"Energy Development Impacts on Indigenous Peoples"
United Nations Special Rapporteur Victoria Tauli-Corpuz
For the Rights of Indigenous Peoples
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Report of the University of New Mexico School of Law
Natural Resources and Environmental Law Clinic

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Introduction

The Natural Resources and Environmental Law Clinic[1] students[2] of the University of New Mexico School of Law respectfully submit this Report to the United Nations Special Rapporteur, Victoria Tauli-Corpuz, for the Rights of Indigenous Peoples. This Report provides an overview of energy development in the State of New Mexico, and its impacts on indigenous peoples.

The indigenous peoples of New Mexico depend fundamentally on their environment to live and develop as individuals and as a community. Indeed, the conditions of this environment define their possibilities of survival, their living conditions and way of life, and their ability to achieve sustainable development. The peoples' habitat, is also their ancestral homeland, the essential source of their economic, social and cultural development, and the legacy for the future generations. The intrinsic link that exists between the indigenous peoples of the southwestern United States and their environment, is the economic value of this environment, as well as its cultural and spiritual value for the communities that depend on it.

One of the primary means of economic development for many Indian tribes is development of the reservation's natural resources.[3] Many Indian reservations with significant mineral resources are located in remote territory with high rates of unemployment and poverty. For those tribes, the mineral lands provide the best, if not the only, hope for economic

[1] The University of New Mexico School of Law Natural Resources and Environmental Law Clinic (NREL), enables students to provide community lawyering to underrepresented individuals, community-based groups, nonprofit organizations and Indian tribes. NREL seeks to protect and preserve lands and natural resources, and to improve public health and the environment of rural communities. NREL Clinic students embody the highest ideals of excellence, subject-matter competence, and client collaborative process in the areas of environmental law and Federal Indian law.

[2] Katelyn Riley Hart, Melissa Magee, Troy Ward, Shane Maier, Richard Chissoe, Jamison Shekter, Laura Callanan, and Marion Carter.

[3] Lori M. Graham, *An Interdisciplinary Approach to American Indian Economic Development*, 80 N.D. L. REV. 597, 634 (2004).

development on the reservation. Mineral reserves are valuable in themselves, but development of those resources represents income, jobs and economic vitality.

Indian tribes have sovereignty over their lands. This jurisdiction flows, not from a delegation by the Congress of the United States, but from "inherent powers of a limited sovereignty [that] has never been extinguished."[4] Tribes possessed sovereignty over their lands before the United States was established, and retain continuing jurisdiction.[5] Tribal governments are not arms of the United States, nor are they created by the federal government.[6] Thus, tribal jurisdiction over its land is exercised in addition to, not instead of, the federal government.

Despite the economic importance of mineral resources, however, tribal control over the development and use of tribal natural resources has been limited. Historically, Indian lands are subject to mineral leases approved and administered by the Bureau of Indian Affairs of the Department of Interior.[7] Decisions about terms of leases, safety standards for workers, and the cleanup of contamination of surrounding lands and water, were left in the hands of the federal government or the energy industry. It was not until the 1970's and 1980's that tribes became more active in participating directly in mineral development on their lands. During this period, tribes became aware of environmental harm and increased national attention to the environment, and began to assert regulatory control over environmental matters.

The development of coal, oil and gas, and uranium by non-Indian energy industry has tremendously impacted the indigenous peoples in many ways, both positive and negative. The influx of non-Indians, lack of safety standards for workers, violations of environmental laws, the

[4] *United States v. Wheeler*, 435 U.S. 313, 322-23 (1978).
[5] *Id.*
[6] *Id. at 323.*
[7] *See* Judith V. Royster, *Mineral Development In Indian Country: The Evolution of Tribal Control Over Mineral Resources*, 29 TULSA L. REV. 541 (1994) for a comprehensive discussion.

generation of contamination and waste from mining operations, and impacts on the general health and welfare of community residents, has taken its toll on tribal people in New Mexico.[8]

I. The History of Energy Development on Tribal Lands

Mining of coal, oil and gas, and uranium located on tribal lands began in the late 1800's. The mining of minerals is subject to federal laws that follow a similar pattern of comprehensive federal control of what resources could be developed, for what length of time, and under what circumstances. In most cases, tribes could consent to non-Indian development, but had little control otherwise over the management and development of their natural resources.[9] In the 1930s, following passage of the Indian Reorganization Act of 1934 by Congress, some Indian tribes formed constitutional governments. The Indian Reorganization Act constitutions included a provision that tribal consent was required for the lease or encumbrance of tribal lands. Tribal councils, elected governing body of tribes, who were authorized to manage tribal property, including authority to enter into leases of up to ten years without secretarial approval (extended to 25 years in 1990).[10]

In 1938, Congress enacted the Indian Mineral Leasing Act[11], which established a single set of mineral leasing procedures and required both tribal consent and secretarial approval. Nonetheless, tribes had more authority over resource development on paper than in practice. The Bureau of Indian Affairs set standard lease terms, developed standard lease forms, and mineral leases were essentially perpetual once minerals were produced in paying quantities, which prevented tribes from renegotiating more favorable terms as conditions changed. Royalty

[8] *Id.* At 614-617 (discussing environmental effects of mining on tribal communities).
[9] Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self-Determination Act*, 12 LEWIS & CLARK L. REV. 1065-1071-81 (2008).
[10] *Id.*
[11] 25 U.S.C. §§396a-396g (2012)

payments were low, reducing the tribal role to simple consent.[12] Beyond the economic lease issues, tribes had no opportunity to participate in development and management decisions[13], to ensure environmental and cultural protection[14], or to bargain for favorable terms, such as tribal employment preferences.

The past two decades have seen greatly increased tribal control over mineral development of Indian lands.[15] Indian tribes are beneficial owners of the mineral resources, lessors, developers of the minerals, and as sovereign governments with powers of regulations and taxation. Tribes are enacting laws to regulate industry[16] and negotiating mineral agreements to include environmental protection provisions.[17]

II. Tribal Governments in New Mexico

New Mexico contains the third greatest amount of tribal acreage after Arizona and Alaska.[18] Tribal lands within New Mexico consist of 8,541,812.612 acres, totaling 11% of the state.[19] Twenty-three sovereign Native American Tribes and Pueblos reside within New Mexico: Pueblo of Acoma, Pueblo of Cochiti, Fort Sill Apache Tribe, Pueblo of Isleta, Pueblo of Jemez, Jicarilla Apache Tribe, Pueblo of Laguna, Mescalero Apache Tribe, Pueblo of Nambe, Navajo Nation, Pueblo of Ohkay Owingeh, Pueblo of Picuris, Pueblo of Pojoaque, Pueblo of San

[12] Judith V. Royster, *Practical Sovereignty, Political Sovereignty, and the Indian Tribal Energy Development and Self-Determination Act*, 12 LEWIS & CLARK L. REV. 1065-1071-81 (2008).
[13] Indian Policy Review Committee, Final Report 338 47 (1977), criticizing the leasing practices of the federal government on tribal lands, including: (1) inequitable mineral leases; (2) deficiencies in contracts; (3) coal lease acreage limitations; (4) lack of enforcement provisions in leases; (5) environmental controls weak; (6) duration of leases too long; and (7) adverse social problems.
[14] Marjane Ambler, *Breaking the Iron Bonds: Indian Control of Energy Development*, 237 (1990).
[15] *See*, Energy Policy Act of 2005, P.L. 109-58, 119 Stat. 594 (Aug. 8, 2005) encourages the efficient development on energy minerals on tribal lands and to promote tribal self-determination.
[16] *See*, Judith V. Royster & Rory SnowArrow Fausett, *Control of the Reservation Environment: Tribal Primacy, Federal Delegation, and the Limits of State Intrusion*, 64 WASH. L. REV. 581, 596-97 (1989).
[17] *Id*.
[18] *New Mexico: State Profile and Energy Estimates, Profile Analysis*, U.S ENERGY INFO. ADMIN. (2017), https://www.eia.gov/state/analysis.cfm?sid=NM.
[19] TILLER'S GUIDE TO INDIAN COUNTRY 528-571 (Veronica E. Valerde Tiller ed., 3rd ed., 2015).

