

NGS BASELINE CONDITIONS

A SURVEY OF THE EXISTING LITERATURE SURROUNDING ECONOMIC CONDITIONS
RELATED TO THE NAVAJO GENERATING STATION AND KAYENTA MINE COMPLEX
NORTHERN ARIZONA UNIVERSITY - CENTER FOR AMERICAN INDIAN ECONOMIC DEVELOPMENT

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Preface

This report is a literature review of existing studies of the economic conditions associated with the operation of Navajo Generating Station and the Kayenta Mine. There are several studies that contain specific analysis of economic benefits, each using their own methodology and models. These studies used different estimation or calculation methods, and their details vary depending on their methodology and models. Each of these studies provides its own overview and conclusions of NGS' and Kayenta Mine's contributions, effects, conditions, and projections. Our goal was to gather concrete, accurate data from a survey of existing literature, and to exclude estimated projections and biases. Relevant information was gathered and compiled from these studies to create an understanding of the broad local and regional economic contributions of NGS and Kayenta Mine. Primary data such as surveys or experiments were not collected from any other source. All sources and literature reviewed are included in the references section at the end of this report.

Navajo Generating Station

The Navajo Generating Station (NGS) is a coal-fired power plant located on the Navajo Indian Reservation just east of Page, Arizona, and approximately 131 miles north of Flagstaff.¹ Construction of NGS began in 1969, and the first unit began producing electricity in 1974. The facility currently operates three units, each with a full capacity of 750 megawatts (MW) net generation, providing a total capacity of 2250 MW. Commercial operation of the other units began in 1975 and 1976.²

Service Area: NGS is the largest coal-fired power plant in the southwest, serving customers in Arizona, California, and Nevada. NGS provides power to over one million customers in the southwestern United States and supplies more than 90% of the power needed to pump water through the Central Arizona Project (CAP). The CAP, a federal water supply project constructed by Reclamation, delivers over 1.5 million acre-feet of Colorado River water annually to tribal, agricultural, municipal, and industrial water users in Maricopa, Pinal, and Pima counties in Arizona.

NGS Participant Summary: Salt River Project, which is the plant's largest stakeholder with a 42.9% ownership interest, plans to shut the 2,250-MW plant at the end of 2019. The Bureau of Reclamation owns the second-largest position in the facility, with a 24.3% interest. The other utility owners of the plant, including Pinnacle West Capital Corp. subsidiary Arizona Public Service Co., Berkshire Hathaway Inc.'s Nevada Power Co., and Fortis Inc.-owned Tucson Electric Power Co. own 14%, 11.3% and 7.5% stakes, respectively.

NGS Fuel Source: Coal used by NGS to generate power is exclusively provided by the Peabody Western Coal Company's Kayenta Mine, located about 78 miles southeast of the NGS on tribal

¹ See <https://www.usbr.gov/ngs/>

² See <https://www.srpnet.com/about/stations/ngs/default.aspx>

trust lands leased from both the Navajo Nation and Hopi Tribe. Coal is transported via a dedicated electric train on the Black Mesa & Lake Powell (BM&LP) Railroad. The train travels back and forth between the two facilities on a single track that is looped at each end. Electrical power to operate the BM&LP Railroad is generated at NGS. The rights-of-way used by the railway to deliver coal to NGS does not accrue any additional fees to either the Navajo Nation or the Hopi Tribe³.

The Salt River Project (SRP) has the largest ownership stake among the three other utility companies that own the plant. In 2017, four of the owners voted to close down NGS at the end of 2019 as the coal-fired plant is more expensive to operate relative to natural gas plants², and SRP has been gradually decreasing production.

Table 1 details NGS's economic impact from 2011 (the base year) to 2018. The data presented is as follows. *Direct Employment* indicates the amount of workers NGS directly employed at the power plant units. Data on direct employment from 2011-2013 was provided by Arizona State University's (ASU) "Navajo Generating Station and Kayenta Mine: An Economic Impact Study" conducted in 2012. Direct employment for 2014 was provided by the United States Bureau of Reclamation study, "Environmental Impact Statement: Navajo Generating Station-Kayenta Mine Complex Project" (section 3.18). *Total Employment* consists of direct employment, plus indirect and induced employment. Indirect employment includes the additional jobs that are supported when NGS purchase supplies and services from other local businesses, such as purchases of equipment. Induced employment is the number of workers that NGS and KM employees support by spending their income in the economy, creating revenue to firms which then becomes income to others in the economy. Total employment data was available for 2011-2013 and was provided by ASU's 2012 study. *Gross State Product* measures the state's output (goods and services produced) in a given year. *State Revenue* is the amount of state taxes attributable to NGS's operations.

