoor air. EPA identified schools for monitoring based on information that raised questions about air quality that merited investigation.

Most Tribal schools could not be considered in the monitoring analysis due to limited information on both Tribal schools and Tribal EIs. EPA found that the lack of information did not necessarily mean there is not a problem in Indian Country. EPA identified two Tribal schools (Southern Ute and Nez Perce) to initiate the monitoring effort. Both Tribes have completed initial monitoring. The equipment was provided by

[3] The IMPROVE, Interagency Monitoring of Protected Visual Environments, network measures visibility; NADP/MDN, the National Atmospheric Deposition Program is a research project housed at the University of Illinois and the Mercury Deposition Network is a cooperative research program; CASNET, the Clean Air Status and Trends Network, is measures long-term regional trends in sulfur and nitrogen pollutants; NCor, is a multi pollutant monitoring network for pollutants including PM, carbon monoxide, SO_2, and ozone; AIRMoN, the Atmospheric Integrated Research Monitoring Network, sites operate are a part of the NADP and measures wet only deposition of air pollutants as well as precipitation.

the Tribal Air Monitoring Center (TAMS) and was redeployed to three additional Tribes. Table 8., *Tribal School Air Toxics Monitoring Efforts,* lists Tribes that are in the process of or have completed school air toxics monitoring.

Monitors will continue to circulate to interested Tribes until funding is depleted. When a Tribe has completed its monitoring, EPA reviews the data with the Tribe and if there are any issues, the Tribe works with the regional EPA office, the Office of Air Quality Planning and Standards, and the Office of Enforcement and Compliance Assistance to determine appropriate actions or next steps that the Tribe may wish to take. In some cases, there may be additional monitoring, targeted enforcement, permit and regulatory actions, or community initiatives.

Diesel Retrofits

The Diesel Emissions Reduction Act (DERA), which was authorized by Title VII, Subtitle G Sections 791 to 797 of the Energy Policy Act of 2005, enabled EPA to offer awards to eligible organizations and entities, including Tribes and Tribal organizations, to fund projects that achieve significant reductions in diesel emissions from on-highway or non-road sources. EPA and Tribal governments have successfully collaborated to provide reduced emission diesel fleets and school buses to Tribes. These numbers continue to grow as more Tribes participate in diesel retrofit programs (see Table 9., *National Tribal Diesel Work Summary Report for FY 2011-2013*, for details on Tribal DERA awards in the past several years).

Tribal Air Program Concerns

Disproportionate Impacts to Tribal Communities from Air Pollution

The "Memorandum of Understanding on Environmental Justice and Executive Order 12898" provides that, “All too often, low-income, minority and Native Americans live in the shadows of our society's worst pollution, facing disproportionate health impacts and greater obstacles to economic growth in communities that can't attract businesses and new jobs (U.S. EPA, 2011).” The broad effects of air pollution directly affect Tribal life ways in unique ways. It is critical that Tribes have strong regulatory and policy tools at their disposal to thoroughly protect the health of their populations from on and off-reservation sources of air pollution.

Tribes in National Ambient Air Quality Standards (NAAQS) Nonattainment Areas

Nonattainment areas are areas that have greater pollutant amounts than allowed by the NAAQS standards for criteria pollutants. These areas may also exceed the standards for HAPs. Maintenance areas are locations where non-attainment has been identified and a plan is in place to reduce pollution to the NAAQS standards.

There are several Tribes that occupy lands in (or are partially located in) nonattainment and maintenance areas. Tribal lands in nonattainment and maintenance areas are identified in the EPA Regions in Table 10., *National Summary of Nonattainment or Maintenance Areas Containing Tribal Lands.*

Disproportionate Impacts of Air Pollution to Tribal Communities Recommendations:
EPA, CDC and IHS must work more closely with Tribes to (1) evaluate/assess adverse health outcomes related to air pollution in Tribal communities, and (2) develop and implement strategies to reduce these deleterious impacts.

Limited Control Over Off-Reservation Sources

Off-reservation sources: Many of the primary air pollution impacts to Tribes come from off-reservation sources. EPA should support funding for Tribal analysis of these off-reservation sources and their impacts to individual Tribes. If EPA cannot provide direct technical assistance to Tribes individually to assess the cumulative impacts of off-reservation sources, RPOs provide Tribes with the next best alternative through which this analysis can be provided to Tribes. RPOs help bring together the monitoring and modeling resources necessary to characterize the transport of pollutants to Tribal lands. Further, RPOs provide an excellent forum to develop relationships between Tribes, states and federal agencies.

Limited Control over off-reservation sources Recommendations:
Establish a set aside fund for Tribal air quality impact scoping efforts
Conduct an analysis of off-reservation sources and their impact to individual Tribes

Priorities for the Management of Tribal Ambient Air Quality

In 2014, NTAA regional representatives consulted with member Tribes in their respective regions and identified the top priorities. These priorities are listed below in order of EPA region. It is important to note that these priorities do not constitute a comprehensive list

of concerns for all Tribes within a region, but merely a synthesized list of the 2014 regional priorities. They are developed in response to the needs and concerns of Tribes and are updated annually.

Alaska Priorities:

- Capacity building and funding
  - To conduct indoor/outdoor air quality assessments vs. emission inventories
  - Needs support from EPA
- Fugitive dust from large scale mining
- Road dust (PM)
  - Rural road system is gravel; Majority of vehicles are ATVs
- Climate change impacts on Villages
- Open burning in rural Alaska
  - Outreach to Tribal leaders on effects
- Funding language
  - Alaskan Villages vs. "Reservations"
- Radioactive pollution/fallout from the Fukushima disaster

Region 10 Priorities:

- Ambient Air Quality
- NAAQS & Toxics
  - Atmospheric Deposition
  - Coal, Oil and Gas Train/Barge Transport
- Regulatory
  - FARR Revision Process
  - Regional Haze Rule Implementation
  - Tribal NSR Implementation
  - Support for Title V permit reviews
- Smoke Management Coordination (Wildfires & Prescribed Burning)
- Increase Overall Funding
  - Grants.gov
  - Separate IAQ and Climate Change, do not take away from existing funds
  - Tribal Capability & Capacity Increasing, Success Limited by Funding
  - Enforcement – No OECA Funds for Inspectors
  - Radon Funding Cut
- Indoor air quality (Mold, Woodstoves, Radon, pests)
  - Need resources identified for mitigation
  - Training on building/sanitation codes
  - Building inspectors

Region 9 Priorities:

- Funding
- Air programs for all Tribes who request them

- Streamline designation process
- Consistent relationships between Tribes, EPA R9 Air Division, and Headquarters
- Recognition of the Tribal Authority Rule
- Realization that the majority of bad air is from off-reservation sources
- Emphasis Tribal indoor air within a broader scope
- Training, tools, and resources for Tribes

Region 8 Priorities:

- EPA post schedule Through-The-Probe Audit and Performance Evaluation Audits
- Las Vegas Lab Radon Survey Service
- IMPROVE and Mercury Data
- Oil and Gas Development and Regulation
- QAPP concerns

Region 7 Priorities:

- Radon Implementation and Mitigation
- Indoor Air Quality (IAQ)
- New Air Monitoring Technology
- Fiscal Year 2014 Region 7 Notification of Funding Availability for Clean Air Act Section 103/105 Funding (NOFA)

Region 6 Priorities:

- Funding
- Hydraulic Fracturing
- Climate Change as it's own media
- Treatment As State-more EPA support for Oklahoma Tribes
- NCORE Sites-Better support with Filter based requirements and data certification issues
- AQS Support for Data Certification-Ask for consistently trained support staff
- Two Year QAPP Approval
- Radon
- Indoor Air
- NSR Training Support

Region 5 Priorities:

- Monitoring and Data Analysis
  - Air Toxics, PM, O3, Mercury
- Education and Outreach to Tribal Members
- Tribal mNSR
  - 1,000 letters sent ~ 56 registered ~ 1 Tribal mNSR permit ~ 7 pending
- Mercury
  - Production, Deposition, Impacts and Regulation
- Alternative Energy and Energy Efficiency
  - Relations to air quality

- Unique Mining Impacts to R5
  - Ferrous and non-ferrous
  - Sulfide side effects on environment
  - Aggregate mining – sand mining for use in hydraulic fracturing and transport
- Lack of resources for new Tribal Air Programs
  - Tribal Air Resources Journal approximately 28 Tribal entries, 14 have EPA funds
- Air Modeling and Risk Assessment
  - Better understand EIS and Permits
- RPO Involvement - LADCO Technical Team
  - Ozone study, training/education, Tribal involvement
- Impacts of non-attainment in ceded territories

Region 4 Priorities:

- Air Program Development and TAS
- Indoor air quality
- Climate Change research/ adaptation planning incorporating Tribal Knowledge (TEK)
- Increased dust pollution from drought caused by climate change
- Pollution from hydraulic fracturing of natural gas deposits
- Mercury
- Increase Tribal Participation with Region 4 EPA

Region 2 Priorities:

- Climate Change Adaptation and Planning
- Hydraulic fracturing of the Marcellus Shale formation
- Alcoa and other industries with effects on Saint Regis Mohawk Tribe at Akwesasne
- Mobile Sources
  - Emissions from the international shipping industry; on-road/non-road
- Indoor air quality

Region 1 Priorities:

- A lack of federal Trust Responsibly; Due to the Carcieri legal decision, a Tribe is not eligible for air quality program funding
- Additional funding for air quality program
- Tribes would rather have stack testing conducted every 5 years instead of every 3 due to limited resources
- PCB contamination
- Building capacity and requests for MDN component
- Landfill gas/energy production
- East-west highway to split Maine through Tribal lands.
- International refinery emissions
- Unmet needs in air program personnel
- TIP compliance issues

Several of the most frequently identified priorities are discussed in greater detail below.