Felipe, Pueblo of San Ildefonso, Pueblo of Sandia, Pueblo of Santa Ana, Pueblo of Santa Clara, Pueblo of Kewa (formally Pueblo of Santo Domingo), Pueblo of Taos, Pueblo of Tesuque, Pueblo of Zia, and Pueblo of Zuni.[20]

Three tribal governments in New Mexico, the Navajo Nation, the Pueblo of Laguna, and the Jicarilla Apache Tribe, have developed mineral resources on their homelands. The Navajo Nation has coal, oil and gas, and uranium mining (mines now closed) on its Tribal lands. The Pueblo of Laguna had extensive uranium mining during the period from 1940 to early 1980s. The Jicarilla Apache Tribe has oil and gas energy development. These three tribes and its community have been directly impacted by energy development. The remaining 19 tribal governments whose ancestral homelands lay nearby these communities have been indirectly affected by the pollution to the lands, destruction of cultural properties, which has thereby impacted their culture and society.

III. Energy Development in New Mexico

A. New Mexico Energy Development

New Mexico is a state rich in mineral resources, and is the seventh largest net supplier of energy to the United States.[21] Energy resources developed in the state include petroleum, natural gas, natural gas liquids, and coal.[22] In 2016, New Mexico produced 118,321,037 barrels of oil, which is more than 4% of the nation's crude oil[23], and 1,250,895,885 cubic feet of gas, as well as 1% of the nation's coal.[24]

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[20] *New Mexico's Twenty-Three Tribes and the Indian Affairs Department*, N.M. INDIAN AFFAIRS DEP'T., http://www.iad.state.nm.us/history.html.
[21] U.S ENERGY INFO. ADMIN., *supra* note 18.
[22] *See Id.*
[23] *See Id.*
[24] N.M. ENERGY, MINERALS AND NAT. RES. DEP'T, ANNUAL REPORT (2016), http://www.emnrd.state.nm.us/ADMIN/documents/Final_2016_EMNRD_AnnualReport.pdf

The San Juan Basin in northwestern New Mexico contains one of the largest natural gas reserves in the U.S.[25] The state is also the second largest producer of coalbed methane.[26] In addition to oil and gas, in 2015 New Mexico was among the top 10 states for solar electric capacity per capita, and currently operates more than 700 wind turbines.[27] Coal-fired power plants supply 46% of the state's total energy needs.[28]

Historically, New Mexico was the leader in uranium production, producing 348,019,000 pounds from 1948-2002.[29] New Mexico contributed 37.5% of the nation's uranium, with Grants, New Mexico containing the second largest uranium reserves in the United States.[30]

B. Tribal Energy Development

Currently, there are 2,762 completed oil and gas wells and 245 oil and gas leases located on tribal lands in the state,[31] with the largest energy development occurring in the Four Corners region of northwestern New Mexico.[32] Historically, tribal lands were the primary source for uranium mining, including the Jack Pile mine on the Pueblo of Laguna[33] and over 500 mines on the Navajo Nation.[34] The Jack Pile mine is one of the largest open-pit uranium mines in the

[25] *See* U.S ENERGY INFO. ADMIN., *supra* note 18.
[26] *See Id.*
[27] *See Id.*
[28] *History: Mining*, N.M. MUSEUM OF ART (2010), online.nmartmuseum.org/nmhistory/growing-new-mexico/mining/history-mining.html.
[29] Virginia T. McLemore, *Uranium Resources in New Mexico*, N.M. BUREAU OF GEOLOGY AND MINERAL RES. (2016), https://geoinfo.nmt.edu/resources/uranium/nmresources.html
[30] *See Id.*
[31] BLM Source, Aden Seidlitz, Program Manager.
[32] *See* U.S ENERGY INFO. ADMIN., *supra* note 18.
[33] THE STATE OF NATIVE AMERICA: GENOCIDE, COLONIZATION, AND RESISTANCE (RACE & RESISTANCE SERIES), 246 (M. Annette Jaimes ed., 1999).
[34] EPA Region 6, *Cleaning Up Abandoned Uranium Mines*, https://www.epa.gov/navajo-nation-uranium-cleanup/cleaning-abandoned-uranium-mines

United States.[35] As of 2016, energy development on tribal lands accounts for 1% of New Mexico's total oil production and 3% of total gas production.[36]

The Jicarilla Apache tribal reservation is over one million acres, largely within the San Juan Basin.[37] The Jicarilla Apache Tribe is the largest mineral royalty owner in the San Juan Basin after the federal government.[38] Currently, over 2,700 wells have been drilled on the reservation, producing nearly 900,000 barrels of oil and 30 billion cubic feet of gas.[39] The reservation contains over 2,000 miles of pipeline for natural gas production.[40] The Reservation has successfully produced and marketed oil and gas reserves from its land for over 15 years.[41] The Jicarilla Apache Tribe has its own energy development corporation, which facilitates this production.[42]

The Navajo Nation also conducts energy development within the Four Corners region.[43] The Navajo Nation operates a pipeline between New Mexico and Utah,[44] and also owns a coal mine located on Navajo land in New Mexico.[45] The coal mine is the main source of fuel for the Four Corners Generating Station, which is the largest power plant in New Mexico.[46] The

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[35] EPA, Region 6, *The Legacy of Abandoned Uranium Mines in the Grants Mineral Belt, New Mexico*, https://www.epa.gov/sites/production/files/2015-08/documents/uranium-mine-brochure.pdf
[36] *See* U.S ENERGY INFO. ADMIN., *supra* note 18.
[37] *Energy Development in Indian Country*, of the S. Comm. on Indian Affairs, 112th Cong. 44 (2012) http://www.indian.senate.gov/sites/default/files/upload/files/CHRG-112shrg75746.pdf (statement of Hon. Levi Pesata, President, Jicarilla Apache Nation).
[38] *See* U.S ENERGY INFO. ADMIN., *supra* note 18.
[39] *See* BUREAU OF INDIAN AFFAIRS, JICARILLA APACHE RESERVATION ENERGY DEVELOPMENT REPORT, https://www.bia.gov/cs/groups/xieed/documents/document/idc1-022545.pdf.
[40] *Energy Development in Indian Country*, of the S. Comm. on Indian Affairs, 112th Cong. 44 (2012) http://www.indian.senate.gov/sites/default/files/upload/files/CHRG-112shrg75746.pdf (statement of hon. Levi Pesata, President, Jicarilla Apache Nation).
[41] BUREAU OF INDIAN AFFAIRS, *supra* note 39.
[42] *Jicarilla Apache Energy Corp*, SBCONTRACT, http://www.sbcontract.com/contractor/1700711/JICARILLA-APACHE-ENERGY-in-Dulce-NM.htm.
[43] *See* U.S ENERGY INFO. ADMIN., *supra* note 18.
[44] *See id.*
[45] *See id.*
[46] *See id.*

Generating Station is also located on Navajo land. Finally, the Navajo Nation owns a production company for oil and gas development.[47]

Oil and gas exploration has been conducted on several tribal lands belonging to the Pueblos of northern and central New Mexico however there are not statistics on the production from the exploration.