The following data was provided by the United States Bureau of Reclamation study, "Environmental Impact Statement: Navajo Generating Station-Kayenta Mine Complex Project" (section 3.18-18 to 3.18-20). *Wages, Salaries, Sick leave and Holiday, and Benefits (retirement, fringe)* represent the amount of expenditures NGS reported for these components. *Payroll/Benefits Costs per Employee* is the average amount of payroll and benefits allocated to each NGS employee. *Property Tax/Pmts to Navajo Nation* includes property taxes, use taxes on large purchases made outside of the state, and in lieu of tax payments paid by the non-federal NGS participants to the Navajo Nation tribal government and other local governments/taxing districts. This also includes a payment to the Navajo Nation of 50 percent of the non-federal NGS participants' tax payments to local taxing authorities. The total property taxes, in lieu taxes, and payments made to the Navajo Nation is estimated to be \$8 million, and \$2.7 million of this is allocated to the Navajo Nation. *Scholarships and Donations* is the amount of educational scholarships and contributions to community service groups and programs. *Lease Payment to Navajo Nation* is the annual lease payment made by NGS to the Navajo Nation. Finally,

³ See <https://www.nrel.gov/docs/fy12osti/53024.pdf> pg100

Generation Performance Payment to Hopi Tribe is the annual payment to the Hopi Tribe for deposit into the Hopi Educational Endowment fund. This fund offers Hopi students financial aid for higher education.

	2011	2012	2013	2014	2015	2016
Direct Employment	538	538	538	495		
Total Employment	1,617	1,750	1,810			
Gross State Product	\$234 mil	\$254 mil				
Real Disposable Personal Income	\$81 mil	\$92 mil				
State Revenue	\$6.71 mil	\$7.46 mil				
Wages, salaries, sick leave, holiday				\$52.4 mil		
Benefits (retirement, fringe)				\$19.4 mil		
Payroll/Benefits Costs per Employee				\$145,000		
Property Tax/Pmts to Navajo Nation				\$8 mil		
Scholarships and Sonations				\$325,000		
Lease Payment to Navajo Nation						\$608,400
Generation Performance Payment to Hopi Tribe					\$1.37 bil	
<i>Source: Aggregation of data from all reports surveyed</i>						

Tables 2 to 9 provide a greater level of detailed for the data shown in Table 1.

- Tables 2 through 5 provide information about number of employees and their place of residency.
- Table 6 provides the payroll expense of NGS in the fiscal year of 2014.
- Tables 7 provides payments and taxes that benefited the tribal and local economy in 2014.
- Tables 8, 9 and 10 provide information on tax revenue from NGS.

All tables show the source of the information presented.

NGS Employees - Years 2011 to 2014

Salaried Staff	Hourly Staff	Total regular employees	83% of total employees are Navajo
147	391	538	446

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 4)

Table 2 shows that in 2011, NGS had a total of 538 regular employees, of which 147 were on salary and 391 paid hourly. Hourly staff included apprentices, office specialists, operations and maintenance staff, specialist skilled craftsmen, and warehouse specialists. 83% of the total full-time workforce were Navajos.

Year	2011	2012	2013
Direct Full-Time Job Years	538	538	538
Indirect/Induced Full-Time Job Years	1,079	1,212	1,272

The Regional Economic Models, Inc.(REMI) used a standard output model that disaggregated employment or job years into direct and indirect/induced jobs. It suggested that NGS accounts for more than twice as many indirect/induced jobs for every NGS employee.

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 7)

Table 3 shows direct and indirect employment from NGS's overall operations from 2011-2013. Indirect or induced impacts are less obvious and harder to calculate than direct impacts but are no less significant. These calculations were made by The Seidman Research Institute, W.P. Carey School of Business at ASU, utilizing REMI regional forecasting model. A complete explanation of the model and empirical estimation of the parameters/equations can be found at www.remi.com.

At power plant	396
Assigned to BM&LP RR	99
Total NGS employees	495

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18-18)

Table 4 shows NGS employed a total of 495 workers in the 4th quarter of 2014. 396 of those worked at the plant and 99 were assigned to the BM&LP Railroad. The International Brotherhood of Electrical Workers represented about 400 of the total employees at NGS.

Table 5. Place of residence, NGS employees, 4th Quarter 2014

Community/Chapter	# of employees	% of total	Community/Chapter	# of employees	% of total
Page	294	59.39%	Phoenix Metro Area	10	2.02%
LeChee	50	10.10%	Flagstaff & Nearby	5	1.01%
Kaibeto	30	6.06%	AZ - Elsewhere	33	6.67%
Tuba City	21	4.24%	Utah – All	9	1.82%
Red Lake	14	2.83%	New Mexico - All	6	1.21%
Kayenta	11	2.22%	Elsewhere	1	0.20%
Shonto	11	2.22%	Total	495	100%

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18-20)

Table 5 show locations where full-time employees lived throughout the region, in the 4th quarter of 2014.