Expansion of Monitoring Networks

Too often in the past, Tribes were denied air quality monitoring support because it was stated that, "there is no data to indicate a problem." However, the lack of data simply indicates a need for data that is currently unavailable. Existing networks can help with or hinder it if it can be inferred from distant monitors (with or without modeling) that a Tribe has no cause for concern. To further develop and enhance Tribal air quality protections, EPA should establish a set aside fund for Tribes to utilize in scoping whether existing national and other monitoring networks are truly "representative" of air quality on their reservation.

There is currently a notable deficiency in available air quality data for Tribal air sheds. Strengthening the research and analysis of Tribal air sheds to provide a better analysis is needed for long-term air quality evaluation and improvement. The NTAA believes that an increase in representative analyses (data obtained from air monitors) combined with health-based studies is necessary so that all Tribes know the condition of the air quality of their air sheds and its impact upon Tribal health.

There are relatively few sources of air pollution located on Tribal lands. Nevertheless, Tribal populations often live in close proximity to sources nearby i.e. (ITEP, 2013)[4]:

- 55.4% of Tribal populations live within 50 miles of major mercury sources;
- 82.3% of Tribal populations live within 50 miles of major NO_x sources; and
- 65.8% of the population on Tribal lands lives within 25 miles of PM_{10} point sources.

Currently, more and more Tribes are facing increased pollution from the development of energy resources and power plants on or near their lands. This, in addition to the factors listed above, makes it imperative that the funding for Tribal air programs be increased.

Supporting Tribal Management of Ambient Air Auality Recommendations:
Continue support for ITEP and its air quality technical assistance program the TAMS Center.
Continue funding for TEISS software and training; Disseminate TEISS free of charge to Tribes and provide training on how to utilize the software.
Assist Tribes with technical support and training for implementation of Tribal programs

[4] Data compiled in 2005.

Air Toxics

❖ Bioaccumulation of Toxics

Air toxics are HAPs that can cause cancer, birth defects, and other serious health problems. The CAA Amendments of 1990 required EPA to regulate the emissions of 188 HAPs. Examples of HAPs include benzene found in gasoline; perchloroethylene emitted by some dry cleaning facilities; and methylene chloride, used as a solvent and paint stripper by a number of industries. Examples of other listed HAPs include dioxin, asbestos, toluene, and heavy metals such as cadmium, mercury, chromium, and lead compounds. EPA is working in partnership with Tribal, state, and local authorities to reduce HAP emissions from all sources in order to better protect public health, the environment, and Tribal culture.

Many of these HAPs bioaccumulate. Bioaccumulation refers to the accumulation of substances such as pesticides or other organic chemicals in an organism. Bioaccumulation occurs when an organism absorbs a toxic substance at a rate greater than it can eliminate it. The longer the biological half-life of the toxin, the greater the risk of chronic poisoning. This occurs even if environmental levels of the toxin are not very high.

HAPs such as mercury and lead can bioaccumulate within people and pose potential health risks. Bioaccumulation of HAPs in the food chain can impact human health by consumption of those contaminated food sources. Tribal culture is impacted through such traditional practices as subsistence living, basket weaving, and pottery making. More research is needed on the potential risks and impacts of exposure to "cocktails" of HAPs and the risks they can pose on Tribal communities and environments.

Air Toxics Recommendations:
Secure $3 million in funding to help expand Tribal research on mercury transport and atmospheric deposition including research on effects of atmospheric deposition of chemicals in the food chain of Tribal subsistence foods.
Work with Tribes to implement a Mercury Strategy that involves the characterization of fish water and sediment levels, characterization and control of regional mercury sources, and public education and outreach.
Fund and implement strategies to mitigate human health impacts from HAPs in Alaska Native Villages.

❖ Persistent Organic Pollutants (POPs)

Persistent organic pollutants (POPs) are chemical compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. As

such, they persist in the environment for long periods of time, to be capable of long-range transport, to bioaccumulate in human and animal tissue, to biomagnify in food chains, and to have potential significant impacts to human health and the environment. One of the primary concerns for Tribes regarding POPs is the contamination of key subsistence species with these toxic chemicals.

Indoor Air Quality

In 2014, the NTAA identified indoor air quality (IAQ) as one of the national priorities for Tribes. An important reason that IAQ was deemed a national priority is the fact that Tribal communities have higher than average rates of asthma and other respiratory illnesses (Schiller, Lucas, & Peregory, 2010). In addition, NTAA recognized the substantial role that IAQ can play in exposures to harmful pollutants for Tribal community members. Whereas criteria and HAPs are regulated under federal law, IAQ is not currently subject to federal pollutant standards. Further compounding the health concerns associated with indoor exposure is the fact that on average, Americans spend about 90% or more of their time indoors. Indoor air pollutant levels may be two to five times higher, and in some instances more than 100 times higher than outdoor levels (U.S. EPA, 2012). Tribal peoples bear a considerable IAQ burden given the high prevalence of respiratory illness as well as the high prevalence of inadequate housing conditions (Housing Assistance Council, 2013). These factors combined create a clear imperative for advancing IAQ programs in Indian Country.

Tribal Housing

The 2009, the U.S. Department of Health and Human Services published the "Surgeon General's Call to Action to Promote Healthy Homes". The report stated that, "many of the disparities in health status among subpopulations may be linked to poor access to safe and healthy homes, which is most prevalent among lower income populations, populations with disabilities, and minority populations" (DHHS, 2009). In late 2013, the Housing Assistance Council, a nonprofit organization that advocates for affordable and adequate housing in rural America, released a report titled "Housing on Native American Lands." The report clearly outlined many of the housing-related inequities that exist in Indian Country and stated that inadequate housing, overcrowding, and poverty often exist at higher than average rates on Native American lands (Housing Assistance Council, 2013). The report also described a scarcity of acceptable, affordable rental properties on Tribal lands. For instance, on Rosebud Reservation in South Dakota where rates of unemployment and residence overcrowding are high, "there were 816 occupied rental properties… with a waiting list of over 400 individuals (2013)."

Environmental Factors

As the previous section illustrates, Tribal housing is often located in rural, isolated areas that may be subject to extreme climatic conditions. For instance, some Alaska Native communities, such as Point Hope, Kiana, and Pilot Point, endure harsh winters which may include extreme cold temperatures below -50° F (Brubaker et al., 2010; Brubaker et al., 2013; Brubaker & Chavan, 2011). In stark contrast, central Arizona Tribes may experience ambient temperatures in excess of 100° F throughout the summer months (National Weather Service Forecast Office, 2014). These conditions are conducive to greater time spent indoors by Tribal populations where pollutant concentrations may be much higher.

Energy Efficiency/Weatherization vs. Ventilation

In response to these harsh climates, Tribal community members may seek to weatherize or more tightly seal their homes from outdoor air. Weatherization is an excellent tool for maintaining a climate-controlled environment indoors as well as saving money on heating and cooling expenses.

Although there are clear economic and environmental incentives for completing weatherization (DOE, 2013), it is critical to also incorporate sufficient ventilation. Indeed, proper ventilation is needed to ensure that outdoor air dilutes the airborne contaminants within the home. "This is why health effects caused by indoor air pollution are often called 'tight building syndrome' or 'sick building syndrome'" (Illinois DPH, ND); they are largely the result of insufficient ventilation.

Asthma and Respiratory Health

American Indian and Alaska Native populations suffer from high rates of asthma and respiratory illness (Moorman, Person, & Zahran, 2013; Schiller, Lucas, & Peregory, 2010). Asthma alone affects around 10.8% of American Indians/Alaska Natives, whereas the national average of asthma prevalence is only 8% (2013). Furthermore, among current asthma sufferers, American Indian/Alaska Natives (AI/AN) had the highest reported incidence of asthma attacks among all major demographic groups surveyed (2013). The aforementioned statistics provide a national overview of asthma rates within the AI/AN population, but for some Tribal communities, asthma and respiratory illness rates are far greater. In Alaska for instance, several staggering statistics have been identified regarding respiratory health of Tribal members: About 1 in 4 Alaska Native infants from the Yukon-Kuskokwim Delta are hospitalized each year for acute respiratory infection (Hennessy, et al., 2008); When compared with the general US population, Alaska Native children have 5 times more acute respiratory infection and 11 times more hospitalization for pneumonia

(2008); Alaska Native Children from the Yukon-Kuskokwim Delta have among the highest rates of respiratory invasive pneumococcal disease ever documented (Wenger, et al., 2010).

Geographic Isolation

One common characteristic of Tribal lands throughout much of the United States is geographic isolation. This presents a major concern for Tribes as it impedes access to emergency medical care (IHS, 2000). IHS describes most Tribal reservation lands as rural or "frontier areas" in which the following characteristics significantly hinder the provision of adequate emergency medical services to residents: available resources, physical constraints of isolation, sparse population, and topographical/climate conditions (2000). Effective IAQ programs within Tribal communities are critical, particularly given the high rates of asthma and respiratory illness (Moorman, Person, & Zahran, 2013; Schiller, Lucas, & Peregory, 2010) amongst American Indian and Alaska Native populations and the obstacles to accessing emergency medical services.

Woodstoves for Affordable Heating

Air quality concerns are further exacerbated by non-EPA certified woodstoves used as heating sources within the home and burn barrels. Woodstoves are often the only heat sources available to Tribal members when presented with the prohibitive costs of home heating oil and diesel fuel in the rural villages. Many Tribal members use wood burning devices – typically older, non-U.S. EPA certified woodstoves and fireplace inserts – as a significant source of heat in their homes, and are routinely exposed to wood smoke from both indoor and outdoor air. For instance, "about 95% of the Makah Tribe's members… living on or near the reservation burn wood to heat their homes, which yields approximately 35 tons of particle pollution into the Tribal air shed" (Hearth, Patio & Barbecue Association, 2009).

Wood smoke contains many unhealthy air pollutants and is composed of wood tars and gases as well as soot and ash particulate (U.S. EPA Region 10, 2012). The particulate matter and other pollutants produced by burning wood can trigger asthma attacks and even lead to infectious respiratory disease (2012).