C. Chaco Canyon

Chaco Canyon is called the Center of an Ancient World.[48] Located in northwestern New Mexico,[49] Chaco Canyon is the ancestral source of the Pueblo peoples.[50] The canyon was central to thousands of people between 850 and 1250 A.D.[51] Today, Chaco Canyon is protected under federal law and is managed by the National Park Service as a National Historic Park.[52] However, recently the BLM approved more than 130 drilling permits for exploration of oil and gas adjacent to Chaco Canyon.[53] This early phase of development raised major concerns with the public and, more importantly, to the Pueblo peoples, being as Chaco Canyon is their ancestral home.[54] The development proposes new fracking techniques, which some believe will cause damage to the ancient structures, sacred landscapes, and native communities.[55] As of October 2016, the Court of Appeals for the Tenth Circuit has rejected the effort to temporarily halt drilling in the area.[56] The lawsuit challenges the BLM's approval of the drilling applications

[47] *About Us*, NAVAJO NATION OIL AND GAS COMPANY, http://www.nnogc.com/about-us.html.
[48] *Chaco Culture National Historic Park*, NAT'L PARK SERV., https://www.nps.gov/chcu/index.htm
[49] *Directions*, NAT'L PARK SERV., https://www.nps.gov/chcu/planyourvisit/directions.htm
[50] *Chaco Culture National Historic Park*, NAT'L PARK SERV., https://www.nps.gov/chcu/index.htm
[51] *See id.*
[52] *See id.*
[53] *Protecting Chaco Canyon and the San Juan Basin from Fracking (NM)*, W. ENVTL. LAW CTR., http://www.westernlaw.org/our-work/climate-energy/reforming-oil-gas-operations/protecting-chaco-canyon-and-san-juan-basin-frac.
[54] *See id.*
[55] *See id.*
[56] *Diné CARE v. Jewell*, No. 15-2130 (Oct. 27, 2016).

citing violations of the National Environmental Policy Act and the National Historic Preservation Act.[57]

Chaco Canyon, which is federally owned and administered by the United States, is rich in cultural resources and mineral resources. "Cultural resources", also known as cultural property have been defined as "tangible and intangible effects of an individual or group of people that define their existence, and place them temporally and geographically in relation to their belief systems and their familial and political groups, providing meaning to their lives."[58] Many tangible and intangible cultural properties of cultural and religious significance are located on or near these federal public lands. Energy development is Chaco Canyon has the potential of destroying many cultural properties, interfering with sacred landscapes of the Navajo and Pueblo peoples, and impacting the spiritual and cultural traditions of the tribes. It is imperative that federal agencies strictly adhere to the federal, tribal and state laws addressing various aspects of cultural resources.[59]

IV. Positive Impacts of Energy Development

While extraction and production of energy sources such as uranium, oil, and natural gas come with negative social and environmental costs, as an exercise of tribal sovereignty, the development of these resources is intrinsically beneficial. The disposition of resources under the control of the tribe offers the opportunity to draft and enforce legislation and regulations to the benefit of the tribe.

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[57] *See id.*
[58] Sherry Hutt, et al., Cultural Property Law: A Practitioner's Guide to the Management, Protection and Preservation of Heritage Resources xi (2004).
[59] See the National Historic Preservation Act, 16 U.S.C. §§ 470 to 470w-6; Native American Graves Protection and Repatriation Act, 25 U.S.C. § 3001-3013 (2000); National Environmental Policy Act, 42 U.S.C. §4331; American Indian Religious Freedom Act, 42 U.S.C. § 1996 (1978); Archeological Resources Protection Act, 16 U.S.C. § 470aa to 470ll.

A. Renewable Energy on Tribal Lands

The development of renewable resources offers more benefits than oil, coal, or natural gas. The high technology requirements for exploiting these sources, coupled with a lack of regulating legislation over renewables, affords tribes broad discretion to draft codes and regulations to orient the development to the best interest of the tribe. Most tribes have tribal member employment preference laws that require energy developers to hire and train tribal members in the enterprise.[60] Thus, in the case of high-tech renewables, the more development, the more opportunity for the tribe to exercise its sovereignty in controlling the resource.

Tribal land in New Mexico has enormous potential for renewable energy development. All tribes within New Mexico have potential geothermal resources on the lands.[61] Several tribal lands have elevated land formations with strong potential for wind energy development. In addition, climate conditions in New Mexico are highly favorable for the production of solar energy and provide great potential for tribal development and distribution of solar power. Many of the tribes within New Mexico have received federal grants to support the development of solar energy. The Pueblo of Kewa recently received a grant to install a solar photovoltaic system to power community water pumps water and the water treatment facility. In addition, four tribes in New Mexico were awarded a $1.37 million dollar grant to fund clean energy projects.

[60] *See* Navajo Preference in Employment Act, 15 Navajo Tribal Code, § 601 et seq.; *See also* Vicki J. Limas, *Employment Suits Against Indian Tribes: Balancing Sovereign Rights and Civil Rights*, 70 DENV. U. L. REV. 359 (1993); G. William Rice, *Employment in Indian Country: Considerations Respecting Tribal Regulation of the Employer-Employee Relationship*, 72 N.D. L. REV. 267 (1996).
[61] *See* U.S. ENERGY INFO. ADMIN., *supra* note 18.

B. Employment of Tribal People

Employment of tribal members by the energy industry doing business on Indian lands has always been an incentive for energy development. Over the years, thousands of tribal people have been employed in a variety of jobs related to the energy development. This income has supported many tribal people who often live in poverty. In 2012, the Native American population within New Mexico was 9%, with 53.6% in the State's labor force.[62] Sixteen percent were unemployed.[63] In New Mexico, 1.9% of the state's population is employed in the mining industry, while 3.6% of Jicarilla Apache tribal members and 3.4% of Navajo Nation citizens are employed in mining.[64] Employment in the mining industry is projected to be the fastest growing in New Mexico, with mining employment likely to be more concentrated in the eastern and northern regions.[65] From 2007 to 2012, there was a 23.8% increase in mining employment in New Mexico, with 4,611 people employed overall.[66]

Beginning in the 1980's, tribes began enacting employment laws to provide preference in hiring of tribal members in tribal government, businesses and other entities located on reservation lands. Energy producing tribes have passed laws to ensure that their tribal members working for energy companies receive a preference in hiring if they are qualified for the job.[67]

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[62] *State of New Mexico Workforce Report 2014*, NM Dept. of Workforce Solutions, http://www.NM_2014_State_of_the_Workforce_Report_111213-1.pdf
[63] *See id.*
[64] *New Mexico Tribal Occupational Health Needs Assessment: A Report to Native American Communities*, NM Occupational Health Registry, http://www.OHSP-TribalNeedsAssessment.pdf
[65] *See* NM Dept. of Workforce Solutions, *supra* note 58.
[66] *See id.*
[67] *See* Navajo Preference in Employment Act, 15 Navajo Tribal Code, § 601 et seq.; *See also* Vicki J. Limas, *Employment Suits Against Indian Tribes: Balancing Sovereign Rights and Civil Rights*, 70 DENV. U. L. REV. 359 (1993); G. William Rice, *Employment in Indian Country: Considerations Respecting Tribal Regulation of the Employer-Employee Relationship*, 72 N.D. L. REV. 267 (1996).