Table 6. NGS payroll expense, Fiscal year 2014

Wages, salaries, sick leave, holiday and vacation compensation	\$52.4 million
Federal Insurance Contribution Act	\$19.4 million
Total Payroll	\$71.8 million
Average annual payroll expense per employee	\$145,000

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18-18)

Table 6 shows that the total payroll expense for NGS in fiscal year 2014 was \$71.8 million; \$52.4 million in wages, salaries, sick leave, holiday and vacation compensation and \$19.4 million in Federal Insurance Contributions Act, retirement ,and other benefits.

- The average annual payroll expense per employee for NGS was approximately \$145,000 based on the total 495 employees in 2014. These compensation levels include wages, salaries, the value of fringe benefits and other supplements.
- These calculations were based on all NGS regular employees that were full-time, either salaried or on an hourly wage basis, and eligible for SRP’s comprehensive benefits package. These calculations do not include other additional expenses mentioned below.

Additional economic contributions associated with NGS operation and its employees:

- Retirement plan payments to former employees and the future payments to current employees. No dollar amount was found pertaining to how much was disbursed.
- In 2014, contracts for waste haulers and security contractors that worked at NGS employed another 38 individuals on-site.
- Regular deliveries of limestone, soda ash, motor vehicle fuel, and other materials and supplies employed an unknown number of long-distance truck drivers.

Additional workforce required every year for annual overhauls:

Each generating unit undergoes scheduled shutdowns on a 3-year cycle.

- 4 weeks to complete minor overhaul
- 8 weeks for a major overhaul

Each overhaul employed between 800 to 1,200 contractors and NGS temp workers.

- Payroll payments: \$9.5 million for each minor overhaul
- Payroll payments: \$24.4 million for each major overhaul

NGS 2014 existing lease

Property taxes and payments to Navajo Nation	\$2.7 million
Payments to local school districts, state education equalization fund, Coconino County and local special purpose service districts	\$5.3 million
Annual NGS lease payment made to the Navajo Nation	\$608,400
Annual NGS/PWCC Generation Performance Payment to Hopi	\$1,365,000

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Pages 3.18-20, 3.18.21)

Table 7 shows some of the payments NGS made during 2014.

- As a federal agency, Bureau of Reclamation is exempt from paying state, local and tribal property, sales, and use taxes associated with the U.S. share in NGS.
- The non-Federal NGS Participants pay substantial taxes and in lieu of tax payments to support the Navajo Nation tribal government, local governments and other taxing districts, and public education.
- Property taxes on the plant and use taxes on major purchases from outside Arizona are the two major categories of taxes paid directly. As a political subdivision of Arizona, SRP is exempt from property taxes, but makes contributions in lieu of property taxes (in lieu) as outlined in Arizona Revised Statutes 48:241-248.
- In addition, the non-federal NGS Participants make payments to the Navajo Nation equal to 50 percent of their annual tax payments to local taxing authorities. The combined in lieu, property tax and payments to the Navajo Nation total approximately \$8.0 million annually, of which \$2.7 million flows to the Navajo Nation, the remainder accruing to the local school district, state education equalization fund, Coconino County and local special purpose and service districts. These revenues support payrolls, service provision and infrastructure.
- Under the terms of the lease, an annual NGS lease payment of \$608,400 (this covers the lease for the plant site and rail right-of-way) was made to the Navajo Nation. NGS and employees at NGS provide approximately \$325,000 in educational scholarships and contributions to community service groups and programs.
- As part of a renegotiated coal lease with the Hopi, NGS and PWCC made an annual Generation Performance Payment to the Hopi. In 2015 the payment totaled \$1,365,000. Those funds were designated by the Hopi Tribal Council for deposit into the Hopi

Educational Endowment fund. The fund provided financial assistance to Hopi students pursuing higher education goals⁴.

NGS Tax revenue information

Tables 8, 9 and 10 provide summary information regarding the tax revenues paid by NGS to the State and Counties. The data in tables 8 and 9 are based on calculations by the authors of the source report; the data in Table 10 is actual tax receipt data from Coconino County.