Indoor Air Quality in Indian Country Recommendations:
Provide funding for concerted IAQ outreach and education efforts in Tribal communities
Fund technical support programs within Tribal communities that can provide on-the-ground assistance to residents
Assist Tribes with asthma and radon concerns to locate resources and collaborative intra-agency work being done on these issues.
Assist Tribes in utilizing resources developed by established organizations with IAQ expertise, like ASHARE, to help inform Tribal IAQ management practices (i.e. ASHRAE Standard 62.1-2010 – Ventilation for Acceptable Indoor Air Quality [ANSI Approved])
Provide training to Tribes on IAQ assessments and creative solutions for IAQ management in Tribal facilities (i.e. allocating monies for IAQ management into operations and maintenance budgets for Tribal facilities)
Continue to fund woodstove change-out programs (see Appendix C., p.48)
Advance national policy pertaining to new source performance standards (NSPS) for wood burning stoves that reflect current pollution mitigating technologies and serve to protect health

IAQ – Tribal Priorities/Recommendations

One of the primary IAQ challenges facing Tribes is the lack of funding and technical expertise to address indoor air quality. There is a continued need for training, monitoring, and inspection equipment and resources for Tribal air professionals to respond to requests from Tribal members for indoor air quality assessments. These assessments are crucial for determining what IAQ issues are present in the homes of Tribal members and for developing subsequent mitigation strategies. Many Tribes have attended initial training, but lack the resources to implement a program.

In addition, several Tribes have received radon grants to support awareness, measurement, and mitigation demonstrations. However, these grants were nearly eliminated in the Fiscal Year (FY) 2013 and FY2014 EPA budgets. As the Spokane Tribe's Air Quality Specialist Twa-le Abrahamson testified to Congress earlier this year saying, "Since 2004, over 30 Tribes/Tribal consortia have participated in the State Indoor Radon Grant (SIRG) program. The approximate total value of Tribal SIRG Awards is $3,100,000. In fiscal year 2013, EPA awarded grants to 10 Tribes with a total value of $304,000. This only represents about 4 percent of the total SIRG budget of $7.32 Million for FY13."

Mitigation of indoor air issues continues to be a hurdle that Tribes face due to limited EPA funding for mitigation activities and the numerous competing initiatives for scarce Tribal

funds. As Ms. Abrahamson pointed out in her testimony, "SIRG provides an ongoing education effort that is really one of the few tools that a voluntary national program has to address a serious health risk in over 30 unregulated radon states. It is truly a success story. All 45 State radon programs and approximately 30 Tribal programs have relied and do rely on SIRG to support radon awareness and education of our citizens."

Typically these programs lack the necessary expertise, diagnostic tools, or resources to effectively address indoor air quality concerns and the complaints of Tribal members. Most Tribes do not have the resources (human and financial) necessary to operate both ambient and indoor air programs due to EPA funding priorities under the Clean Air Act. For this reason Tribal ambient air programs are more common and have a significantly higher level of expertise and funding although there are significant unmet needs in the IAQ area as well. There are Tribes that have opted to focus on IAQ instead due to major community health problems.

There are several key IAQ parameters that require attention in Indian Country in order to ensure safe and healthy indoor environments for Tribal communities: radon, mold, asthma, particulate matter (PM) from wood smoke, carbon monoxide (CO), and carbon dioxide (CO_2). Additional information on these parameters can be found in *Appendix C. Indoor Air Quality in Tribal Communities.*

Climate Change Impacts to Tribes

In 2009, NTAA produced a report on the impacts of climate change in Indian Country (NTAA, 2009). The report was developed in response to a request made by then-Office of Air and Radiation Assistant Administrator, Gina McCarthy, and provided an overview of regional climate change impacts; resulting consequences for Tribal resources and communities; a detailed set of recommendations for federal agencies; and a description of the climate-focused research needs of Tribes (2009). Since the publication of that report five years ago, several critical advances have been made in the effort to secure support and funding for Tribal climate adaptation efforts (listed below). Nonetheless, much more support is needed to assist with the development of Tribal climate resiliency and adaptation strategies.

Climate Impacts are Disproportionately Felt by Tribes

Tribes may be disproportionately impacted by climate change (U.S. DOI, 2009) for a variety of reasons including their deeply rooted reliance on and connection to the natural environment (Curry et al., 2011); the geographic isolation of many Tribal lands; and the

nature of Tribes' place-based cultural identities. For many reasons including those outlined above, Tribes are especially vulnerable to climate change impacts (Northwest CSC, 2013).

Impacts to Culture

Climate impacts to Tribes' natural and cultural resources are already being felt throughout the nation (Curry et al., 2011; ITEP, 2012; NTAA, 2009; Tribal Climate Change Project, 2014). In October 2013, the journal *Climatic Change* published a special issue: "Climate Change and Indigenous Peoples in the United States: Impacts, Experiences and Actions" (Climatic Change, 2013). The 13 articles contained in this special issue detail climate impacts on Tribal culture, water resources, wildlife, hydrology, human health, forests, human rights, and socioeconomic vulnerability (2013). Climate impacts to Tribal culture and resources are as variable as the regional climates and geography that characterize Tribal lands throughout the U.S. One important consistency exists though. Tribes across the country are contending with climate-driven impacts to their resources, landscapes, and consequently, their traditional lifeways.

Regional Climate Change Impacts

Information gathered from the ITEP Tribal Climate Change website (ITEP, 2012) and the U.S. EPA Climate Adaptation page **(U.S. EPA, 2014)**.

Alaska: There is coastal erosion; melting permafrost threatens civil infrastructure in remote villages as well as food security as underground food cellars thaw; and Alaska Native Villages are unique because they face firsthand the effects of climate change, which has already resulted in the relocation of several villages away from eroding coastlines. A 2003 U.S. General Accountability Office study identified more than 200 Alaska Native Villages affected to some degree by flooding and erosion and 31 villages facing imminent threats that are compelling them to consider permanent relocation. The U.S. Army Corps of Engineers' March 2009 Alaska Baseline Erosion Assessment identified many villages threatened by erosion, but did not assess flooding impacts. At least 12 of the 31 threatened villages have decided to relocate—in part or entirely—or to explore relocation options (GAO, 2009).

Northwest: Changes in hydrology and water chemistry impact fisheries resources and shellfish (ocean acidification); and storm surges threaten coastal areas and Tribal lands along the coasts, which may result in the possible relocation of Tribes.

Southwest: Increased aridity threatens vegetation that is critical for stabilizing sediments which can lead to greater more severe and frequent dust storms and dune mobilization.

Higher temperatures and increased droughts will lead to more intense forest fires and reduced grazing potential.

Plains: There are spreads of pests that previously could not survive cooler climates, potential increases in weed species due to more carbon dioxide in the atmosphere, higher temperatures, and changes in precipitation and decreases in soil moisture and water availability. The region's main water supply, the Ogallala Aquifer, is also threatened. Without alternative resources and better water management practices, projected temperature increases; more frequent droughts, and higher rates of evaporation are likely to further stress the water supply.

Great Lakes: Heat waves are becoming more frequent, cold periods are becoming more rare, and snow and ice are arriving later in the fall and melting earlier in the spring. Ticks and mosquitoes will survive in greater numbers as winters become milder and will increase the risks of spreading diseases such as Lyme disease and West Nile virus.

Gulf Coast: Projected sea level rise, increased hurricane intensity, and associated storm surges may lead to further erosion, flooding, and property damage in the Southeast.

Northeast: Projected increases in heavy precipitation and likely sea level rise may lead to more frequent, damaging floods in this region. Large portions of the region may become unsuitable for growing some fruit varieties and some crops, such as cranberries, apples, blueberries, grain, and soybeans. Similarly, by the end of the century, only a small portion of the Northeast may be suitable for maple syrup production. In contrast, the region could see a longer growing season for a number of other crops, which would provide potential benefits to society.

Priorities for Climate Change

The State Department's U.S. Biennial Report proclaims that, "climate change is no longer a distant threat" (U.S. Department of State, 2013). A great diversity in culture exists among Tribes based on their unique histories and particular geographic location. The effects of climate change vary greatly from bioregions due to varied geography, hydrology, and other factors.

As sovereign nations, Tribes strive to exercise fully their right of self-determination and to maintain their cultural identity, often in the face of severe economic, societal, and environmental challenges that confront them. Tribal sovereignty, culture, and way of life are profoundly tested by the added challenge of climate change. Tribes are disproportionately impacted by rapidly changing climates, manifested in ecological shifts

and extreme weather events, as compared to the general population, due to the often-marginal nature and/or location of many Tribal lands.

The high dependence of Tribes upon land and natural resources to sustain their economic, cultural and spiritual practices, the relatively poor state of Tribal infrastructure, and the great need for financial and technical resources to recover from events caused by climate change all contribute to this disproportionate impact on Tribes. Nevertheless, Tribes possess significant strengths and resiliency to meet these challenges.

Tribes must be an integral partner in whatever steps this Nation takes with respect to climate change. Further, sufficient funding is needed to study the impacts of climate change on Tribes, to enforce existing and future regulations to address climate change, and to support and enhance mitigation and adaptation methods regarding climate change.

The federal government and Tribes must give serious consideration to what impact climate change could have on Tribal treaty rights. Some Tribes have seen important cultural and subsistence resources, protected by Tribal treaty rights, disappear from their lands and migrate physically to other lands where Tribal rights to access such resources do not exist. Arguably, this shift in resources has been caused by the effects of climate change and will increase over time.