C. Tribal Regulation

A positive aspect of energy production in Indian Country is tribal regulation. A Tribe's exercise of civil and regulatory jurisdiction on Indian lands is an exercise of tribal sovereignty. The ability to regulate specific activities through the enactment of statutes, the promulgation of regulations, licensing, permitting, monitoring, and enforcement is a necessarily inherent feature of any sovereign governmental entity. Regulation helps the Tribe ensure that the best interests of its people are considered and protected. Also, a vibrant regulatory scheme established in tribal law enables a Tribe to commit reliably to long term governmental and community planning, through methods such as zoning.[68] By asserting its civil and regulatory authority, a Tribe expresses an affirmation of its jurisdiction and clarifies any uncertainties by filling jurisdictional voids. Moreover, in the context of concurrent jurisdiction with another sovereign, the very act of entering into government-to-government agreements, such as compacts and MOUs, both exercises and compels recognition of the Tribe's sovereignty.

The U.S. Supreme Court has long recognized a Tribe's inherent civil and regulatory authority, not only over activities on tribal trust lands, but also on fee lands within or near tribal lands. This jurisdiction exists in two circumstances: (1) if there is a consensual relationship with the Tribe through contracting, leasing, licensing, or other commercial dealings; or (2) if the activity in question impacts the political integrity, economic security, or health and welfare of the Tribe.[69] This rule has been affirmed by the Court as recently as 2016.[70]

Tribes possess the inherent authority to govern their territories including enacting environmental laws to protect their peoples and lands. They may enact laws that establish

[68] Robert T. Anderson et al., American Indian Law: Cases and Commentary 556 (6th ed. 2015).
[69] *See Montana v. United States*, 450 U.S. 544 (1981).
[70] *See Dollar General Corp. v. Mississippi Band of Choctaw Indians*, 136 S.Ct. 2159 (2016).

standards, permit requirements, and penalties for violations, provide for public hearings before environmental review boards, enforcement in a tribal court.[71] Tribes have enacted solid waste codes, land use laws, and water codes, to control and regulate activities on the reservation. In addition to tribal inherent authority, the Congress has authorized a tribal government to assume primary regulatory authority, or primacy, for administering most of the federal environmental programs in Indian country.[72] Numerous tribes has received primacy from the Environmental Protection Agency. Once a tribe has received primacy it may require upstream off-reservation discharge from adversely impacting on-reservation waters. Accordingly, tribes have set more stringent water and air quality standards to protect subsistence and ceremonial activities, and human health, which have been upheld by the federal courts when challenged by states or cities.[73]

The exercise of tribal civil and regulatory authority is a positive affirmation of a Tribe's sovereign right to protect its own lands, people, and interests. This is particularly true when considering the various aspects of energy production on Indian lands, the economic interests of the Tribe, the impacts on the environment, methods of mitigating possible harms, and the social impacts on the tribal community.

[71] *See Backcountry Against Dumps v. EPA*, 100 F.3d 147, 151 (D.C.Cir. 1996). See also
[72] For example, the Congress has amended the Clean Water Act, 33 U.S.C. § 1311(a) under § 518; Clean Air Act, 42 U.S.C. §7601(d)(2)(B).
[73] *See, e.g., City of Albuquerque v. Browner*, 97 F.3d 415 (10th Cir. 1996) (Pueblo of Isleta's strict water quality standards, designed to protect agriculture and ceremonies, may limit City of Albuquerque's upstream discharge of pollution into Rio Grande River); *Wisconsin v. EPA*, 266 F.3d 741 (7th Cir. 2001) (Sokaogon Chippewa Community's stringent water quality standards to protect subsistence harvesting of wild rice upheld); *A*rizona Public *Service v. EPA*, 211 F.3d 1280 (D.C. Cir. 2000) (tribes free to set air quality standards higher than federal minima).

D. Tribal Taxation

Another positive aspect of energy development in Indian Country is the potential for the Tribe to generate much needed revenue through taxation. Tribal taxation is vital for developing and maintaining a true economic base on Indian lands, and is a further affirmative expression of governmental sovereignty. Similar to any State government, a Tribe's ability to set specific tax rates and extend tax incentives through formal legislation can make Indian Country an attractive place for industry to do business. It is generally considered as a given that when industry sets up operations in Indian Country, jobs for tribal members follow.

Historically, Tribes have refrained from imposing taxes on their own members. Tribes have often viewed this as improper because of the extreme poverty of many reservation Indians, as well as its incompatibility with the tribal tradition of communal property. Today, however, Indians and non-Indians alike may be subject to a variety of taxes on Indian lands, including sales, fuel, cigarette, and hotel taxes.[74]

The U.S. Supreme Court has affirmed a Tribe's ability to tax mineral production on tribal lands as a "fundamental attribute of sovereignty, which the tribes retain unless divested of it by federal law."[75] However, this does not preclude a state's ability to also assess state taxes on non-tribal member transactions on Indian lands.[76] As a result, many Tribes and states have entered into government-to-government compacts to address the problems associated with duel taxation. Tribal taxation may also be imposed on utility companies with rights-of-way through tribal lands—especially when those companies provide services to tribal members and impose costs on

[74] *See* CAROLE E. GOLDBERG ET AL., AMERICAN INDIAN LAW: NATIVE NATIONS AND THE FEDERAL SYSTEM 434 (6th ed. 2010).
[75] *See Merrion v. Jicarilla Apache Tribe*, 455 U.S. 130 (1982).
[76] *See Cotton Petroleum Corp. v. New Mexico*, 490 U.S. 163 (1989).

the Tribe resulting from environmental and other issues.[77] As is true in state and federal government, revenues from tribal taxation fund essential governmental functions, social programs, education incentives, housing, infrastructure, and a host of other services.

V. Negative Impacts of Energy Development

For many tribes, land and cultural resources play an integral role in their individual and tribal community's ongoing way of life and self-identity. The land itself is inherent to tribal people, and they often cannot conceive of life without it. Land is important for several reasons: (1) it provides subsistence for people; (2) it is the source of spiritual origins and creation for tribal people; (3) it continues to be a spiritual landscape; (4) it is a sacred place upon which generations and generations of tribal people have lived and practiced their ceremonies and (5) land is irreplaceable, and tribal people are unlikely to relocate from their ancestral lands. Closely interwoven with land are its many cultural properties and resources that continue to be utilized by tribal people. Tribal people continue to visit, pray and participate in ceremonies on lands located on and off-present day tribal lands.

Despite this commonly held tribal worldview, some tribes in New Mexico have still decided to pursue forms of economic development through the exploitation of natural resources that are environmentally destructive, impact cultural resources, and create adverse health consequences for their communities. As discussed earlier, the impetus for such development is based upon having an abundance of natural resources, located in isolated territory, high unemployment and poverty. Tribal governments, as tribal sovereign, must make these often times difficult business decisions which create employment and revenue, but may also have adverse impacts for present and future generations.

[77] *See* CAROLE E. GOLDBERG ET AL., *supra* note 74.