Table 8. NGS's Cumulative Adjusted State Tax Revenues by County, 2011-2044 (Summarized)

Region	Millions 2011\$	Percentage
Coconino County	\$255.80	66.80%
Maricopa County	\$64.07	16.70%
Yavapai County	\$42.42	11.10%
Navajo County	\$6.11	1.60%
Other Counties in Arizona	\$14.56	3.90%
All Regions	\$382.96	100%

Coconino, as the host county, benefits the greatest, followed by Maricopa and Yavapai.

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 10)

Table 9. NGS' Adjusted State Tax Revenues by Tax Type, 2011-2013, Millions 2011\$ (Summarized)

Category	2011 Revenues	% of total	2012 Revenues	% of total	2013 Revenues	% of total
Income Tax	\$2.04	30%	\$2.28	31%	\$2.47	32%
General Sales Tax	\$2.51	37%	\$2.83	38%	\$2.84	36%
Selective Sales Tax	\$0.62	9%	\$0.70	9%	\$0.76	10%
Corporate Income Tax	\$1.54	23%	\$1.64	22%	\$1.73	22%
Arizona Total	\$6.71	100%	\$7.46	100%	\$7.81	100%

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 11)

⁴ See <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-20

Table 10. NGS impact to Coconino County Special Taxing Districts				
Taxing District	FY16 (2015 Taxes)	FY17 (2016 Taxes)	FY18 (2017 Taxes)	FY19 (2018 Taxes)
Coconino County	\$522,175.17	\$511,665.80	\$490,832.79	\$560,699.49
Flood Control District	\$36,772.08	\$36,439.00	\$35,467.82	\$18,016.88
Public Health District	\$227,626.90	\$221,002.44	\$216,089.95	\$250,793.34
Library District	\$232,725.54	\$225,953.41	\$220,930.80	\$256,411.39
State School Equalization	\$460,170.01	\$442,889.58	\$421,417.77	\$475,626.26
FDAT	\$91,050.95	\$88,400.97	\$86,435.58	\$100,317.34
Page Unified School District	\$3,793,705.63	\$3,647,518.32	\$3,728,028.03	\$4,148,041.79
JTED-Caviat	\$45,135.98	\$43,836.49	\$42,857.79	\$49,827.68
Page Hospital District	\$567,694.59	\$547,675.59	\$557,965.36	\$464,035.38
Coconino Community College	\$555,864.10	\$549,325.04	\$530,930.88	\$597,813.11
TOTAL	\$6,532,920.95	\$6,314,706.64	\$6,330,956.77	\$6,921,582.66
*FDAT=Fire District Assistance Tax, JTED-CAVIAT=Joint Technical Education District-Coconino Association for Vocations, Industry and Technology District. <i>Source: Coconino County</i>				

Kayenta Mine

The Kayenta Mine is a surface coal mine operated by Peabody Western Coal Company (PWCC, a subsidiary of Peabody Energy)⁵ on the Navajo Nation in northern Arizona. Kayenta Mine is Arizona's only operating coal mine, located on top of the Black Mesa coal fields about 18 miles south of Kayenta, Arizona. Kayenta mine has been operated by PWCC since 1973 through lease agreements with the Navajo Nation and Hopi Tribe.

According to the U.S. Energy Information Administration, in 2017, Kayenta Mine was ranked #27 on a national production scale. 6,221,392 short tons of coal were mined and reclaimed that year.⁶

Kayenta Mine is the sole source of coal used at NGS. Coal from the mine is sent by conveyor belts to a closed loop electric train, BM&LP RR, which takes the crushed coal directly to NGS. The Kayenta Mine operates under a permanent program permit which was issued by the Office of Surface Mining Reclamation and Enforcement's Western Region (OSMRE) in 1990 pursuant to the Surface Mining Control and Reclamation Act of 1977 (SMCRA, Public Law 95-87).⁷ The existing permanent program permit area covers approximately 40,000 acres.

The table below shows a basic overview of the economic environment from 2010 to 2015. The data are from findings in existing literature. The data presented is as follows. Direct employment indicates the amount of full-time workers Kayenta Mine directly employed at the power plant and mine. Indirect employment includes the number of workers that are indirectly employed due to the business operations of Kayenta Mine, such as purchases of equipment. Induced employment is the number of workers that Kayenta Mine supported by spending their income in the economy, creating revenue to firms which then becomes income to others in the economy. Wages, salaries, and benefits varied year-to-year. Coal royalties, bonuses, payment for water usage, payment for electricity, taxes, and fees also varied year-to-year. Kayenta Mine also made payments to the Black Lung Disability Benefit and the Abandoned Mine Land grant.