Tribes have succeeded in adapting the climatic variability since time immemorial. However, the rate of climatic change that is currently taking place is unprecedented within the past 1,300 years (NASA, 2014). Climate change threatens the natural resources, landscapes, and infrastructure that support traditional lifeways of Tribes throughout the country (Curry, Eichman, Stauft, Voggesser, & Wilensky, 2011). Innovative solutions are needed to mitigate and adapt to these impacts. Two complementary initiatives are needed for an effective climate intervention that ensures the conservation of Tribal cultures into the future: (1) Reduction of greenhouse gases (GHGs) and (2) development of climate adaptation strategies/comprehensive adaptation planning.

Support for Adaptation

The 2013 National Adaptation Forum (NAF) included a series of dedicated Tribal sessions focused on climate impacts in Tribal communities (Wall, 2013). Over 30 Tribal representatives attended and participated in the event and as a result, three Tribal working groups were created to address complex, Tribally-relevant issues pertaining to climate change: (1) Traditional Knowledge, (2) Mitigation, and (3) Adaptation.

In 2013, the BIA released a request for proposal (RFP) for projects geared toward increasing Tribal resiliency to climate impacts; BIA subsequently awarded more than $600,000 in grants to Tribes and Tribal consortiums working on climate change preparedness (Darling, 2014). According to the most recent RFP in 2014, BIA plans to fund approximately $600,000 in grants for Tribal adaptation, training, and travel support (BIA, 2014).

Resources currently available to Tribes for adaptation planning are extremely limited and generally insufficient. Additional support in the form of training and technical expertise is necessary to ensure that Tribes are able to develop and implement adaptation strategies in pace with the ever-changing climate. Improved communication and coordination between federal agencies and Tribal programs are key to ensuring that Tribes' climate-driven needs are met.

Mitigation of GHGs

Human-induced climate change can only be mitigated through the reduction of GHG emissions: carbon dioxide (CO_2), methane (CH_3), nitrous oxide (NO), and fluorinated gases. Even if CO_2 emissions, the most abundantly produced GHG, were to cease immediately, global surface temperature would remain constant for a couple of centuries (Frolicher & Winton, 2014). This means that the global average temperature increase of 1.85° F over the last century (Stocker, et al., 2013) would not be reversed for many decades (Frolicher & Winton, 2014). Furthermore this assumes the elimination of CO_2 emissions, which would require progressive and strict legislation to all but eliminate CO_2 emissions. The NTAA recognizes that this scenario is not feasible, realistic, nor even advisable. Measured approaches to mitigation through national policy are the best means of preventing further disruption of the normal climate system.

This year, the EPA is proposing two rules to regulate carbon pollution from new (79 FR 1429, 2014) and existing electric utility generating units (EGUs) in an effort to reduce CO_2 emissions from the power sector (U.S. EPA, 2014) (79 FR 1429, 2014). These rules hold much promise for climate change mitigation because, as Figure 1. illustrates, the electricity sector is a major source of GHG emissions, of which CO_2 is the most abundant GHG.

In addition, EPA continues to implement the phased Greenhouse Gas Tailoring Rule (Tailoring Rule) of 2010 in order to reduce several GHG from large emitters like power plant, refineries and cement production facilities. The Tailoring Rule focuses on the largest facilities responsible for nearly 70 percent of the national GHG emissions from stationary

sources to CAA permitting requirements under PSD and Title V permitting programs. Small farms, restaurants, and commercial facilities are shielded by this rule.

As of March 2014, over 150 PSD permits with GHG limits have been issued: 113 issued by states and 44 issued by EPA. Approximately 50 GHG-related PSD permit applications are currently being processed by EPA Regions. The Tailoring Rule includes a regulatory commitment to finalize a GHG 5-Year Study by April 30, 2015. Data gathered as part of the 5-yr study will help determine whether to lower the GHG permitting thresholds in the future. Tribes can provide feedback to EPA regarding their experiences within the first 5

Climate Change Impacts to Indian Country Recommendations:
Provide funding for Tribes to participate in climate change assessments and planning.
EPA regulatory actions must be preceded by sufficient government-to-government consultation between EPA and Tribes.
Provide incentives to Tribes to develop and deploy new technologies to protect and preserve their respective cultural and subsistence resources.
Provide Tribes with incentives to engage in energy efficiency and renewable energy development as a means to reduce greenhouse gasses.
Consult with Tribes on a government-to-government basis in rule promulgation, program development, and implementation of climate change activities to include assessments, monitoring, planning, impact assessments, mitigation, and relocations.
Make climate change a priority in Tribal communities and fully support voluntary and complimentary mitigation programs for and designed by Tribes.
Restore and expand support for Tribal science programs and such activities as regional assessments, adaptation research, lifecycle assessments, mitigation technologies, and sequestration.
Establish funding for relocation of Tribal villages
Increase funding for climate impact monitoring networks
Assistance with identifying/securing projection data
Ensure funding to support Tribal inclusion in regional organizations and inter-agency efforts related to climate change

years of implementation and help determine future regulation of GHGs (U.S. EPA, 2013).

Energy Development

Sustainability is the capacity to thrive without depleting that which it sustains. A number of Tribes follow a seventh generation principle: a decision or outcome of an action is weighed for its impact to people seven generations in the future. When applying the seven

generations principle, fossil fuel development does not appear to be a long-term solution. With respect to sustainable energy development, it is up to Tribes to define exactly what sustainability means to them.

Tribes across the country are witnessing the direct impact of long-term impacts of energy development on and off Tribal lands. Tribes face profound challenges to their cultures, economies, and health because of energy development.

Tribal lands are a significant source of the United States' non-renewable and renewable energy resources. These lands are estimated to possess nearly 30% of the coal reserves west of the Mississippi, 50% of the uranium reserves, and up to 20% of the known natural gas and oil reserves. These lands also may contain rare earth minerals increasingly sought after for use in manufacturing (Grogan, Morse, & Youpee-Roll, 2011).

Energy development and the burning of fossil fuels directly impact national air quality and, more broadly, the earth's climate. Impacts of energy development, production and burning of fossil fuels vary from Tribe to Tribe. Energy sources on or near Tribal lands can be either renewable, such as wind and solar power, or non-renewable, such as oil and natural gas. Not only does the development of non-renewable energy resources on Tribal lands provide economic opportunity for Tribes, but it can also provide needed utilities to Tribal and non-Tribal members (U.S. GPO, 2005). For other Tribes, the development of energy resources on or near Tribal lands may have undesired consequences for ecological and cultural resources as well as public health.

Mining, transporting, processing, storing, and burning of fossil fuels, all result in air quality concerns and potential health and environmental risks. Exercising the rights granted by the 1990 CAA Amendments and the TAR is an excellent way for Tribes to achieve a strong level of environmental and public health protections within their respective communities.

Coal Mining

Tribes located near major coal deposits, whether on Tribal lands or on neighboring jurisdictions, are contending with management challenges related to coal extraction. Much like oil and gas, most of the coal deposits within the continental U.S. are located in the Dakotas, the Colorado Plateau, Texas, the Ozark Plateau, and the Appalachian Mountain range (U.S. EIA, Interactive). Not surprisingly, many of the country's coal mining operations are located in these same areas, with the greatest amount of development in the Appalachian Mountains, the Rocky Mountain range, and the Colorado Plateau, in areas near or on Tribal lands (see Figure 2.). The top five U.S. coal producing states in 2012 were: Wyoming – 39%, 401.44 MMst (million short tons); West Virginia – 12%, 120.11

MMst; Kentucky – 9%, 90.58MMst; Pennsylvania – 5%, 55.03 MMst; Illinois – 5%, 47.94 (U.S. EIA, 2013).

According the BIA's Division of Energy and Mineral Development (DEMD), there are many occurrences of coal in Indian Country, in fact, DEMD claims that "over 50 billion tons of coal have been identified on Indian Land" (BIA DEMD, 2014). Employing natural resource management practices that are protective of human and ecological health is the prerogative of individual Tribes. While Tribal sovereignty must not be infringed upon, it is also imperative that environmental protections be implemented to mitigate climate change and ensure healthy air quality.

Oil and Gas Development

The DEMD generates Oil And Gas atlases for Tribes in Montana, North and South Dakota, New Mexico, Colorado, Utah, Wyoming (BIA, 2014).

As part of the Department of Interior's trust responsibility to Tribes, "the BLM supervises operational activities on 3,700 Indian oil and gas leases, and provides advice on leasing and operational matters to the Bureau of Indian Affairs, Indian Tribes, and Indian mineral owners" (BLM, 2014)

For more information on the BIA's Oil and Gas Outlook in Indian Country, please visit http://www.bia.gov/cs/groups/xieed/documents/document/idc1-024535.pdf

Natural Gas Extraction – Hydraulic Fracturing

According to an assessment of 137 shale formations in 41 countries, the U.S. ranked 2nd for technically recoverable shale oil resources (58 billion barrels) and 4th for technically recoverable shale gas resources (665 trillion cubic feet) (U.S. EIA, 2013). The principle natural gas yielding shale plays in the United States share a very similar geographic distribution to that of oil (see Figure 2.). The areas of shale occurrence are home to many Tribes that may choose to pursue, refrain from, or even oppose natural gas development. On May 24, 2013, the BLM released a revised proposed rule titled "Oil and Gas; Hydraulic Fracturing on Federal and Indian Lands" (BLM, 2013), which has implications for management of natural gas assets on Tribal lands, including the maintenance of air and water quality. It is imperative that Tribes be granted ample opportunity for government-to-government consultation on the matter of air quality impacts and protections required for responsible natural gas development on and adjacent to Tribal lands.

Air quality concerns for Tribes from oil and gas extraction:

- Regulation of VOCs, HAPs, GHGs, and other air pollution emissions associated with oil and gas extraction practices
- Support and technical resources for Tribes to develop effective permitting practices for new and forthcoming oil and gas extraction technologies

Coal-Fired Power Plants

Coal-fired power plants contribute substantially to CO_2 and other GHG emissions as well as mercury and other toxic metals (see Figure 3. for U.S. Coal Power Plant Locations). These facilities present an environmental management challenge for Tribes insofar as they can negatively impact subsistence resources through atmospheric deposition of toxicants and contribute directly to climate change. It is critical that Tribes be involved in dialog within air quality management districts and that they be granted ample opportunity to comment on national regulations pertaining to EGUs.