A. Health

1. Uranium Mining

Native Americans are the highest percentage of employees in New Mexico in high-risk occupations, including mining. Mining has the highest fatality rate of any other occupation (31 fatalities per 100,000 workers annually).[78] Regulations addressing various mining related illnesses and diseases have been adopted by the New Mexico Department of Health.[79] The Department has created a Surveillance Program that collects data on illnesses including the following: asbestosis, coal worker's pneumoconiosis, hypersensitivity pneumonitis, mesothelioma, noise induced hearing loss, occupational asthma, silicosis, and other illnesses or injuries.[80]

The Federal Government has been cleaning up uranium mining legacy waste on the Navajo Nation, which spans 27,000 square miles and extends across three states.[81] Specific health effects from uranium contamination include kidney failure, respiratory diseases, and cancer.[82] Additionally, uranium has now been found in the bloodstreams of babies.[83] The Department of Justice has pursued litigation against mining companies, requiring them to clean up uranium mining legacy waste.[84] Since 2008, the Environmental Protection Agency has removed thousands of cubic yards of mine waste and has rebuilt nearly 50 contaminated homes

[78] N.M. OCCUPATIONAL HEALTH REGISTRY, NEW MEXICO TRIBAL OCCUPATIONAL HEALTH NEEDS ASSESSMENT: A REPORT TO NATIVE AMERICAN COMMUNITIES, https://nmhealth.org/data/view/assessment/320/
[79] *See id.*
[80] STEPHANIE MORAGA-MCHALEY, NEW MEXICO OCCUPATIONAL HEALTH SURVEILLANCE PROGRAM UPDATE, 4 (N.M. Dept. of Health & N.M. Chapter of the Am. Soc'y of Safety Eng'rs ed, 2012), https://nmhealth.org/publication/view/presentation/324/.
[81] Laurel Morales. *For the Navajo Nation, Uranium Mining's Deadly Legacy Linger,* NAT'L PUB. RADIO, April 10, 2016, http://www.npr.org/sections/health-shots/2016/04/10/473547227/for-the-navajo-nation-uranium-minings-deadly-legacy-lingers.
[82] *See id.*
[83] *See id.*
[84] *See id.*

on the Navajo Nation land. Kerr-McGee, a U.S. mining company, paid one billion dollars to the Navajo Nation for cleanup and restitution.[85] Problems continue, however, with the clean-up because mining companies have gone bankrupt or closed down.[86]

As a result of mining activity, much of the population of the Navajo Nation residing near the areas of mining or milling have had their health compromised. Many miners developed cancers, including lung cancer from inhalation of the radioactive particle radon.[87] Of the 150 Navajo uranium miners who worked at the mine in Shiprock, New Mexico until 1970, 133 died of lung cancer or various forms of fibrosis by 1980. Other potential health effects include bone cancer and impaired kidney function from exposure to radionuclides in drinking water. At the time, the government and mining companies failed to inform the people of the Navajo Nation that exposure to uranium can be hazardous to one's health. The Public Health Service even conducted a study to document the development of illnesses as mining progressed without informing or gaining consent from the miners. Most of the 1,000 unsealed tunnels, unsealed pits and radioactive waste piles still remain on the Navajo Nation reservation, with Navajo families living within a hundred feet of mine sites. Some of the homes were built with tailings material and much of the water is contaminated on the reservation.

2. Coal Mining and Power Plants

Air pollution is a direct consequence of mining. Wind-blown dust from mining operations and waste piles can carry a variety of pollutants. Coal strip mining in the Four Corners region of the State, exposes vast amounts of coal to the air, in addition to devastating the

[85] *See Id.*
[86] *See Id.*
[87] Anita Moore-Nall, *The Legacy of Uranium Development on or Near Indian Reservations and Health Implications Rekindling Public Awareness*, 5 GEOSCIENCES 2015 1, http://www.mdpi.com/2076-3263/5/1/15.

land.[88] Unless the mined areas are reclaimed, the land is scarred, unusable for agriculture, grazing and subject to erosion.

The Four Corners Stream Plant, one of the largest coal-fired generating stations in the United States is located on Navajo Nation land in Fruitland, New Mexico. The plant emits 157 million pounds of sulfur dioxide, 122 million pounds of nitrogen oxides, 8 million pounds of soot, and 2,000 pounds of mercury. The levels of air pollution created by the generating station is especially dangerous to those in high-risk categories, including those with pediatric asthma, adult asthma, COPD, diabetes, cardiovascular disease, age 65 and older and those with low incomes. Navajo Nation members residing in Shiprock, located approximately 20 miles from the generating station, are five times more likely to be treated at medical facilities for respiratory complaints, as compared to residents of other nearby communities. In addition, many Navajo Nation residents burn locally mined coal in their homes for heat and are therefore exposed to additional toxic fumes.

B. Violence

Increased crime is a consequence of oil and gas development in tribal communities. Oil and gas development has a long history of increased crime resulting from the influx of non-locals and money onto tribal lands.[89] Recently, some non-New Mexican Native American tribes have experienced an increase in crime on tribal lands as a result of oil and gas development.[90] Also,

[88] DUANE A. SMITH, MINING AMERICA: THE INDUSTRY AND THE ENVIRONMENT, 1800-1980, 113, 126 (1987).
[89] MICHELLE HAEFELE AND PETE MORTON, THE INFLUENCE OF THE PACE AND SCALE OF ENERGY DEVELOPMENT ON COMMUNITIES: LESSONS FROM THE NATURAL GAS DRILLING BOOM IN THE ROCKY MOUNTAINS (2009), http://ageconsearch.umn.edu/bitstream/92810/2/0802001.pdf
[90] Sierra Crane-Murdoch, *On Indian Land, Criminals Can Get Away with Almost Anything*, THE ATLANTIC, Feb. 22, 2013, https://www.theatlantic.com/national/archive/2013/02/on-indian-land-criminals-can-get-away-with-almost-anything/273391/.

Native Americans are more likely to experience violent crimes than other ethnicities and races.[91] Thus, oil and gas development in New Mexico tribal communities has the potential of increasing crime in those tribal communities. This section highlights the need to study the potential increase of crime as a result of oil and gas development in New Mexico's tribal communities.[92]

Oil and gas development has a recent history of increasing crime, especially in recent oil and gas operations in the Dakotas.[93] Oil and gas development in the Rocky Mountain region of the United States has doubled from 1998 to 2008.[94] This increased oil and gas production has resulted in "boomtowns" in the region.[95] "Boomtowns" are created by a large influx of workers migrating into the area during the expansion of oil and gas operations.[96] "Boomtown" migrants exert pressure on wages in the area, increase the demand for housing, and create social problems in the community.[97] These "boomtowns" have caused crime in the Rocky Mountain region with increased incidences of serious felonies and drug use[98]. Sadly, "boomtowns" and the problems they create can occur on tribal lands.[99]

The Three Affiliated Tribes of the Fort Berthold Indian Reservation in North Dakota have recently experienced an oil boom resulting in thousands of non-Indian newcomers moving to the area.[100] The influx of oil and gas migrants has resulted in an increase of criminal activity

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[91] *Tribal Crime and Justice*, NAT'L INSTITUTE OF JUSTICE, https://www.nij.gov/topics/tribal-justice/Pages/welcome.aspx.

[92] This report's section cannot confirm that energy development, or merely oil and gas development, in New Mexico has resulted in an increase of violence or crime in tribal communities.

[93] MICHELLE HAEFELE AND PETE MORTON, *supra* note 78; Sierra Crane-Murdoch, *supra* note 79.

[94] MICHELLE HAEFELE AND PETE MORTON, *supra* note 78.

[95] *Id.* at 1.

[96] *Id.* at 3.

[97] *Id.* at 3; *see also* JEFFREY JACQUET, SOCIAL & ECONOMIC IMPACTS TO SUBLETTE COUNTY, WY FROM NATURAL GAS DEVELOPMENT (2007), http://www.sublettewyo.com/DocumentCenter /Home /View/274 (noting the impacts of oil and gas operations on a rural Wyoming county).

[98] MICHELLE HAEFELE AND PETE MORTON, *supra* note 78.

[99] Sierra Crane-Murdoch, *supra* note 79.

