

Subcommittees on Water and Power and Indian and Alaska Native Affairs
Oversight Hearing on “Protecting Long-Term Tribal Energy Jobs and Keeping Arizona
Water and Power Costs Affordable”
Testimony of Marshall Johnson
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Transition Plan of To Nizhoni Ani regarding Navajo Generating Station and related operations and resources

Summary:

For over fifty years, the Navajo Nation has been largely dependent on a coal-based industrial economy. While revenues from development of coal resources account for a substantial portion of tribal budgets, coal development has had a substantial, and some would say irreparable, impact on tribal health, culture, land, air, and water. Further, the impacts are not limited to tribal lands as the effects of hazardous air and green-house gas emissions, toxic water borne pollution, massive depredation of aquifers used for drinking water, and contamination of soil, air and water from toxic coal combustion waste (CCW) disposal has dispersed into adjacent non-indigenous communities.

Situated in the Four Corners region of New Mexico and Arizona, the Dine homelands encompass an existing, sprawling coal-industrial complex. The Navajo Mine operated by BHP Billiton serves the Four Corners Power Plant (FCPP) in Fruitland, New Mexico; Kayenta and Black Mesa mines operated by Peabody Energy serves Navajo Generating Station (NGS) in Page, Arizona. The construction and operation of these facilities have been central in the economies of the Navajo Nation. Energy is exported from these facilities to Southern California, Texas, Southern Arizona, and Nevada.

The Power Plants at NGS and FCPP will not sustain the Dine in perpetuity. Once the fossil fuel supplied by the tribes is extracted, the powerful utility companies will be looking for other locations to continue their operations. The Dine will have no leverage to level the playing field and no plan in place to sustain tribal governance as it currently exists.

After decades of exploitation by mining and energy companies, a combination of factors make now the ideal time for the Navajo Nations to transition to a more sustainable clean-energy economy.

Best Available Retrofit Technology:

Under the federal Clean Air Act (CAA), the Four Corners and Navajo power plants are subject to requirements for Best Available Retrofit Technology (BART) in order to comply with federal regional haze requirements. The proposed BART determination for the FCPP, which was issued by EPA Region 9 in October 2010, will likely require the installation of Selective Catalytic Reduction (SCR) at all five units. Estimated cost for the FCPP to install SCR is \$717 million for all five units.

The owners of the rapidly aging FCPP and NGS are faced with significant decisions about whether to commit financing to pollution-control technology upgrades for the facilities, or retire

them and replace their output with modern, clean energy sources. EPA has determined it is necessary for the owners of the FCPP to upgrade pollution controls to reduce haze in the region. The ruling proposal calls for the likely installation of selective catalytic reduction controls (SCR), which could cost hundreds of millions of dollars.

Rather than incur such costly upgrades for plants that will eventually be phased out anyway, the Navajo and Hopi would benefit instead from a move toward newer, cleaner and more sustainable energy sources of which economic equity should be included.

With significant investment to bring these plants into compliance with required regulatory protections, it is entirely possible that the owners will determine that the FCPP and NGS have exhausted their economically useful lives and that continuing to operate them would be unprofitable. Utilities around the country are having the same internal debates, and several major owners of FCPP and NGS have already made a decision to abandon their stakes in the projects.

According the EPA website, asthma disproportionately affects children, families with lower incomes, and minorities. “While asthma was a rare diagnosis in many HIS areas before 1975, asthma prevalence and hospitalizations increased dramatically among AI/AN populations during the 1980s.” (IHS 2006). Between 1972-74 and 1996-98, Navajo Area age-adjusted death rates for cancer have increased from 43.7 to 87.5 deaths per 100,000 populations (IHS 2006).

In addition, TNA has engaged community members across the northwest and central region of the Navajo Nation (in the area of NGS) in a survey that is meant to assess the need for a more comprehensive health study primarily focused on respiratory and heart disease and may include cancer. 141 surveys were returned by adult community members from 13 communities in the Northwest region of the Navajo Nation (Kaibeto, Chilchinbito, Pinon, Navajo Mt. Coppermine, Lechee, Dennehotso, Kitsillie/Black Mesa, Tonalea, Tuba City, Bittersprings, CedarRidge, and Shonto). The survey was conducted from March to May, 2011. The survey asks community members to assess the number of family members with asthma and respiratory problems and to identify the number of members with respiratory problems over the age of 25 years and under the age of 25 years. It also asks community members to identify distance to nearest hospital facilities and what other kinds of ways they address these problems besides modern methods.

Survey Results:

Community	13 communities in Northwest and Central Navajo Reservation:
Number of family members with respiratory problems	60% yes, at least one 38% none 42% with more than one member
Under 25 years of age	50% under age of 20 years
Over 25 years of age	42% over age of 20 years
Diagnosed in last 10 years	26% of those with respiratory problems diagnosed in last 10 years
Over 50 years of age	26% of those with respiratory problems are over 50 years of age

Coal Mining a Legacy of Non-Compliance:

Part of the transition strategy is to compel meaningful and timely reclamation, closure, and clean-up of the tens-of-thousands of acres of mine lands used for coal-fired power plants. Actual clean-up and reclamation of mined lands (which could take decades) not only creates jobs and a transitional revenue stream, but in some instances may present important renewable energy site and location opportunities on mined-lands (i.e. brown fields).