Air quality concerns for Tribes from coal-fired power plants:

- Common air pollutants from coal-fired EGUs include fine particulate, acid gas, dioxins and furans, mercury, non-mercury metals and metalloids, polycyclic aromatic hydrocarbons, radioisotopes, and volatile organic compounds (ALA, 2011).

Renewable Energy

Renewable energy research and development is tantamount to ensuring clean air, healthy ecosystems, healthy communities, and the continuation of Tribal culture.

The potential to become self-sustainable in renewable energy production is real for many Tribes. Some Tribes have the potential to be major contributors to national energy production. Though Indian Country is comprised of a limited geographic landmass, it contains an estimated 10% of the Nation's energy (MacCourt & Wynne, 2010). Between 2002 and 2007, DOE funded more than 90 Tribal energy projects at a cost of $14.1 million (Energy Efficiency and Renewable Energy, 2007).

According to the National Renewable Energies Laboratory (NREL), there is the potential to generate about 535 billion kWh/year of wind energy on Indian lands in the contiguous 48 states. This is equivalent to 14% of current U.S. total annual energy generation. Further, NREL estimates that there is 17,600 billion kWh/year of solar energy potential on Indian lands in the lower 48 states; this is equivalent to 4.5 times the total U.S. electric generation in 2004.

Indian Country will continue to play a growing role in transmission infrastructure throughout the Nation (MacCourt, D.C.; Wynne, A., 2010). Education and further

research and development are needed to better assess the potential benefits (both economic and environmentally) of renewable energy development on Tribal lands.

Energy Development in and around Indian Country Recommendations:
Provide Tribes with sufficient funding and resources to conduct research and deliver education with regard to potential benefits (both economic and environmental) of renewable energy development on Tribal lands.
Assist Tribes with technical expertise to develop environmentally responsible energy development guidance
Federal Agencies should recognize and facilitate Tribal interests in energy projects recognizing these projects will likely be fueled by each Tribe's long-term goals relating to sovereignty, sustainability, and financial security.
Support development of clean, affordable, and economically viable energy projects and transmission for Tribes.

Conclusion

Everyone has the basic human right to breathe clean air. No one can survive more than a few minutes without a breath and over time, polluted air can kill. We are learning how an economy based upon fossil fuel consumption is changing the climate, the lands, water and wildlife upon which we all depend. The Earth is our home and its air quality is a primary responsibility for all of us to protect and respect for the generations yet to come. As the original stewards of this beautiful country, Tribes fully accept this responsibility and demonstrate this commitment to air quality through their diverse air quality programs.

While Tribal air programs have made significant progress in building sustainable air programs to face air quality challenges like climate change, air toxics and indoor air quality, more resources are required to ensure Tribal air programs remain a powerful partner to local communities, state governments and the Federal Government.

This report provides proof that further investment is required so that Tribes can continue to build strong air programs in order to protect public health and the environment upon which we all depend. While Tribes have made great strides in program development and implementation, more work is needed to exert sovereignty, build Tribal capacity, and protect air quality in Indian Country. NTAA urges the reader to act on these recommendations in order to ensure a positive future for the future generations.

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Appendix A. Acronyms

BIA	Bureau of Indian Affairs
CAA	Clean Air Act
CDC	Center for Disease Control
DHHS	U.S. Department of Health and Human Services
DITCAs	Direct Implementation Tribal Cooperative Agreements
EI	Emissions Inventory
EIA	U.S. Energy Information Administration
FARR	Federal Air Rules for Reservations
GHG	Greenhouse Gas(es)
HUD	Housing and Urban Development
IHS	Indian Health Service
ITEP	Institute for Tribal Environmental Professionals
JTAP	Joint Toxics Assessment Program
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NTAA	National Tribal Air Association
OAR	Office of Air and Radiation
OTS	OAR Tribal System
PM	Particulate matter
POPs	Persistent Organic Pollutants
PSD	Prevention of Significant Deterioration
RPO	Regional Planning Organization
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
TAMS	Tribal Air Monitoring Support (Center)
TAR	Tribal Authority Rule
TAS	Treatment as a state

TEISS	Tribal Emissions Inventory Software Solution
TIP	Tribal Implementation Plan
EPA	U.S. Environmental Protection Agency
USGCRP	U.S. Global Change Research Program
WRAP	Western Regional Air Partnership

2014

Appendix B. NTAA Budget
Analysis of Tribal Air Programs

National Tribal Air Association (NTAA)

FY2016 Tribal Air Quality Budget Analysis

FY2016 Tribal Air Quality Budget Analysis

Introduction

The National Tribal Air Association (NTAA), utilizing Tribal input, EPA documents and general knowledge has developed a snapshot of air quality funding gaps in Indian Country. Citing the USEPA's FY2011-2015 Strategic Plan, the NTAA believes that by increasing funding to close identified gaps in Indian Country, it will enhance the ability of EPA to strengthen its government-to-government relationships with Tribes in an effort to achieve mutual environmental and human health goals.

This report is a snapshot of air quality programmatic and funding issues in Indian Country, which includes, but is not limited to, information from the three documents listed below and USEPA Staff:

1. FY 2011-2015 EPA Strategic Plan *Cross-Cutting Fundamental Strategy: Strengthening State, Tribal and International Partnerships*
2. OAQPS National Tribal List Report 4/20/2013/2014
3. OAQPS Tribal Air Quality Management Report January 2013/2014

This document identifies three major areas for improvement of air quality in Indian Country by (1) identifying capacity gaps and data gaps within Indian Country; (2) identifying a budget request that will assist federal agencies to begin addressing these gaps to address air quality using a reasonable approach; and (3) to address funding for technical and policy programs that support Tribal Air Quality Program development (NSR, Climate Change Adaptation Planning, etc.).

Current FY 2014 Funding

Total tribal funding for FY 2014 is $11,431 million. While this is an increase over the FY 2013 budget of $11,229 million, it is a decrease from the FY 2012 budget of $12,474 million (Table 1). With Tribes continuing to be denied funding to begin air programs and for Tribes who have had to face air program funding cuts, the whiplash effect of the current funding structure, or lack thereof has not offered what is really needed in Indian Country, and that is real on the ground, equitable, guaranteed funding for Tribes. As some Tribes have stated, "If we have to be recognized as States then fund us as States."

Each year many Tribes who apply for air program funding are denied due to lack of funding. It has been determined that there is also an unknown number of Tribes who do

not apply for air grants because they already know that there is not enough funding available for all Tribes in their Region to receive funding. In some cases Tribes only having one person working on all environmental media for their Tribe and there is not enough time allotted to apply for grants that they know they will not get. Possibly worst of all, in many Regions Tribes are told by USEPA Staff not to apply for air grants because there is not enough funding to go around. Some Regions do not even report funding and grant numbers, etc. to the national database leaving organizations like the NTAA with an unknown unmet need. Without actually knowing how many Tribes want air funding there is no way to develop a true budget request. To be able to develop an accurate budget the NTAA needs to have as much information as possible, we need to know how many Tribes want air grants, what they want them for, and how much funding they need. What we do know is this:

Region	2012 STAG	2013 STAG	2014 STAG
1	657,063	513,927	521,147
2	440,175	327,840	329,646
4	330,964	308,096	314,409
5	1,263,752	1,154,322	1,187,351
6	1,305,009	1,178,038	1,171,513
7	451,078	451,078	502,756
8	2,109,888	1,904,267	1,998,953
9	3,259,737	2,959,350	2,921,915
10 (incl. Alaska)	2,657,197	2,432,197	2,483,379
Total:	$12,474,863	$11,229,115	$11,431,069

Table 1 Regional STAG Allocation for fiscal years 2012, 2013, and 2014.

The following Table shows the types and numbers of grants allocated to each region.

	R1 (10 Tribes)	R2 (8 Tribes)	R4 (6 Tribes)	R5 (35 Tribes)	R6 (66 Tribes)	R7 (9 Tribes)	R8 (27 Tribes)	R9 (148 Tribes)	R10 (42 Tribes/231 Alaska Native Villages)
103 Grants	1	1	2	11	13	5	12	24	15/1
105 Grants	2		1	1			1	4	10

105 PPG Grants	1	1		3		1			
Total	**4**	**2**	**3**	**15**	**13**	**6**	**13**	**28**	**26**

Table 2 FY 2013 Tribal Air Grants (each Region includes the number of Federally Recognized Tribes and Tribal Consortia receiving STAG funding).

Analysis for Future Funding

Currently, EPA funding for Tribal Air Programs does not meet the current needs of Tribes to address serious air quality issues within their communities. In addition, the EPA's annual budget for Tribal air quality activities has not increased over the years despite an ever-growing demand for new program capacity development, and advanced monitoring and regulatory development among Tribes with existing programs.

There are 566[5] Federally Recognized Tribes. STAG funding is allocated to Federally Recognized Tribes and Tribal Consortia throughout the EPA Regions. Currently there are **110 Tribal 103, 105, and 105 PPG grants[6] issued among all EPA Regions, which indicates a disparity between the number of Tribes in the nation and the number of grants available. *In total, 80.5% of all Federally Recognized Tribes DO NOT receive funding for air quality programs.***

While not all Tribes may want to have an air program or an air-monitoring program, any Tribe that does should have the option to apply and receive funding to develop the capacity for an air program and/or to monitor their air shed. Every Tribe has the right to know if their air is clean and to meet the health concerns and needs of their community. Tribes who receive funding need to know that they will retain their funding and that their programs will be able to grow and mature, and not be abruptly cut-off and ended.