[100] *Id.*; Sari Horwitz, *Dark side of the boom*, WASH. POST, Sept. 28, 2014, http://www.washingtonpost.com/sf/national/2014/09/28/dark-side-of-the-boom/.

on tribal lands and has exacerbated enforcement issues for tribal authorities.[101] The Three Affiliated Tribes' police force lacks the authority to arrest and prosecute non-Indians that commit crimes on Indian land.[102] The non-Indians of the Fort Berthold Indian Reservation are aware of this limited tribal jurisdiction and sometimes openly act lawlessly for this reason.[103] While the Federal Bureau of Investigation has recently increased its presence in the area,[104] tribal authorities still lack the independent ability to enforce and prosecute crimes in the area. Thus, oil and gas development can negatively affect tribal communities and present major issues for tribal law enforcement.

However, the recent oil and gas experiences at Fort Berthold are likely to be different than the experiences of New Mexico tribal communities. New Mexico has a much longer history of oil and gas development compared to the recent oil boom of North Dakota. Further, this long history of development has meant that the pace of oil and gas development has been slower, allowing for the communities to expand at a more reasonable rate. Some theorize that regulating and slowing the pace of oil and gas development mitigates the issues from the migrants as the community is given time to expand services to meet the new populations' needs.[105] Thus, New Mexico tribal communities are likely not experiencing the dramatic increase in criminal activity evident on the Fort Berthold Indian Reservation. However, there are a lack of studies reviewing the long-term relationship of oil and gas development and increased criminal activity. Therefore, a study of the long-term relationship of oil and gas development and increased criminal activity

[101] Sierra Crane-Murdoch, *supra* note 79 ("In 2012, the tribal police department reported more murders, fatal accidents, sexual assaults, domestic disputes, drug busts, gun threats, and human trafficking cases than in any year before").
[102] *Id.*; *see also* Oliphant v. Suquamish, 432 U.S. 191 (1978).
[103] Sierra Crane-Murdoch, *supra* note 79.
[104] *See* Katie Valentine, *Crime in North Dakota's Oil Boom Towns is So Bad That The FBI Is Stepping In*, THINKPROGRESS, Mar. 6, 2015, https://thinkprogress.org/crime-in-north-dakotas-oil-boom-towns-is-so-bad-that-the-fbi-is-stepping-in-76e3203eab24#.gmtb82w0m.
[105] MICHELLE HAEFELE AND PETE MORTON, *supra* note 78.

on tribal lands is necessary. New Mexico tribal communities need to know the potential impacts and costs of developing oil and gas. This study should also include potential mitigation plans including developing law enforcement schemes that will allow for the successful arrest and prosecution of Non-Indian oil and gas workers committing crimes on tribal lands.

Tribal communities in New Mexico and across the United States have been dealing with increased crime rates as compared to the national average for the last decade if not longer.[106] Specifically, Native Americans are much more likely to experience sexual assault crimes compared to all other races.[107] Also, tribal communities have difficulty in prosecuting cases in federal courts.[108] Tribal communities need federal assistance to prosecute crimes due to a lack of authority to arrest and prosecute non-Indians.[109] Thus, tribal communities across the United States are dealing with increased crime rates and a limitation on the authority of their police forces. Sadly, New Mexico tribal communities have experienced both of these issues. Therefore, tribal communities, including communities in New Mexico, are more likely to experience increased criminal activity and have higher difficulty in resolving or mitigating those crimes.

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[106] *See* PAULE STEELE, NELL DAMON, & KRISTENE DENMAN, CRIME AND THE NEW MEXICO RESERVATION: AN ANALYSIS OF CRIME ON NATIVE AMERICAN LAND (1996-2002), Executive Summary (2005), https://www.ncjrs.gov/pdffiles1/bjs/grants/212239.pdf.
[107] *Tribal Communities*, OFFICE ON VIOLENCE AGAINST WOMEN, U.S. DEP'T OF JUSTICE (2016), https://www.justice.gov/ovw/tribal-communities.
[108] Timothy Williams, *Higher Crime, Fewer Charges on Indian Land*, N.Y. TIMES, Feb. 20, 2012, http://www.nytimes.com/2012/02/21/us/on-indian-reservations-higher-crime-and-fewer-prosecutions.html.
[109] *Oliphant v. Suquamish*, 432 U.S. 191 (1978).

C. Human and Sex Trafficking

Human and sex trafficking is on the rise in New Mexico with 70 calls reported to the National Human Trafficking Hotline in 2014 and 118 reported calls in 2016.[110] Thirty-two cases of human and sex trafficking were reported in 2016 compared to the 28 reported in 2014.[111] Trafficking is a by-product of the influx of large numbers of men into so-called "man camps" for the purpose of oil and gas development. Some argue that human trafficking is a problem in places like New Mexico due to increased poverty, limited resources, and the increased vulnerability of the female population.[112]

In 2016, the National Congress of American Indians ("NCAI") passed Resolution #PHX-16-078 that stated, "there is a particular concern about the relationship between the extractive industries and sex trafficking."[113] Thus, the NCAI "calls for continued engagement among federal partners, stakeholders, and tribal communities to truly make the vision of comprehensive, transformative, and sustainable victim service response a reality for victims of human trafficking in Indian Country."[114]

Sarah Deer, a law professor and author of The Beginning and End of Rape: Confronting Sexual Violence in Native America, states that "[i]f you are a trafficker looking for the perfect population of people to violate, Native women would be a prime target."[115] Further, Ariel

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[110] Brittany Costello, *Human trafficking on the rise in New Mexico*, KOB 4, Feb. 1, 2017, http://www.kob.com/new-mexico-news/human-trafficking-crime-criminals-attorney-general-hector-balderas-new-mexico-statistics/4386407/; see also *New Mexico*, NAT'L HUMAN TRAFFICKING HOTLINE, https://humantraffickinghotline.org/state/new-mexico.
[111] New Mexico, NAT'L HUMAN TRAFFICKING HOTLINE, https://humantraffickinghotline.org/state/new-mexico.
[112] Ariel Niforatos, *Human Trafficking on the Rez: a closer Look at Life for Females in New Mexico*, RETHINKING AID BLOG, April 6, 2016, http://www.rethinkaid.org/2016/04/human-trafficking-on-the-rez-a-closer-look-at-life-for-females-in-new-mexico/.
[113] Cong. Res., PHX-16-078, Nat'l Cong. Of Am. Indian, (Oct. 2016).
[114] *See, Id*.
[115] Cecily Hilleary, *Sex traffickers Targeting Native American Women*, http://www.voanews.com/a/sex-traffickers-targeting-native-american-women/3063457.html.

Niforators, a member of GlobeMed, an international organization focused on global health equity, states that "[e]specially vulnerable to trafficking are Native American women, whether on reservations or in more urban areas of the state. The Bureau of Indian Affairs has stressed the problem of trafficking in the Southwest and pointed to homelessness and poverty as predisposing risks, something that plagues many New Mexicans."[116]

Of particular concern are the "man camps" that emerge around areas of fossil fuel development. Lisa Heth, executive director of the Wiconi Wawokiya ("Helping Families") shelter in Fort Thompson, South Dakota, on the Crow Creek Indian Reservation, observed that "[f]orced prostitution of native women also is a problem in oil fields, forestry projects or fracking operations . . . where transient workers, almost exclusively male, are housed" in these camps.[117]

Lillian Sparks Robinson, Commissioner for the Administration for Native Americans, states that although human trafficking most often affects women, "[n]ative males are also at risk."[118] Compared to non-native males, native males have an increased vulnerability due to "historical trauma, lack of tribal jurisdiction, homelessness, hypersexualizing of the media, and poverty. Some of these factors increase the chances of assault on a trafficking victim."[119]

There are many risk factors that lead to an increased risk for Native communities for human trafficking:

> First, because of the history of Native women being one of the most frequently sexually abused groups of women in the United States, 'generational trauma' in families, a complicated but well-documented phenomenon, contributes to increased poverty, which

[116] *Supra*, note 109.
[117] *See*, *Id*.
[118] Lillian Sparks Robinson, *Human Trafficking and Sexual Exploitation in Indian Country, Blog*, U.S. Dept. of Health & Human Services, https://www.acf.hhs.gov/blog/2016/01/human-trafficking-and-sexual-exploitation-in-indian-country
[119] *See*, *Id*.

