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Subcommittee on Indigenous Peoples of the United States

Infrastructure in Indigenous Communities: Priorities for the American Jobs Plan

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Chairwoman Leger Fernandez, Ranking Member Westerman, Members of the Subcommittee, thank you for providing me an opportunity to speak to you about infrastructure priorities in Indigenous Communities for the American Jobs Plan.

My name is Walter W. Haase, and I am the General Manager for the Navajo Tribal Utility Authority (NTUA). I have served in that role since 2008. I am speaking with you today from NTUA Headquarters' building located on the Navajo Nation. We are located along the border between New Mexico and Arizona in a community named Fort Defiance Chapter. It is named after a 19th century United States fort located at the mouth of the Blue Canyon, strategically placed to establish a military presence on the Navajo homeland. It is where the United States rounded up the Navajo People in the winter of 1863 - 1864 to take them on their 400+ mile Long Walk to Hwéeldi, also known as Bosque Redondo or Fort Sumner, in eastern New Mexico. It is the Navajo people's Trail of Tears. At Hwéeldi, Navajo People advocated for their return to their homeland and on June 1, 1868, the United States signed a Treaty with the Navajo People. That Treaty recognized both parties setting aside land that would then be known as the Navajo Reservation. The Navajo People have advocated for the increase of the Navajo Reservation which today is the largest land base of any Indigenous Community of the United States.

The Navajo Nation Council created NTUA in 1959 as a non-profit enterprise of the Navajo Nation to provide electricity to a Bureau of Indian Affairs school that was being constructed in Shiprock Chapter in New Mexico, because the local electric cooperative would not come onto the Navajo Reservation to provide it electric service. NTUA has grown from providing electric service to a single school to the largest Native American owned and operated multi-service utility provider in the United States. NTUA provides electric service to nearly 43,000 customers, natural gas service to over 8,000 customers, telecommunication service to over 18,000 customers, wastewater service to over 14,000 customers, water service to nearly 41,000 customers, and provides 496 off-grid photovoltaic systems to 496 homes. In addition, NTUA owns and operates the largest Native American utility scale solar farm (55 MW) in the United States and has three larger projects nearing construction and several more under development. Yet in 2021 we still have not been able to meet the basic utility needs of all the Navajo people living on the Navajo Nation. Simply put, the people living on the Navajo Nation do not enjoy the same basic standard of living as our neighboring communities, let alone the rest of their fellow

Americans.

Today I will testify about the lack of infrastructure on the Navajo Nation, the funding needs to get utilities to nearly every Navajo home, and the need for a whole of government federal approach. I also include an important discussion on NTUA's utility scale solar development.

BACKGROUND

The Navajo Nation is the largest Native American Nation in the United States, with an estimated enrollment of 343,000 people. The Navajo Nation lands encompass over 27,000 square miles. This is larger than the size of State of West Virginia and extends over thirteen (13) counties located in Arizona, New Mexico, and Utah. Approximately 185,000 people live on the Navajo Nation. That equates to a population density of approximately seven (7) people per square mile.

Approximately 34% of the families live below the poverty line. In 2010, the average per capita income on the Navajo Nation was \$10,695 as compared to the U.S. average of \$48,377. The unemployment rate hovers at 48%. It is estimated that up to 31% of all homes lack complete plumbing, 28% lack kitchen facilities, 40% lack water services, 32% lack electricity, 86% lack natural gas, and 60% lack landline telephones.

The NTUA Board of Directors brought me to the Nation in 2008 to address the lack of infrastructure on the Navajo Nation. This is the fourth multi-service utility I have managed. I had never worked in Indian Country before. I was quite naive when I arrived. I did not have a full grasp of the real problems that needed to be solved. I did not have the context to understand what the Navajo people's struggles were. While I can share the statistics approximating the number of homes lacking utility services, the lack of services is not truly quantifiable. I encourage you to visit the Navajo Nation or any Indigenous Community where its citizens live every day of their lives without access to clean drinking water, telecommunication services or power in their homes.

That being recognized, I believe that this panel is giving me the honor and opportunity of testifying today because the COVID-19 pandemic has shone a bright light on this inequity. COVID-19 has had a disproportionate impact on Native American people with infections 3.5 times higher than in the white population, largely attributable to persistent racial inequity and lack of public health infrastructure. Not only are COVID-19 infection rates higher in the Native American population, but American Indians and Alaska Natives are dying from COVID-19 at the highest rate of any race or ethnic group in this country. Infectious diseases, respiratory ailments, skin infections, and childhood obesity are all many times more common in these communities that lack reliable and safe water service. The federal government has a fiduciary trust responsibility to federally recognized Indian tribes to ensure that its citizens living on

reservations have the basic necessities of life.