Based on a history of stagnate funding levels and the inability to fund new Tribal air programs, the NTAA recommends that EPA review the formula used for funding and make corrections to account for Tribes that wish to begin an air program and to continue mature air programs. The NTAA asks that EPA and other appropriators consider

[5] Federal Register/Vol. 79, No.19/Wednesday, January 29, 2014/Notices
http://www.bia.gov/cs/groups/public/documents/text/idc006989.pdf
[6] The numbers reported in this document are based on regional reports to the OAQPS Database.

increasing Tribal air program funding as a strong indicator of their trust responsibility and to maintain strong government-to-government relationships. Further NTAA strongly believes that increased funding will begin to fill data gaps and provide valuable information on a regional and national level.

The NTAA strongly suggests to the EPA that it is prudent to increase Tribal Air Program funding by a minimum of $3.5 million and regulatory and policy change implementation by a minimum of $8 million over the next five years. This funding request is made in addition to current funding and is requested to NOT be at the detriment or withdrawn from any other programs fiscal support.

- $1.5 million – to give a few additional Tribes the ability to begin new air programs and build capacity while allowing for current and mature Tribal Air Programs to continue; this would at a minimum begin to fulfill EPA's strategic plan. Funding utilized by Tribes is money well spent; this statement is based upon the efficiency of each air program that currently operates in Indian Country. Additionally, many Tribes that have established programs are not able to implement more advanced monitoring and/or to develop regulatory programs to address air pollution sources at their current funding levels. New and existing Tribal air programs are in desperate need of additional EPA funding and support in order to monitor and regulate their air sheds in order to protect the health and welfare of Tribal Members.
- $1 million – for Climate Adaptation Planning to prepare for the impacts of climate change and/or reducing greenhouse gas emissions. Tribes have contributed little to the causes of climate change, but have been disproportionately affected by the risks. The impacts of climate change threaten the very ways of life, subsistence, land rights, future growth, culture, resources, and sustainability. Very few Tribes have been able to begin their adaptation planning, but many more will need to start. At this time there is no funding allocated for this purpose and is needed and necessary.
- $1 million – for Indoor Air and Radon Programs. In the past these programs have been minimally funded or considered unfunded mandates. Recently the funding made available for the Radon Program was removed. These programs are extremely important for Tribes and their community's health. It is time for these programs to be funded and supported by the EPA in an appropriate manner.
- $8 million – for the NSR Program over the next 5 years as follows: The cost of regulatory and policy changes and implementation to Tribes. While in many cases

it is not necessary for Tribes to take on the delegated authority of implementing a program through a TIP, Tribes are opting to take a more active role in the implementing and delegative authority process. This assists the EPA with permitting in a timely manner and the burden of enforcement. For example; the Tribal New Source Review (NSR) Program was promulgated in 2011 without any funding for Tribes to implement the program. Of the Tribes with air grants, based on a survey of the Tribes with air programs and Regional Offices, at this time a minimum of 20 Tribes will develop TIP's and their own NSR programs, 44 Tribes will take delegation of the NSR program from EPA, and 56 Tribes will participate in NSR implementation via permit review and outreach. This is only one of many new and upcoming changes that must be considered before implementation rather than afterward. When EPA decides to implement a new regulation or change a policy, etc. one of the first considerations needs to be how will the work be accomplished?

If you have any questions or comments about this document or the NTAA please contact us.

Respectfully Submitted,

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Appendix C. Indoor air quality in Tribal communities

There are several key IAQ parameters that require attention in Indian Country and Alaska Native Villages in order to ensure safe and healthy indoor environments for Tribal communities: radon, mold, asthma, particulate matter (PM) from wood smoke, carbon monoxide (CO), and carbon dioxide (CO_2).

❖ Radon

Radon is a naturally occurring, cancer causing radioactive gas that is caused by the breakdown of uranium (U.S. EPA, DHHS, CDC, 2012). Radon is emitted by soil and rocks at the base or underneath homes and enters into the home through foundation cracks, crawl spaces, and floors (HUD, 2014). If radon enters the home and accumulates in high concentrations, it can pose a series lung cancer risk to inhabitants. Testing is the only way of knowing whether a building, be it a residence or a public space, has high radon levels (2012).

Tribes require ongoing support from EPA in order to provide much needed outreach and technical support within Tribal communities. Tribes that have conducted radon surveys identified up to 80% of measurements above EPA's 4 pCi/L (PicoCuries per liter) action level, but often do not have the means to perform mitigation (EPA Radon Database).

Over the past five years, the total State Indoor Radon Grant (SIRG) funding has remained relatively consistent, ranging from a low of $7.626 million in 2013 to a high of $8.074 in 2009 and 2010 (U.S. EPA, 2014). Recently however, it was announced that the EPA's FY 2015 budget eliminates funding for SIRG altogether (U.S. EPA OCFO, 2014). This funding cut threatens the ability of Tribes to protect community members from radon exposure in the home.

❖ Mold

Mold exposure occurs primarily through inhalation of airborne spores released by molds (California DPH, 2012). Health problems associated with mold exposure occur most frequently in homes with active mold growth and poor air circulation. According to the California Department of Public Health, there are several factors that can lead to mold growth in the home, including leaky roof[s]; sprinkler spray hitting the house; plumbing leaks or overflow from sinks or sewers; damp basement or crawl space; humidifiers or steam from showers or cooking; wet clothes hung indoors; or a clothes dryer that exhausts indoor (2012).

❖ Particulate Matter from Wood Smoke

The strong association between outdoor particulate matter concentrations and acute and chronic adverse health outcomes includes premature death, lung cancer, exacerbation of respiratory and cardiovascular disease, and increased risks for cardiovascular morbidity (e.g., myocardial infarction and arrhythmia) (CDC, 2011). This pollutant (PM) can also pose major health concerns in indoor environments. The principle IAQ concern for PM in Tribal communities stems from the use of wood burning stoves. Woodstove heating is commonplace throughout Indian Country, in large part because it is an affordable form of home heating. Woodstove change outs are an example of a reduction program that is practical and renders proven results. Indeed, certified stoves can reduce the air pollution by 70-90% and require only a fraction (approximately 1/3) of wood to achieve similar heating results (U.S. EPA Region 10, 2012; U.S. EPA, OAR, 2013). Tribal woodstove change-out programs enable Tribal members to replace their old, polluting, non-certified woodstoves with new, cleaner burning EPA-certified wood stoves or a pellet stove. Further, Tribal woodstove change out programs address important energy concerns for Tribal communities since new, clean burning EPA-certified woodstoves are more efficient and therefore reduce expenses associated with home heating.

❖ Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless gas that is lethal in high concentrations (CPSC, 2014). Most CO leaks that occur in the home are the result of gas leaks from fuel-burning appliances. CO poisoning can result when concentrations exceed 150-200 ppm for a sustained period. Health effects of CO poisoning include: mental confusion; vomiting; loss of muscular coordination; loss of consciousness; and ultimately death (2014). Lower elevated concentrations (>70 ppm) can also lead to negative health effects (i.e. headache, fatigue, shortness of breath, nausea) for building occupants who experience prolonged exposure (2014).

❖ Ventilation

Carbon dioxide (CO_2) is used as a proxy to assess ventilation in the home. It is a naturally occurring gas that is produced as a waste product from respiration and combustion; concentrations are generally reduced through proper ventilation. According to the American Society of Heating, Refrigerating and Air-conditioning Engineers Inc. (ASHRAE), concentrations greater than 5,000 ppm of CO_2 "can pose a [human] health risk (ASHRAE, 2010)".

❖ Tobacco Smoke

During a recent survey conducted by the CDC's Office of Smoking and Health, it was found that nationally, prevalence of cigarette smoking was highest among non-Hispanic American Indians and Alaska Natives (CDC, 2012). Sadly, this statistic is not new. In 2010, an article in the journal, *Ethnicity & Disease*, found that of all ethnic groups in the US, cigarette smoking was most prevalent among American Indians affecting approximately 40.8 % of the Tribal population (Daley, et al., 2010). In addition to causing mortality, smoking is associated with increased risk of cardiovascular and respiratory diseases (i.e. stroke, coronary heart disease, chronic obstructive pulmonary disease), and lung cancer, to name a few (CDC, 2014).

Use of smoking tobacco indoors affects not only the smoker, but also co-habitants in within the building. Secondhand smoke, or environmental tobacco smoke, has many toxic and carcinogenic constituents that can negatively impact the health of individuals who are exposed to it (U.S. EPA, ORIA, 2013).

There are nearly 250 Tribes operating casinos throughout the United States (National Indian Gaming Commission, 2014). Smaller gaming operations may include one casino for a given Tribe, whereas larger gaming operations may include many casinos. In a recent study by UC San Francisco's Center for Tobacco Control Research and Education, it was found that most Tribally operated casinos, which are exempt from smoke-free workplace-laws, allow smoking (Fernandez, 2013). The same study, which was funded by the National Cancer Institute, also found that smoke-free provisions within casinos lessened the number of ambulance calls requested for individuals suffering from medical emergencies associated with second-hand smoke inhalation (2013).

Responding to the Need

For the ninth consecutive year (2006-2014), a separate IAQ track has been established as part of the annual NTAA/ITEP-sponsored National Tribal Forum on Air Quality (NTF). In addition, the NTAA is working with EPA's Office of Radiation & Indoor Air (ORIA) to develop a National Tribal Strategy and Plan for EPA's Radiation & Indoor Air Program. The ORIA Tribal Strategy & Plan will help EPA to work more effectively with Tribes through collaboration, better understand Tribal needs and priorities, and will optimize the limited resources of the non-regulatory indoor air program. Also, in 2012, management from ORIA's Indoor Environments Division briefed the NTAA Executive Committee about its IAQ activities as an initial step towards potential future collaboration on indoor environments. The NTAA is also in the process of drafting a letter to ORIA senior

management, seeking additional discussions and collaborations to further advance Tribal IAQ issues and encourage additional support from EPA in this area.