⁵ <https://www.peabodyenergy.com/Operations/U-S-Mining/Western-Mining/Kayenta-Mine>

⁶ <https://www.eia.gov/coal/annual/pdf/table9.pdf>

⁷ <https://www.osmre.gov/lrq.shtm>

Table 11. Kayenta Mine Economic Impact Over Time						
	2010	2011	2012	2013	2014	2015
Direct Employment		430	430	430	440	
Direct + Indirect/Induced Employment		616	718	785		
Wages and Salaries					\$34.6 million	
Retirement and benefits					\$60.8 million	
Coal royalties	\$ 34.4 million	\$ 40.6 million*	\$ 40.6 million*	\$ 40.6 million*		
Coal bonuses	\$ 5 million	\$ 7.5 million*	\$ 7.5 million*	\$ 7.5 million*	\$ 7.5 million*	
Payments for water	\$2.2 million	\$1.3 million*	\$1.3 million*	\$1.3 million*	\$1.3 million*	\$1.3 million*
NTUA Revenue	\$ 9.9 million		\$9.9 million*	\$9.9 million*	\$9.9 million*	\$9.9 million*
State property taxes	\$ 1.6 million					
Local taxes and fees				\$ 25.3 million		
Tribal scholarship funds	\$474,000**				\$435,000	
Donations					\$900,000	
Black Lung Disability Benefit		\$4.56 million*	\$4.56 million*	\$4.56 million*	\$4.56 million*	
Abandoned Mine land grant		\$ 34.2 million*	\$ 34.2 million*	\$ 34.2 million*	\$ 34.2 million*	

* These are estimated averages calculated over a period of time. Actual payments varied year-to-year depending on the lease agreement, coal production, and usage of water and electricity.

** This is the average annual amount from 1988 to 2010. Actual payments varied year-to-year.

Tables 12 to 25 provide more details for the data shown in Table 10.

- Tables 12 through 15 provide information about number of employees and their place residency, from 2011 to 2014.
- Table 16 provides an overview of Kayenta Mine's payroll expense in the fiscal year of 2014.
- Tables 17 through 19 provide information on annual coal royalties, coal bonuses, payment for water use, and payment for electricity made to both Hopi and Navajo tribes.
- Table 20 provides an overview of PWCC local taxes and fee payments in 2013.
- Tables 21 and 22 provide information on scholarship funds and donations.

- ❑ Table 23 provides information on payments made towards required coal mining related medical payments.
- ❑ Table 24 and 25 provide information on tax revenue from Kayenta Mine.

All tables show the source of information.

Kayenta Mine Employees - Years 2011 to 2014

Table 12. Kayenta Mine, Number of Full-time Jobs, 2011

Union represented	Company workers	Total workers/ employees	~93% of union workers Native American	~ 20-40% of company workers Native American
320	110	430	~ 298	~ 22 to 44

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 12)

Table 12 shows that in 2011, approximately 320 employees at the mine are represented by the United Mine Workers of America (UMWA) Local 1924. Members of the UMWA Local 1924 ratified a 6-year contract in 2013; that contract is set to expire in September 2019⁸. There were 110 un-ionized company workers, making a total of 430 full-time employees. About 93% of the union workers were Native American and about 20 to 40% of the un-ionized company workers were Native American. PWCC did not specify the preferred tribe of each employee.

Table 13. Kayenta Mines' Direct and Indirect/Induced Job Years for Private Non-Farm Employment (Summarized 2011-2013)

Year	2011	2012	2013
Direct Full-Time Job Years	430	430	430
Indirect/Induced Full-Time Job Years	616	718	785

Note: The Regional Economic Models, Inc.(REMI) used a standard output model that disaggregated employment or job years into direct and indirect/induced jobs. It suggests that Kayenta Mine accounts for generating additional full-time jobs in other industries.

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 15)

Table 13 shows direct and indirect employment from Kayenta Mine's present from 2011-2013. Indirect or induced impacts are less obvious and harder to calculate than direct impacts but are no less significant. This calculations were made by The Seidman Research Institute, W.P. Carey School of Business at ASU, utilizing REMI regional forecasting model. A complete explanation of the model and empirical estimation of the parameters/equations can be found at www.remi.com.

⁸ See <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> Page 3.18-21

Table 14. Kayenta Mine Employees, 4th Quarter 2011

Total Kayenta Mine employees	440
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Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.21)

Table 14 shows that in the 4th quarter of 2014, company employment at the Kayenta Mine was 440, virtually all of whom were on a full-time salaried or hourly wage status and eligible for the company's comprehensive benefits packages.