My first task in 2008 was to address the financial duress NTUA was under. As a result of the financial duress, NTUA had not been able to access the financial marketplace for more than 10 years, placing replacement and expansion of utility infrastructure at a standstill. I was able to dramatically turn around NTUA's finances situation with the help of the talented team that was already in place but was lacking the necessary leadership, mentoring and vision to create and implement what was needed. In a mere year and a half, we completed five years of Audits and implemented meaningful structural changes which allowed us to access the financial marketplace and in the third year of my administration we started re-building and growing our utility infrastructure and connecting new customers. At the same time, it is very important to ensure that rates stay reasonable. We have not raised electric rates since I started in 2008.

This is my first point. There needs to be leadership and vision to address the current inequities. There must be targeted federal leadership through a "whole of government" approach to end the lack of infrastructure existing on the Navajo Nation and many other Indigenous Communities. There is talented leadership at the Navajo Nation and other Indigenous Communities, but they cannot address their infrastructure needs alone. The simple fact is that several federal agencies are endowed with authority or funding or both to address water, wastewater, electricity, and broadband in Indian Country. It can be dizzying for non-Indian utility providers, even the most sophisticated ones, to manage the processes of one federal agency, let alone several. In addition to federal agency processes, there are often state and county programs that have to be managed as well. At NTUA, we have the added layer of managing Navajo Nation processes. There are mazes of different siloed opportunities and without targeted leadership setting the goal of getting infrastructure developed in a reasonable amount of time and at an affordable cost, many agencies have been and will continue to manage bureaucracies for the sake of managing bureaucracies rather than meeting the needs of Indigenous Communities and their members.

Electricity

Approximately 14,063 homes on the Navajo Nation are not connected to the electric grid. To determine the number of homes on the Navajo Nation that are not connected to the electric grid, NTUA approximated how many homes are connected to the electric grid by surveying the following electric utilities serving the Navajo Nation: the Arizona Public Service Company, Continental Divide Electric Cooperative in New Mexico, and Jemez Mountains Cooperative in New Mexico. Approximately 53,049 residential homes on the Navajo Nation are served through one of these three electric utilities or NTUA.

According to the American Community Survey (ACS) from 2015 to 2019, 68,101 housing units on the Navajo Nation are documented, with a margin of error rate of ± 646 . NTUA considered

homes located in Alamo Chapter (573 homes) and in To'haajiilee' Chapter (416 homes) as connected to the electric grid because these communities have a high rate of electric grid connections. We subtracted 53,049 from the total of the number of homes on the Navajo Nation and the two Chapters where electrification is high and the resulting approximate number of homes lacking electricity from the grid is 14,063.

Based on NTUA's last three years of historic costs, the average cost to connect one home to the electric grid is approximately \$40,000, which includes a \$1,500 subsidy from NTUA and all of the permitting and construction costs. Utilizing NTUA's historic average cost it will cost approximately \$562.52 million to connect 14,063 homes to the electric grid. Many of these homes need to be wired to receive electric service. The estimated cost for wiring a house is \$7,000 which equates to \$98.44 million. Extending power lines to homes also requires extending and upgrading the electric utility transmission and distribution systems and building or expanding existing electric substations, this cost is estimated to be an additional \$400 million. Therefore, the total estimated cost to electrify 14,063 Navajo homes is about \$1 billion.

Many times, NTUA is asked, "Why not just borrow the money to connect all the unserved homes?" Well, if we borrowed the \$1 billion needed to connect all the unserved homes and had not only the new customers pay for it but also had all of our existing customers help out, our electric rates would raise ten-fold. In 2017, the average NTUA residential electric customer paid \$629.94 for a whole year's worth of electricity. If NTUA was able to borrow the money at a zero percent interest rate and had 40 years to repay the loan, we would need to charge over \$6,000 per year per residential customer for the same amount of electricity the average customer consumed in 2017. In 2010, the average per capita income on the Navajo Nation was \$10,695. As you can see, there is no way NTUA's customer base could afford this solution. If NTUA imposed this on them, instead of having 14,000 families without access to the electric grid we would have over 50,000 families living without electricity. This would have created one of the worst man-made disasters the Navajo people would have faced in more than 100 hundred years.

I was also brought to NTUA to address the lack of infrastructure. From 2008 when I started through 2019, we had connected over 5,760 homes to the electric grid. We connected the greatest number of homes per year in 2010 and 2011 when Congress funded the Navajo Electrification Demonstration Project. After those years, progress continued but at a slow pace due to lack of funding. In 2019, we held an innovative project called Light Up Navajo (LUN) to stretch our limited resources. In partnership with the American Public Power Association, over 30 sister public power companies used their funds to send line crew to the Navajo Nation to connect 233 homes to the electric grid in a mere 6 weeks. The model is based on the public power companies support of communities whose utilities go down for natural disasters.