Some successful Tribal IAQ programs include The Navajo Nation EPA Radon Program, The Cowlitz Weatherization Program, The Tribal IAQ Summit Workgroup, The Tulalip Tribes Indoor Air Program, The Bois Forte Indoor Air Quality Program, Southern Ute Indian Tribe, Leech Lake Band of Ojibwe, Spokane Tribe, Nez Perce Tribe, Makah Tribe, and Swinomish Indian Tribal Community.

Appendix D. Tribal climate change initiatives

Tribes Responding to the Need

In October 2007, the Swinomish Indian Tribal Community became the first Tribal nation to pass a proclamation in support of climate change initiatives (The Swinomish Indian Senate, 2009).

In the years that have followed the passage of that proclamation, several Tribes have gone so far as to produce climate adaptation plans. The process of adapting to climate change takes different forms for different Tribes. Resiliency strategies can be woven into existing resource management plans, or they can take the form of stand-alone adaptation plans. Tribes across the nation are at different points in the adaptation process, from not having initiated any formal efforts, to having completed and released detailed adaptation plans. The following is an abbreviated list of Tribes that have successfully produced climate adaptation plans, vulnerability assessments, or other related efforts:

- Bad River Band of Lake Superior Chippewa Indians: Climate Change Adaptation Project, 2013
- Confederated Salish and Kootenai Tribes: Climate Change Strategic Plan, 2013
- Grand Portage Band of the Minnesota Chippewa Tribe: Climate initiatives resolution, 2013
- Jamestown S'Klallam Tribe: Climate Vulnerability Assessment and Adaptation Plan, 2013
- Kickapoo Tribe of Oklahoma: Climate Change Vulnerability Assessment, March 2012
- Navajo Nation: Climate Change Vulnerability Assessment for Priority Wildlife Species, 2013
- Nez Perce Tribe: Clearwater River Subbasin Climate Change Adaptation Plan, Dec. 2013
- Pyramid Lake Paiute Indian Reservation: Vulnerability assessment, 2011
- St. Regis Mohawk Tribe: Climate Change Adaptation Plan for Akwesasne, Aug. 2013
- Swinomish Indian Tribal Community, Oct. 2010

Below is brief description of several important advances in Tribally focused climate change initiatives.

President's Climate Action Plan

In 2013, the Obama administration released "The President's Climate Action Plan" which outlines strategies for cutting carbon pollution; preparing for climate change impacts; and leading international global climate change efforts (Executive Office of the President, 2013). The Plan includes specific mention of Tribes in several sections: expanding and modernizing the electric grid; collaborative approaches to emissions reductions; establishing a climate preparedness task force; and supporting Tribal communities through climate change preparedness efforts.

Climate Change Task Force

In accordance with the President's Climate Action Plan, a Task Force was convened in 2013, which includes two Tribal Official appointees (CEQ, 2014). As recently as April of 2014, the two Tribal Officials were actively soliciting input for the development of their recommendations from seasoned professionals in the field of Tribal climate impacts and adaptation.

DOI Secretarial Order No. 3289

On March 11. 2009, the Department of the Interior (DOI) issued Secretarial Order No. 3289. The order, which was issued shortly before the publication of NTAA's impacts report, mandates that DOI work to "address the impacts of climate change on American Indians and Alaska Natives, for whom the Department holds trust responsibilities on behalf of the federal government" (U.S. DOI, 2009). This directive has led to successful Tribal-Interior partnerships for some of the Department's Climate Science Centers (CSC) and Landscape Conservation Cooperatives (LCC). For instance, in August of 2013, the Northwest CSC adopted a Tribal Engagement Strategy for 2012-2015 (Northwest CSC, 2013), which was developed in consultation with the CSC's Tribal counterparts.

DOI Advisory Committee on Climate Change and Natural Resources (ACCCNRS)

In early 2013, the DOI convened a 25-member Committee to advise the Secretary of the Interior on matters pertaining to the USGS National Climate Change and Wildlife Science Center and the DOI Climate Science Centers (USGS, 2013). ACCCNRS, which serves as an official Federal Advisory Committee, includes Tribal Representatives that are representing the climate-specific needs of Tribes. The ACCCNRS developed an "Indigenous Matters" work group that has established several recommendations for the Committee to consider passing on to the Secretary. Those recommendations and updates can be found on the official website.

USGCRP National Climate Assessment -Tribal chapter

The forthcoming National Climate Assessment will be the first to include a Tribally-focused chapter. The draft form of this chapter, titled, "Impacts of Climate Change on Tribal, Indigenous, and Native Lands and Resources", was released for public comment January of 2013 (Bennet, et al., 2013). The final version of the full report is scheduled for release in early 2014 (USGCRP, 2014).

Appendix E. Tables and Figures

Table 1. National Tribal TAS Summary Report for Air Quality Programs
(Updated 4-2-2014)

EPA Region	Pending Approval	TAS Approved*
	Applications (Tribes)	Applications (Tribes)
1		4 (4)
2		3 (1)
4		1 (1)
5		4 (4)
6	1 (1)	4 (3)
7		2 (2)
8		10 (9)
9	3 (1)	11 (9)
10		14 (13)
Grand Total	**4 (2)**	**53 (46)**

Note: A Tribe may apply for TAS status in multiple programmatic areas, hence there may be more applications submitted than the number of Tribes for a particular category.
*Decision document signed by RA.

Table 2. National Tribal Air Quality Activities in Calendar Year 2013 for Q2-4*
(Updated 4-7-2014)
Note: Diesel work includes and retrofit/repower/replacement project; EI includes and year's complete emission inventory submitted to the EPA region, ITEP (QA/QC'd), and/or NEI; Grants include any type of air grant; Permits include any type or category of permit for facilities marked as currently active; Regulation: any regulation submittal, FIP delegation request, or undelegated FIP; TAS: any Treatment as State submittal marked as an active submittal.

		Tribes & Consortiums	Diesel Work	Emission Inventories	Grants	Permits	Regulations	TAS
EPA Region	1	11	0	3	24	0	3	12
	2	8	0	3	6	3	3	3
	4	6	12	6	9	0	0	3
	5	36	6	36	57	15	0	12
	6	69	3	30	74	6	0	12
	7	9	3	18	21	0	0	5
	8	28	0	42	45	27	3	24
	9	151	9	36	105	21	6	30
	10	277	27	24	78	30	117	39

Table 3. National Tribal Regulation Submittal Summary Report (Updated 4-7-2014)
Note: The number of submittals and the number of Tribes are equal

EPA Region	Submitted	Region Approved	Proposed Rule Only	Final Rule
1	1	1		1
2	1	1		1
4				
5				
6				
7				
8	1		1	
9	1	1		1
10	1			
Grand Total	5	3	1	3

Table 4. National Tribal Grant Summary Report for FY 2013-2014 (Updated: 4-2-2014)
Note: Values below correspond to the total number of Tribes receiving a given grant.
Note: 103 (XA/TX) = CAA Section 103 indoor air; 105 (A) = air pollution control; 105 (A) = performance partnership agreement; Care = Community Action for a Renewed Environment; Local Showcase = Climate Showcase projects; TSCA 10 = Toxic Substances Control Act; Unknown = Schools-based IAQ assessments

	EPA Region									
Grant Type	1	2	4	5	6	7	8	9	10	Grand Total
103 (XA/TX)	8	2	3	19	26	7	12	30	14	121
105 (A)	2		1	3			7	4	10	27
105PPA (BG)	1	1		3		1	5		1	12
CARE Level 1					1		3	1	1	6
CARE Level 2									1	1
DITCA	1			1					2	4
GAP									2	2
Local Showcase					1		1	2	3	7
Radon										0
TSCA 10										0
Unknown							2			2
Region Total	12	3	4	26	28	8	30	37	34	-

Table 5. National Tribal Permit Summary Report by Permit Type/Category
(Updated 4-7-2014)

Permit Type/Category	Region						Total
	2	5	6	8	9	10	
Permit Grand Total	1	11	6	97	21	125	261
NSR: Major - PSD		5		14			19
NSR: Minor - PSD						3	3
NSR: Synthetic Minor - PSD						7	7
NSR PSD Total		5		14		10	29
NSR: Major - NA							0
NSR: Minor - NA		1					1
NSR: Synthetic Minor - NA							0
NSR Nonattainment Total		1					1
NSR: Minor - HAP							0
NSR: Synthetic Minor - HAP							0
NSR HAP Total							0
FARR: Minor							0
FARR: Synthetic Minor						104	104
FARR Total						104	104
Title V: Major	1	5	6	82	21	11	126
Title V: Minor				1			1
Title V: Synthetic Minor							0
Title V Total	1	5	6	83	21	11	127
Merged: Major							0
Merged: Minor							0
Merged: Synthetic Minor							0

Table 6. National Emission Inventory Tribal Totals (Updated 4/4/2014)

EPA Region	Number of Tribes & consortiums	1.a. Number of Completed Emission Inventories[1]	1.b. Number of Tribes with Completed Emission Inventories[2]
1	10	2	1
		2	1
2	8	2	1
		2	1
4	6	3	2
		3	2
5	36	18	12
		18	12
6	69	15	11
		17	13
7	9	13	6
		13	6
8	28	26	14
		26	14
9	149	28	12
		28	12
10	275	25	8
		25	8

1. Number of complete Tribal emission inventories from any emission inventory year, submitted to the EPA Region, ITEP (QA/QC'd), and/or NEI and entered into the OTS database by the end of each quarter.
2. Number of Tribes with any year's complete emission inventory, submitted to the EPA Region, ITEP (QA/QC'd), and/or NEI and entered into the OTS database by the end of each

Table. 7.A. National Tribal Air Monitoring Summary Multi-Year Trend Report - Tribes Submitting Data through AQS (Updated 4-2-2014)