Table 15. Place of residence, PWCC employees, 4th Quarter 2014

Community/Chapter	# of empl	% of total	Community/Chapter	# empl	% of total
Kayenta	235	53.41%	Ganado	3	0.68%
Tuba City	25	5.68%	Many Farms	3	0.68%
Shonto	23	5.23%	Dennehotso	2	0.45%
Pinon	19	4.32%	Kykotsmovi	2	0.45%
Flagstaff & Nearby	17	3.86%	Cameron	1	0.23%
Page	12	2.73%	AZ - Elsewhere	47	10.68%
Chinle	10	2.27%	New Mexico - All	20	4.55%
Kaibeto	10	2.27%	Utah – All	7	1.59%
Teec Nos Pos	4	0.91%	Total	440	100%

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.22)

Table 15 show the place of residence of Kayenta Mine employees in the 4th quarter of 2014.

Table 16. Kayenta Mine payroll expense, Fiscal year 2014

Wages and salaries	\$34.6 million
Retirement and fringe benefits(sick leave, holiday and vacation compensation)	\$26.2 million
Total Payroll	\$60.8 million
Average annual payroll expense per employee	\$138,000

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.22)

Table 16 shows that Kayenta Mine had \$60.8 million payroll expense in fiscal year 2014; this included \$34.6 million in wages and salaries, and \$26.2 million in retirement and fringe benefits such as sick leave, holiday and vacation compensation.

- The average annual payroll expense per employee for Kayenta was approximately \$138,000 based on the total 440 employees in 4th quarter of 2011. These compensation levels include wages, salaries, the value of fringe benefits and other supplements.
- These estimations were based on all Kayenta Mine workers that were on a full-time salaried or hourly wage status and eligible for the company's comprehensive benefits

packages. These calculations do not include other additional expenses that are mentioned below.

Additional economic contributions associated with Kayenta Mine's local operations

- ❑ In 2014, retirement benefits were paid to former employees and future payments to current employees. Four hundred seventy-eight (478) individuals received retirement payments based on service at the Kayenta and former Black Mesa mines and administrative operations, 266 of whom were employed at the Kayenta Mine at the time of their retirement. Of the 478 total, 382 resided in Arizona, including 171 in Kayenta.
- ❑ Sixteen contractors and vendors hold long-term contracts to provide maintenance, reclamation and security services at the mine, with a total of 79 employees assigned to the mine. In 2013 those contracts had a combined value of \$11.6 million⁹.
- ❑ Coal from the Kayenta Mine is made available to Navajo and Hopi from mid-October to mid-March for home heating. Residents of the lease area receive coal card coupons allowing them to obtain up to six pickup loads per year at no cost. Wood salvaged during clearing of areas to be mined also is made available to lease area residents free of charge¹⁰.
 - ❑ Navajo chapter governments also are provided coupons for no cost coal, which is intended for distribution to the elderly and disabled.
 - ❑ The Hopi tribe is provided 3,500 coupons per year, for distribution through the village governments. All others are charged a fee for coal.
- ❑ Kayenta Mine had more than 40 trained first responders on staff to respond to accidents, wildfires and emergency medical situations in and near the lease area¹¹. The Kayenta Mine first aid station is open on a 24-hour per day basis, and staffed by certified personnel. Although the station primarily is for employees, it is available to the public in life threatening situations. The station is not staffed by doctors or nurses, nor is it intended to treat routine medical conditions. Peabody Western Coal Company hosts an annual health fair for employees and area residents, which provides routine screening such as body mass index, blood pressure, blood sugar, and blood testing for other health indicators. Flu shots also are available. Indian Health Services participates in the health fair.
- ❑ Including road maintenance, snowplowing, the provision of gravel, charitable contributions, and sponsorship for community events, PWCC has averaged between \$750,000 and \$800,000 per year in in-kind and monetary contributions to the Navajo Nation and Hopi Tribe¹².
- ❑ PWCC maintains 173 miles of roads within the lease area. PWCC maintains the paved portion of N-41 from its intersection with U.S. Highway 160 to the former Black Mesa Mine; the remainder of the route is not routinely maintained¹³. No formalized agreement for maintenance of the paved portion of N-41 exists with the BIA, but PWCC maintains

⁹ <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-22

¹⁰ <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-34

¹¹ <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-35

¹² <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-35

¹³ <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-38

roadway shoulders and drainage, and coordinates with the Navajo Nation DOT for repaving or seal coating of the route. All roads are signed and maintained through periodic grading and dust suppression. Security gates prevent public access on roads in the active mine areas. PWCC is not obligated to plow roads leading to homesites, but does so as a courtesy to lease area residents, which can take several days after a large snowstorm.