> increases their risk of falling into the trafficking industry because of previous victimization and promises of independence and success, creating a brutal cycle of poverty and enslavement. Many traffickers target Native women because they suffer some of the severest poverty in America. These predators especially target women who are mentally challenged or who struggle with substance abuse because such women have reduced capacity to counteract their enslavement and many come from reservations. Native women are, therefore, at higher risk of becoming victims of trafficking.[120]

Jurisdictional complications significantly impede tribes' abilities to combat sex trafficking on Indian land. "There is a practical jurisdictional vacuum concerning sex trafficking and sexual assault on reservations."[121] Tribal communities have difficulty prosecuting cases in federal courts.[122] Tribal communities need federal assistance to prosecute crimes due to a lack of authority to arrest and prosecute non-Indians.[123] Thus, tribal communities across the United States are dealing with increased crime rates and a limitation on the authority of their police forces.[124]

Although the 2013 reauthorization of the Violence Against Women Act ("VAWA") "included provisions that significantly improve the safety of Native women," tribes are not required to adopt the VAWA provisions.[125] Additionally, these "tribal provisions of VAWA do

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[120] *Supra*, note 109.
[121] *Responsible Resource Development and Prevention of Sex Trafficking: Safeguarding Native Women and Children on the Fort Berthold Reservation*. White Paper. American Indian Law Clinic. University of Colorado Law School 24 (February 4, 2016) https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2723517
[122] Timothy Williams, *Higher Crime, Fewer Charges on Indian Land*, N.Y. Times, Feb. 20, 2012, http://www.nytimes.com/2012/02/21/us/on-indian-reservations-higher-crime-and-fewer-prosecutions.html
[123] *See*, *Oliphant v. Suquamish*, 432 U.S. 191 (1978)
[124] *See* Associated Press, *Murders on Navajo Nation spiked above national rate in 2013*, The Guardian, Apr. 28, 2014, https://www.theguardian.com/world/2014/apr/28/navajo-murder-rate-us-fbi-violent-crime; Bill Donovan, *Of all AZ and NM tribes, Navajo had more violent crimes in 2014*, Navajo Times, Jan. 21, 2016, http://navajotimes.com/reznews/of-all-az-and-nm-tribes-navajo-had-more-violent-crimes-in-2014/; Timothy Williams, *supra* note 6.
[125] *Responsible Resource Development and Prevention of Sex Trafficking: Safeguarding Native Women and Children on the Fort Berthold Reservation*. White Paper. American Indian Law Clinic. University of Colorado Law School 24 (February 4, 2016), https://papers.ssrn.com/sol3/papers2.cfm?abstract_id=2723517.

not cover sex trafficking outside of dating or domestic relationships."[126] Compounding the problem, native women are hesitant to report sex trafficking because of social stigma.[127]

New Mexico has both a significant Native American population and oil and gas development. Approximately 40% of the New Mexico state budget derives from fossil fuels.[128] Therefore, any challenges to the industry are likely to receive pushback from the legislature and local communities. The state's investment in fossil fuel extraction suggests that attention to the social problems produced by the industry may receive less than enthusiastic reception.

In a hopeful sign, the State Attorney General announced a conference titled "Sex Trafficking in Indian Country."[129] "Our partnerships with the Bureau of Indian Affairs, tribal entities, service providers and the Coalition to Stop Violence Against Native Women are key to preventing and prosecuting human trafficking across our state."[130] Cross-agency, cross-community, and cross-jurisdictional action are needed to combat this epidemic.

D. Environmental Impacts

Uranium and coal mining has created severe environmental contamination and pollution of the land, air, and water on tribal lands. The most obvious damage caused by mining is unreclaimed lands, waste piles, open mines and polluted waters. Surface water pollution results from dumping or release of mining wastes directly into streams or drainage.[131] Groundwater is also a concern because mine drainage seeps into the groundwater, and oil recovery mining can

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[126] *Id*. at 25.
[127] *Id*.
[128] The Brookings Institute. *The Challenge of State Reliance on Revenue from Fossil Fuel Production.* 17 (Aug. 9, 2016) https://www.brookings.edu/wp-content/uploads/2016/08/state-fiscal-implications-of-fossil-fuel-production-0809216-morris.pdf
[129] Press Release, Office of the Attorney General, New Mexico, *New Mexico Attorney General, Bureau of Indian Affairs, Tribal Law Enforcement, Service Providers & Coalition to Stop Violence Against Native Women Work to Combat Human Trafficking on Native American Lands* (May 13, 2016), http://www.idcl-034022.pdf
[130] *Id*.
[131] Smith, at 9.

introduce significant contaminants.[132] Air pollution is a direct consequence of mining. Wind-blown dust from mining operations, waste piles and open mines can carry a variety of pollutants.[133]

In New Mexico, the uranium production peak spanned from 1948 to the early 1980s, primarily to produce uranium for weapons and then for nuclear fuel.[134] Thousands of mines were developed in the western United States during the uranium boom.[135] Native Americans in the area often led miners to uranium resources during this exploration boom, due to their intimate knowledge of the land.[136] The Environmental Protection Agency has identified 15,000 abandoned uranium mines in 14 western states.[137] About 75% of those mines are located on federal and tribal lands.[138] The majority of these sites were open-pit and underground mines.[139] Between 1950 and 1989, mines in the U.S. produced more than 225 million tons of uranium ore.[140]

From 1952 to 1981, Anaconda Corporation conducted a uranium stripping operation on approximately 7,000 acres of Laguna Pueblo land in New Mexico.[141] Known as the Jackpile Mine, it was the largest open-pit uranium mine in the United States.[142] The mine was the largest

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[132] Lisa Young, *What Price Progress? Uranium Production on Indian Lands in the San Juan Basin*, 9 AM. INDIAN L. REV. 1, 13-17 (1981) has an excellent discussion of the environmental consequences of all phases of uranium mining. Id. at 4 – 23.
[133] *Id.* at 7.
[134] Anita Moore-Nall. *The Legacy of Uranium Development on or Near Indian Reservations and Health Implications Rekindling Public Awareness*, Geosciences 2015, 5, 15-29; http://www doi:10..3390/geosciences5010015
[135] *See*, *Id*. at 17.
[136] *See*, *Id*.
[137] See, Id.
[138] *See*, *Id*.
[139] *See*, *Id*.
[140] *See*, *Id*.
[141] See, *The State of Native America*, *supra* note 33 at 258.
[142] EPA, Region 6, *The Legacy of Abandoned Uranium Mines in the Grants Mineral Belt, New Mexico*, https://www.epa.gov/sites/production/files/2015-08/documents/uranium-mine-brochure.pdf

producer of uranium ore in the Grants District, the second largest reserve in the United States.[143] The Pueblo leased the land to Anaconda with the goal of securing royalty revenues for the Pueblo and providing jobs for Pueblo members.[144] The Laguna Tribal Council negotiated an agreement with Anaconda which provided that tribal applicants would receive priority in hiring to work in the mine.[145] Ultimately, Pueblo members accounted for approximately 93 percent of the Anaconda labor force. The entire workforce consisted of 350 employees in 1952 and peaked to 650 in 1979.[146]