EPA Region	Number of Tribes Submitting Data									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	2	4	4	4	4	4	4	4	3	
2	1	1	1	1	1	1	1	1	1	
4	1	1	1	1	1	1	1	1	1	
5	7	9	9	9	9	9	9	9	7	
6	8	9	9	6	5	6	5	6	6	
7										
8	10	8	8	6	6	6	6	5	6	
9	11	15	18	21	22	21	23	24	27	
10	8	13	15	18	16	16	18	13	13	
Grand Total:	48	60	65	66	64	64	66	63	64	1

Table. 7.B. National Tribal Air Monitoring Summary Multi-Year Trend Report – Tribally Operated Monitoring Sites (Updated 4-2-2014)

EPA Region	Number of Tribes Submitting Data (Number of Monitoring Sites)									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
1	2	3	3	3	3	3	3	3	3	
2	1	1	1	1	1	1	1	1	1	
4	2	2	2	2	2	2	2	3	3	
5	8	10	10	10	11	11	10	10	7	
6	13	12	15	11	9	14	11	12	12	1
7										
8	14	14	13	10	11	14	11	7	6	
9	17	23	26	29	32	33	34	34	34	
10	10	18	18	20	18	18	19	16	16	
Grand Total:	67	83	88	86	87	86	91	86	82	1

Table 8. Tribal School Air Toxics Monitoring Efforts (Updated: 4-8-14)

Location	Application Submitted	Monitoring Began	Monitoring Completed
Southern Ute	Initial Location	Sep-09	Nov-09
Nez Perce	Initial Location	Sep-09	Dec-09
Navajo Nation	Mar-10	May-10	Feb-11
Red Lake Band of Chippewa	Apr-10	Jun-10	Sep-10
Nez Perce (2nd location)	Apr-11	Jul-11	Nov-11
Red Lake Band of Chippewa (2nd location)	Jun-11	Aug-11	
Leech Lake	Jun-11	Sep-11	Jan-12
Rincon Band of Mission Indians	Dec-11	May-12	Dec-12
Rincon Band of Mission Indians (2nd location)	Feb-13		
Moapa Band of Paiute	Sep-13	Apr-14	
Fond Du Lac Tribe of Chippewa Indians	Mar-14	Apr-14	
Morongo Band of Luiseno Indians	Apr-14	Apr-14	
Swinomish	Awaiting App		
Pechanga	Awaiting App		

Table 9. National Tribal Diesel Work Summary Report for FY 2011-2013

EPA Region	FY 2009		FY 2011		FY 2012	
	# Grants	# Projects	# Grants	# Retrofits	# Grants	# Projects
1						
2						
3						
4						
5	1	4				
6						
7	1	4				
8						
9	1	6	1	7		
10	1	9	3	19	1	11
Award Grand Total	$652,404		$1,535,525		$576,525	

Note: Projects include engine retrofits, repowering or replacing inefficient equipment/vehicles. Also, 2010 does not appear in the summary table above because there were no grants administered in FY2010.

Table 10. National Summary of Nonattainment or Maintenance Areas Containing Tribal Lands

(Updated 4-8-14) Note: NA – Nonattainment; Ma = Maintenance; std = standard

Pollutant	Region (Estimated # of NA/Tribe combinations)															
	1		2		4		5		6		8		9		10	
	NA	Ma	NA	Ma	NA	Ma	NA	Ma	NA	Ma	NA	Ma	NA	Ma	NA	Ma
8-hr Ozone (1997 std)	5		4			2		3					38	13		
PM-2.5 (2006 std)								1					17		1	
PM-2.5 (1997 std)								1					14			
PM-10 (1990 std)		1							1	1	4		19	17	1	1
CO (1990 std)				1						3				29		3
Lead (1992 std)																
SO2 (1978 std)		1						1					1	3		
Total	5	2	4	1	0	2	0	6	1	4	4	0	89	62	2	4

Figure 1. U.S. Greenhouse Gas Pollution – Categories and Sources (U.S. EPA, 2014)

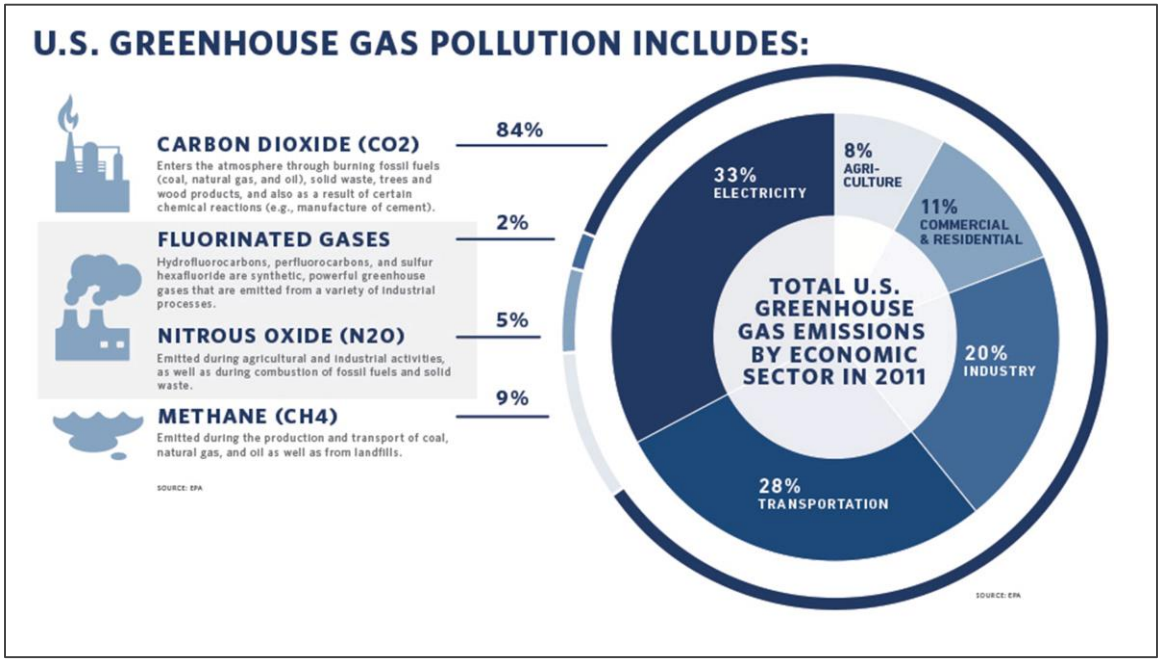
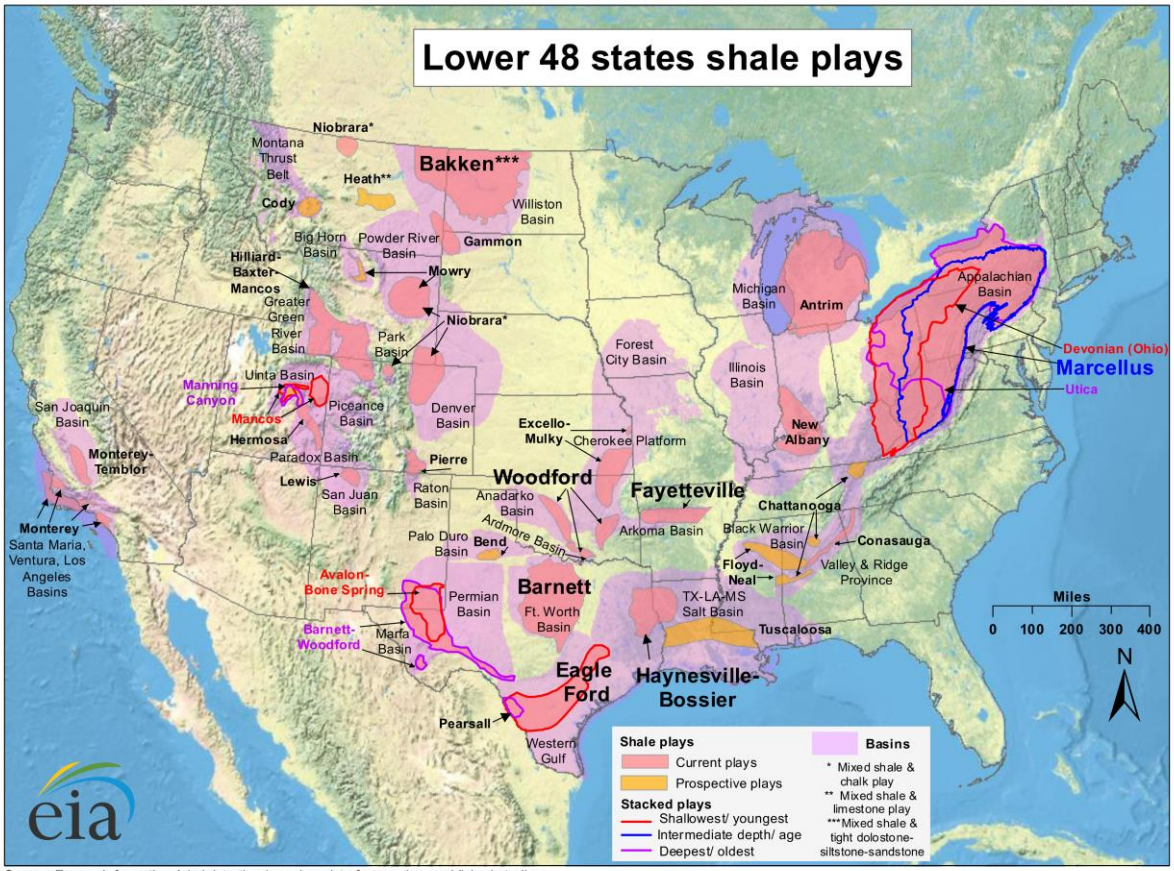


Figure 2. Lower 48 States Shale Plays



Source: Energy Information Administration based on data from various published studies.
Updated: May 9, 2011

http://www.eia.gov/oil_gas/rpd/shale_gas.pdf

Figure 3. U.S. Coal Power Plants
Map image courtesy, U.S. EIA, U.S. Energy Mapping System