Kayenta Mine - Tribal royalties, bonuses, scholarships, and payments made to Hopi and Navajo tribes

	Hopi Tribal Revenue	Navajo Tribal Revenue
Average annual coal royalties (1987-2010)	\$ 10.2 million	\$ 24.4 million
Average annual coal bonuses (1998-2010)	\$ 2.2 million	\$ 4.5 million
Average payment for water usage (1987-2010)	\$ 1.6 million	\$ 1.6 million
Average NTUA revenue (1987-2010)	-	\$ 6.7 million
Total average per year	\$ 14 million	\$ 37.2 million

Source: Navajo Generating Station and Air Visibility Regulations: Alternatives and Impacts (Page 96)

Table 17 shows the average annual coal royalties and average payment for water usage made by PWCC through the years of 1987 to 2010. Peabody began paying coal bonuses in 1998. Average annual coal bonuses from 1998 to 2010 are shown. The table also show the average Navajo Tribal Utility Authority revenue from 1987 to 2010. These calculations are averages for the time period shown, not actual annual revenue as they varied year-to-year depending on the lease agreement, usage, and production.

- Other local area benefits that Peabody officials claim they provided during the years spanning from 1987 to 2010. (No data on dollar amounts for each)¹⁴.
 - Resident land use payments
 - Assistance with grazing management programs and education
 - Road maintenance and improvements
 - Water supply assistance
 - Free public coal to area residents
 - Annual health fairs
 - 24-hour emergency health care facility and ambulance service
 - Emergency assistance with roads, coal, and water

¹⁴ <https://www.nrel.gov/docs/fy12osti/53024.pdf> 97

Table 18. Tribal and state tax payments, 2010

Coal royalties	\$ 34.4 million
Coal bonuses	\$ 5 million
Payment for water use	\$ 2.2 million
NTUA Revenue	\$ 9.9 million
State property taxes (\$1.2 million went to school district)	\$ 1.6 million
Total Payments (excluding other local benefits)	\$53,100,000

Source: Navajo Generating Station and Air Visibility Regulations: Alternatives and Impacts (Page 96, 97)

Table 18 shows the combined payments made to both Hopi and Navajo tribes in 2010. NTUA revenue only applies the Navajo tribe. The table also shows the state property taxes made in 2010, \$1.2 million of that went to the local school district.

- Royalties were based on the volume of production.
- Bonuses were fixed and were triggered and paid when the first ton was mined for the given year.
- Peabody had a lease from both tribes to use water from the N-Aquifer, the primary water supply. The lease agreement arranged for \$943.48 an acre-foot for its use. Total payment is split equally between the two tribes, approximately \$1.1 million each in 2010¹⁵.
- The Kayenta Mine paid the Navajo Tribal Utility Authority (NTUA) for electricity use at the mine and related operations.
- The mine paid state property taxes that provided a major source of revenue for Navajo County and the Kayenta Unified School District.

Table 19. Tribal payments made to both Hopi and Navajo tribes, Averages

Average annual royalties (2011 to 2013)	\$40.6 million
Average annual coal bonus payments (2005 to 2014)	\$7.5 million
Average payment for water usage (2010 – 2015)	\$1.3 million
Average NTUA fees (2012 – 2015)	\$9.9 million

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.22, 3.18-23)

Table 19 shows the average annual tribal payments made by PWCC during different periods of time. These calculations are averages for the time period shown, not actual annual revenue as they varied year-to-year depending on the lease agreement, usage, and production.

- Royalties paid to the tribes by PWCC averaged \$40.6 million a year over the 3-year period 2011 to 2013. The distribution of payments between the two tribes varied year-to-year based on production, but averaged 67 percent to the Navajo and 33 percent to the Hopi over the long term.

¹⁵ <https://www.nrel.gov/docs/fy12osti/53024.pdf> 96

- ❑ PWCC made annual bonus payments to the two tribes. These payments were established by contract and triggered and paid by any production within one year. Annual coal bonus payments to the two tribes from 2005 to 2014 averaged \$7.5 million.
- ❑ PWCC's lease agreements with the Navajo Nation and Hopi Tribes provided for the use of groundwater. While the specific financial terms of the agreements are confidential, fees were paid monthly and are subject to escalation over time. Over 5 years, PWCC paid an average of \$1.3 million in water fees per year, based on average annual use of 1,400 acre-feet¹⁶.
- ❑ NTUA supplied the electrical energy used at the mine. PWCC payments for electrical power have averaged \$9.9 million per year over a 3 years period.

Table 20. PWCC local tax and fee payments, 2013

Taxes and fees - 2013	\$25.3 million
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Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.22)

Table 20 shows that PWCC reported payments of \$25.3 million in other taxes and fees in 2013. The total includes local property taxes paid to Navajo County and other local taxing jurisdictions and transactions privilege taxes (TPT)/sales taxes.