Peabody's Kayenta Mining Operation covers approximately 44,000 acres and has produced approximately 8.5 million tons of coal per year. Peabody's 44,073 acre Kayenta Mine mining operation continues to supply coal exclusively to the Navajo Generation station and has done so since 1973. NGS became operational in 1971 and was based in part on a resolution from Navajo Nation which waived claims of 50,000 acre feet of Navajo water in the upper Colorado River basin for 50 years or the life of Navajo Generating Station.

Tens of millions of tons of coal combustion waste (CCW), the toxic by-product of burning coal in power plants, has been disposed of in insufficiently regulated landfills and dumped back into the mines or on-site on the Navajo Nation. This CCW contains toxic pollutants such as mercury, cadmium, barium, and arsenic, which cause cancer and various other serious health effects. These contaminants can leach into groundwater from the landfills and mines where they are dumped, and can migrate to drinking water sources, posing significant public health concerns. Peabody's 18,000 acre Black Mesa mining operation supplied coal to the Mohave Generating Station from 1970 to December 2005. The Black Mesa mine became non-operational in 2005 after closure of Mohave in 2005 due to the Station's inability to comply with the Clean Air Act.

In addition to the coal mining at the Black Mesa Mine, Peabody has also pumped an average of 4000-6000 acre-feet per year. That is more than 1.3 billion gallons of potable water annually from the Navajo Aquifer (N-Aquifer) between 1969 to 2005 a span of 35 years. This water was used to transport pulverized coal in a pipeline (Black Mesa Pipeline) 273 miles to the Laughlin, NV, and the location of the Mohave Generating Station.

The N-aquifer is the primary source of water for municipal users and tribal members within the 5,400 square mile Black Mesa area. All of the Hopi and many of the Navajo who live in the region take their water, which they use for drinking, subsistence farming and for religious purposes, from the same source. Since Peabody began using N-aquifer water for its coal slurry operations, water levels have decreased by more than 100 feet in some wells and discharge has slackened by more than 50 percent in majority of monitored springs. There are reports that washes along the mesa's southern cliffs are losing outflow. There are also signs that the aquifer is being contaminated in places by low-quality water from overlying basins, which leaks down in response to the stress caused by pumping. Peabody's ongoing groundwater pumping, which is not covered by a reclamation bond, undercuts the sustainability of North America's oldest cultures, and continues to have a significant impact on tribal communities throughout the region.

In 2010, an independent scientist at the University of Arizona completed a study investigating both Peabody's mine and the tribal communities' impact on the N-aquifer. This study demonstrated the following mine-related impacts and OSM's (coincidental) discretionary decisions and actions:

1. In 1989, OSM set a damage-threshold for spring discharge at a 10% reduction to discharge caused by the mine.

As of 2009, Moenkopi Spring (sixty miles southwest of the mine) had declined by more than 26%. OSM maintains, however, that the decline is caused by tribal pumping or recent drought conditions.

The University of Arizona study demonstrated that the *declining* rate of discharge from Moenkopi Spring expresses a strong, statistically significant relationship with the rate of Peabody's *increasing* withdrawals. Further, the spring has no statistically significant relationship with either local municipal withdrawals or local rates of precipitation.

In 2008, OSM concluded that "there have been and will be no impacts to these springs attributable to mining" (OSM-CHIA 2008: 86). Subsequently, OSM removed the oversight of Moenkopi Spring from its regulatory purview.

2. In 1989, OSM determined that water level decline at the community of Kayenta (20 miles north of the mine) would be caused almost entirely by Kayenta's groundwater pumping. As of 2009, the water level at Kayenta had dropped more than 106 feet; the aquifer's structural stability is currently at risk of compaction at Kayenta.

The University of Arizona study demonstrated a statistically significant relationship between Kayenta's declining water level and Peabody's increasing withdrawals. Further, there is no statistically significant relationship between this decline and Kayenta's withdrawals. In fact, the rate of Kayenta's withdrawals expresses a slightly decreasing trend since 1984 although the water level has continued to fall.

In 2008, OSM concluded that the mine had not adversely affected the N-aquifer and completely removed *structural stability* from its regulatory purview.

3. In 2008, OSM implemented Peabody's \$3 million groundwater model for regulatory purposes.

According to the model report, "a regional scale model cannot currently be developed for the basin that will accurately predict the impacts of pumping on individual springs" (HSIGeoTrans & WEHE 1999: 5-23). Similarly, the model cannot accurately simulate groundwater discharge to streams.

Nonetheless, in 2008, OSM determined that, rather than using actual groundwater monitoring data, it will use the simulation results from Peabody's groundwater model for its annual evaluation of the mine's impact on springs and streams.