During the 1970's, unemployment within the Pueblo averaged approximately 25 percent.[147] This percentage was high compared to non-Indians but was less than half the prevailing reservation rate nationally.[148] Notably, in 1979, a former Laguna governor, Floyd Correa, stated in an interview that of the unemployed individuals within the Pueblo, only twelve were collecting unemployment benefits.[149] This was compared to the estimated 20 percent of the total labor forces collecting benefits on most reservations in the country around this time.[150]

However, after the Anaconda Corporation abruptly closed the mine, the Pueblo was left with a gaping crater and piles of radioactive slag.[151] It is estimated that it will cost the Pueblo more to repair the environmental impacts left by the abandoned mine than it earned during the life of the mining contract with Anaconda.[152]

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[143] *See* note 131.
[144] See, The State of Native America, supra note 33 at 258.
[145] *See, Id.*
[146] See, Id.
[147] *See, Id.* at 259.
[148] *See, Id.*
[149] *See, Id.*
[150] *See, Id.*
[151] *See, Id.*
[152] *See, Id.*

Furthermore, as discussed in the Health Section concerning uranium mining, the Navajo Nation was also heavily impacted by the lack of regulation and safety standards.[153] The most glaring example of this is the Churchrock contamination site in New Mexico.[154] In 1979, a broken dam at this site released more than 100 million gallons of highly radioactive water and tailings into the Rio Puerco River.[155] Prior to the break in the dam, United Nuclear, a United States mining corporation, knew of the damaged dam and refused to fix the cracks.[156] For many years, the mine continued to discharge some 80,000 gallons of radioactive water per day into the local community's water supply.[157] This resulted in 1,700 Navajo people being immediately affected and more than 1,000 livestock deaths.[158] The Navajo people had used the Rio Puerco River for irrigation and drinking water, among other things, and were not immediately informed of the contamination.[159]

VI. Remedies

Indigenous knowledge can offer a different perspective on the management of resources by involving the entire ecosystem, and often enables more effective management decisions. When tribal governments in New Mexico develop their own energy resources, as well as monitor private development, it is important to incorporate cultural values to ensure more effective decision-making. Failure to acknowledge and incorporate cultural values and beliefs has led to numerous instances in which projects operated by non-Indian entities caused long-lasting damages to Indian communities.

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[153] *See*, *Id*. at 249.
[154] *See*, *Id*.
[155] *See*, *Id*.
[156] *See*, *Id*.
[157] *See*, *Id*.
[158] *See*, *Id*.
[159] *See*, *Id*.

American Indian Tribes have experienced a turbulent history of energy development on their lands. This development has not been observant of Native cultural values. For American Indians, generally, the ecology of the local environment is sacred and creates the foundation of Indian society. The exploitation of natural resources results in long-lasting ecological damage and adverse health effects. Native Americans, as a result, experience profound feelings of violation, helplessness, and disconnection from the foundation of their beliefs.

There is a strong need to develop an interactive analytical decision-support tool for energy development affecting tribal cultural resources. This tool would shape the outcomes of energy resource development in terms of energy and economic benefits, environmental impacts, and consequences for cultural resources for Tribes.

A. Remedies Addressing Negative Impacts of Energy Development in New Mexico

Federal, state, and tribal governments and their members, as well as concerned non-Native organizations have responded to the detrimental effects of energy development on Native communities. Responses include: (1) federal legislation aimed at compensating those adversely affected, (2) regional activism and citizen suits meant to limit environmental and social harm, (3) the development of tribal programs aimed at addressing adverse climate-change effects on Native life.

The most notable illustration of negligent energy development in Indian Country is uranium mining and its legacy. The Radiation Exposure Compensation Act was enacted by Congress in 1990.[160] It provides for partial, lump sum compensation for individuals who

[160] 42 U.S.C. §2210 note (2012).

contracted certain cancers and other serious diseases as a result of their exposure to radiation while employed in the uranium industry.[161]

Under the Act, New Mexico is a "Uranium Worker State," and individuals who worked in the uranium industry and contracted certain cancers can access up to $100,000 in compensation.[162] Claimants are mainly Native Americans.[163] As of March 2015, approximately 3,800 claims filed by New Mexico residents had been awarded, at a value of nearly $350 million.[164] This includes approximately $24 million to Laguna Pueblo members and $9 million to members of the Apache Tribes. The Act expires in July 2022, with claims received after that date barred.[165]

Regional activism combined with legal redress is another effective tool Natives and regional environmental groups are using to minimize the environmental degradation of energy development. Litigation by Diné CARE, a non-profit based on the Navajo Reservation, has successfully resisted the expansion of the 13,000–acre BHP Billiton mine, known as the "Navajo Mine." A 2015 Colorado district court ruled that the Environmental Assessment completed for the expansion violated the National Environmental Policy Act by ignoring harms, including toxic mercury pollution from burning the mined coal at the nearby Four Corners Power Plant.[166]

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[161] *Id*.
[162] The U.S. Dept. of Justice, Compensation Programs, RECA, http://www.justice.gov/civil/common/reca (last visited Feb. 24, 2017).
[163] *Id*.
[164] Press Release, U.S. Dept. of Justice, Justice Dept. Surpasses $2 Billion in Awards under the Radiation Exposure Compensation Act (March 2, 2015), http://www.justice.gov/civil/common/reca.
[165] *Id*.
[166] Press Release, Western Environmental Law Center, Court Rejects Plan to Expand New Mexico Coal Mine (March 14, 2015) www.westernlaw.org/our.../victory-navajo-coal-mine-expansion-challenge-co-nm.

This litigation and activism resulted in plans to undertake a single Environmental Impact Statement for the entire "mine-to-mouth complex" at Four Corners Power Plant.[167] This will be the first comprehensive review of the environmental effects of both the mining and burning of coal.[168]

Native communities have initiated programs and projects that directly address the adverse effects stemming from energy development. These include efforts directed towards: energy conservation, renewable energy development, energy auditing for the tribal community, climate change and renewable energy education, programs to protect community natural resources, and long-term energy planning for the community.[169]

Conclusion

This Report has documented the impacts of energy development on indigenous peoples in New Mexico. There is no question that the historical development of natural resources, particularly on the Navajo Nation and Pueblo of Laguna, has caused long term contamination to the environment, and deaths and debilitating health effects to human beings. There is increased violence and human and sex trafficking associated with oil and gas development.

Today, tribal governments are in a much better position, based on self-government, to enact environmental laws, worker safety laws and standards, and employment preference laws to protect and preserve their communities. Federal legislation and energy companies have acknowledged the failings in the past and are providing some compensation, and reclamation of surface and underground uranium mines. Under their inherent sovereign powers, tribes can

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[167] Diné Citizens Against Ruining Our Environment v. U.S. Office of Surface Mining Reclamation and Enforcement, et al., No. 1:12-cv-01275-JLK, 2015 U.S. Dist (D. Colo. March 2015)(mem.).
[168] *Supra* note 114.
[169] Susan Wotkyns, *Tribal Climate Change Efforts in Arizona and New Mexico*, Institute for Tribal Environmental Professionals and Northern Arizona University (Dec. 2010).

exercise general police powers over environmentally harmful activities, and are raising revenue through taxation schemes. Tribes have many challenges to raise revenues for their communities, provide employment, and negotiate business agreements with energy companies to provide for a brighter future.