Table 21. Tribal scholarship funds provided by PWCC and NGS, 1988 - 2010

Total Hopi Tribe scholarship funds (1988 - 2010)	\$3,876,000
Total Navajo Tribe scholarship funds (1988 - 2010)	\$4,422,000

Source: Navajo Generating Station and Air Visibility Regulations: Alternatives and Impacts (Page 97)

Table 21 shows that from 1988 through 2010, the Hopi Tribe received a total of \$3,876,000 in scholarship funds through the coal lease agreements. The annual amount in 2010 was \$173,000 with the amount set to escalate each year. For that same time period, the Navajo have received a total of \$4,422,000 in scholarship funds through the coal lease agreements. Tribal scholarship funds were received through the coal lease agreements. Both Peabody and NGS had funded these scholarships.

Table 22. PWCC Educational and community donations, 2014

Educational scholarships - 2014	\$435,000
Donations to community, activities and program - 2014	\$900,000

Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.22)

¹⁶ <https://www.usbr.gov/ngs/docs/NGS-KMC-DEIS-Text.pdf> 3.18-23

Table 22 shows that in 2014, PWCC provided \$435,000 in educational scholarships and more than \$900,000 in donations to community, activities and program. Employees of the mine made additional monetary contributions and also volunteered time to various causes and programs.

Table 23. PWCC medical payments for coal mining health issues	
Black Lung Disability Benefit program, estimated annual payment - based on annual production	\$4.56 million
Abandoned Mine land grant to Navajo, 4-year period (2011 through 2014)	\$30.1 million
Abandoned Mine land grant to Hopi, 4-year period (2011 through 2014)	\$4.1 million
Source: Draft Environmental Impact Statement, Navajo Generating Station-Kayenta Mine Complex Project (Page 3.18.23)	

Table 23 shows PWCC made payments into the federal Abandoned Mine Land Reclamation and the Black Lung Disability Benefit programs. Payments into these programs were based on production at the Kayenta Mine and rates established by Congress.

- ❑ The Black Lung Disability Benefit Program provided monthly payments and medical benefit payments to coal miners totally disabled due to pneumoconiosis, and monthly income benefits to widows and other surviving dependents of miners who have died from the disease. Coal producer payments into the Black Lung Disability Trust Fund were the lower of \$0.55 per ton or 4.4 percent of the sales price. Assuming the \$0.55 per ton rate applied to the Kayenta Mine, Peabody's annual payments in the fund would have been \$4.56 million, based on annual production of 8.1 million tons.
- ❑ The Abandoned Mine Land fund was established in the SMCRA and most of the reclamation fees collected return to states and tribes in the form of grants to fund Abandoned Mine Land reclamation projects. Since its enactment in 1977, the Abandoned Mine Land program has collected over \$10.5 billion and distributed more than \$8.0 billion to states and tribes, mandatory distributions to UMWA retiree health and pension plans, and to OSMRE's national program to reclaim land and waters damaged by coal mining before the law's passage.
 - ❑ Peabody's annual payments into the Abandoned Mine Land were about \$2.55 million based on annual production of about 8.1 million tons at the Kayenta Mine.
 - ❑ The Navajo Nation had been awarded \$30.1 million in Abandoned Mine Land grants during the 4-year period 2011 through 2014.
 - ❑ Abandoned Mine Land granted to the Hopi totaled \$4.1 million during the 4-year period 2011 through 2014.

Tax Revenue Information for Kayenta Mine

Table 24. Kayenta Mine's Cumulative Adjusted State Tax Revenues by County, 2011-2044 (Summarized)

Region	Millions 2011\$	Percentage
Navajo County	\$228.70	77.10%
Maricopa County	\$35.20	11.90%
Coconino County	\$13.70	4.60%
Other Counties in Arizona	\$19.00	6.40%
All Regions	\$296.60	100%

Navajo, as the host county, benefits the greatest, followed by Maricopa and Coconino.

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 17)

Table 25. Kayenta Mine' Adjusted State Tax Revenues by Tax Type, 2011-2013, Millions 2011\$ (Summarized)

Category	2011 Revenues	% of total	2012 Revenues	% of total	2013 Revenues	% of total
Income Tax	\$1.16	27%	\$1.30	27%	\$1.40	28%
General Sales Tax	\$2.13	49%	\$2.36	49%	\$2.36	48%
Selective Sales Tax	\$0.53	12%	\$0.58	12%	\$0.63	13%
Corporate Income Tax	\$0.52	12%	\$0.54	11%	\$0.55	11%
Arizona Total	\$4.34	100%	\$4.78	100%	\$4.95	100%

Source: NAVAJO GENERATING STATION AND KAYENTA MINE: An Economic Impact Study (Page 18)

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