Water is scarce in the desert Southwest, and large volumes of water derived from local watersheds serve the needs of the mines and cool the coal plants, drawing down aquifers, degrading river water quality and depleting one of the region's most valuable and scarce resources. Fallout from smokestack pollution and the vast quantities of CCW that have been

dumped into mines over the past 45-50 years have degraded the quality of the remaining water supplies. Health advisories have been issued for most streams, rivers and lakes in the Four Corners, warning the public against neurological and cardiovascular damage from consuming local fish due to mercury contamination (in part due to mercury emissions from FCPP and NGS). The true costs associated with these environmental and public health impacts have never been internalized by the operators of the coal complex.

The following table illustrates only one example of the gap in water prices among Dine living on the Reservation and those living off the reservation. Dine in Pinon, Az. (central Navajo Reservation) pay at least 20 times more per gallon than do residents in Glendale, Az (Phoenix area).

AZ Regional Water prices:

Location	Price	Unit	Conversion
Glendale, Az	\$2.00	1000 gal.	\$.01/ 5gal
Pinon, Az	\$.01	1 gal.	\$.01/ 1gal
Kaibeto	\$.04	1 gal.	\$.04/ 1gal
Tonalea	\$2.00	55gal	\$.01, and .275
Flagstaff	\$2.82	1000gal	\$.01/4gal

Transition the Navajo Nation for the sustainability of all Nations:

The Navajo Nation is the size of Scotland. It is blessed with an abundance of resources that could provide the foundation necessary for a transition to renewable energy development. The Navajo Nation encompasses regions with ample wind, solar, and geothermal resources, along with vast expanses of land, including large reclaimed coal-mining tracts that are ideal for locating renewable energy facilities. The region’s solar potential is some of the best in the world and certain portions of reservation lands have wind resource ratings capable of supporting utility-scale projects. Additionally, as a result of all three power plants’ extensive interconnections to the electric grid there is a network of power lines whose capacity would be freed up for an expansion of renewable energy by phasing out the three coal-burning plants.

Utility-scale development of either wind or solar energy resources alone has potential to offset job and revenue losses from the phase-out of the existing coal plants. An analysis by the US Department of Energy (DOE), for example, determined that constructing a wind energy project in Navajo County could generate up to 140 construction and operations jobs and more than \$14 million in economic activity.

If the Dine are to see their existence into the future they must develop clean energy economies instead continuing to advance a steadily declining coal-based economy.

Beyond the tangible benefits, a transition away from the unfulfilling history of coal and toward clean energy aligns more closely to Dine fundamental laws and values.

Building a new clean energy economy, one in which the viability of the Navajo Nation is included must be based on the following:

- Acknowledging the real value associated with land, water, air and other natural resources on Dine lands.

- Acknowledging the significant adverse environmental and health impacts of a coal based economy and the reliance on the FCPP and NGS and related mine operations.
- Acknowledging that benefits from the sale of Dine raw resources is directly disproportionate to the profits of the sale or the recipient of cheap electricity.
- Creating legislation that would provide the Navajo Nation the financial, political and regulatory means to pursue real solutions in transitioning from fossil fuel electricity
- Developing privately-owned and tribal-owned clean energy generation resources on Dine lands, such as wind and solar; and,
- Subsidizing clean energy facilities rather than fossil fuel facilities;

The biggest question Dine face along with the rest of the world is, what happens after all the fossil fuel is gone. We have no choice but to embrace the renewable technology available and move forward with it.

Position of To Nizhoni Ani:

1. It is the position of To Nizhoni Ani that a decision by EPA that would require the Best Available Retrofit Technology otherwise known as BART that requires at minimum SCR for the FCPP and NGS would be the most beneficial in terms of the issues of the regional haze and visibility. More importantly, a BART decision would also reduce the health impacts from the pollutants for Navajos living in the region.
2. In lieu of declining coal resources, the Navajo Nation must work towards incorporating into recent expired leases, a plan to transition these areas into a solar generation facility and to target brownfields instead of undeveloped lands. The purpose of this plan is 1) to ensure continued revenues and jobs for the Navajo Nation and 2) to eliminate health impacts to the people.
3. The Navajo Nation must begin incorporating a plan for continued revenues and jobs in place of the declining coal mined at Kayenta and the Navajo Mine. Currently the development of a Solar Energy Generation Facility on brown fields, is being explored by grassroots groups, Black Mesa Water Coalition and To Nizhoni Ani. At least 6,000 acres of mined lands is available at this time. This alone is enough for more than 1000 MW of power. A total of 68,000 acres of land is held in lease by Peabody Western Coal Company. While some mining on hundreds of acres of lease land has been complete for more than 15 years, reclamation has not been completed by Peabody and none of the lands have been transferred back to the Navajo Nation, to be given back to the local residents for use.

Currently the Black Mesa Water Coalition and To Nizhoni Ani has completed a Solar Potential Study, conducted dozens of community meetings to residents in the mine lease area as well as residents in communities throughout Black Mesa. The purpose of these community meetings is to educate for the purpose of mobilizing the community.

4. Installation of Solar facilities on the CAP canals to provide additional power to power the pumps that push the water to Phoenix and Tucson or other power users. This would help eliminate the evaporation of 75,000 acre feet of water annually.
5. Make CAP self-sufficient.