With the infusion of CARES Act funds last year, we connected over 730 homes with CARES Act funds in a mere 4.5 months. I can now say we have connected nearly 6,500 homes since I started. I am proud of the line crews, who worked 75 hours per week in the fall and 70 hours per week in the winter. We limited personal leave so that NTUA was doing everything it could

to respond to the pandemic during the pandemic. NTUA has demonstrated that it performs when it receives funding. I have included an appendix to this testimony identifying the work that NTUA completed with CARES Act funding.

BROADBAND and WIRELESS COMMUNICATION SERVICES

Despite that fact that there are telecommunications providers on the Navajo Nation, too many Navajo residents still lack access to broadband, mobile or landline communication services in their homes. Frontier, NTUA Wireless and Scared Wind are the three largest Broadband providers. Smith Bagley D/B/A Cellular One and NTUA Wireless are the two largest wireless communication providers. Frontier is the primary landline provider, but only reaches approximately 40% of the homes on the Navajo Nation.

The majority of the United States households have access to High-Speed Internet Services through Cable TV Providers or legacy Telephone companies. Most large communities have access to Fiber-To-The-Home (FTTH) service providers that have rate plans with speeds of 100 Mbps or higher. Navajo Nation households only have access to Local Exchange Carrier DSL Service (via copper telephone facilities) or Wireless Facilities, which provide a maximum speed of 25 Mbps.

Mobile Wireless service in many areas of the Navajo Nation, especially the Eastern Agency, is limited because AT&T, Verizon, and T-Mobile/Sprint own the majority of spectrum, but they do not adequately deploy equipment to allow a mobile phone user to make a phone call. By not deploying enough equipment to adequately use their spectrum or allowing other providers to use the spectrum, these carriers are dramatically limiting the coverage in this part of the Navajo Nation.

In 2011, NTUA, in partnership with Commnet Wireless, LLC (“Commnet”), created NTUA Wireless, to be a last mile provider of fixed and mobile wireless services, including broadband internet service. NTUA has 51% ownership interest and Commnet has 49% ownership interest in NTUA Wireless. NTUA Wireless has four primary business units: 1) wholesale wireless; 2) retail wireless; 3) enterprise business and 4) retail broadband to residential customers. After three years and considerable expense by NTUA Wireless, in 2014 the FCC granted NTUA Wireless Eligible Telecommunications Carrier (“ETC”) status for all eligible residents for the entire Navajo Nation. Today, NTUA Wireless provides mobile wireless voice and data services, as well as fixed wireless voice and broadband services, to residents of the Navajo Nation leveraging the NTUA middle mile network and the Commnet last-mile radio spectrum. NTUA Wireless serves more than 18,000 subscribers including more than 7,500 Lifeline customers on the Navajo Nation.

NTUA and NTUA Wireless estimate that for all areas – not all homes -- of the Navajo Nation (subject to terrain considerations) to receive broadband services, fifty-five (55) new telecommunications towers need to be constructed at a total cost of \$49.5 million. These

towers are in addition to NTUA's current infrastructure which consists of more than 80 towers and monopoles. New tower construction will focus on populated areas of the Navajo Nation that either do not currently have coverage or are constrained by capacity. In order to support broadband service, new fiber builds are also required and estimated to cost \$150 million and the radio equipment for the towers is estimated to cost \$25 million. We have identified 60 community fiber to the home projects that could be constructed at a cost of \$94 million and requires \$6 million of new electronic systems and upgrades to the existing electronics systems. The community fiber to the home projects would include various Navajo Housing Authority housing development, housing clusters for various Hospitals, Unified School District Housing sites, as well as fiber to the business in key locations. The total cost is \$324.5 million. This wireless broadband solution would provide speeds of 25 Mbps. The fiber to the home plans would provide speeds of 100 Mbps to 1 Gbps. Tower requirements are based on detailed analysis of current coverage across the Navajo Nation along with radio frequency coverage analyses combined with analysis of population density.

Additionally, the majority of the United States households have access to somewhat reliable Cellular or Landline services. The Navajo Nation has very limited coverage areas for Cellular Telephones due to mountainous terrain and high cost of deployment. Approximately only 40% of all the homes on the Navajo Nation have access to a Landline telecommunications service. In addition to providing broadband service to Navajo Nation, the new towers and supporting fiber build will extend and enhance cell phone coverage to all areas of the Navajo Nation, subject to terrain considerations. This extended coverage will enhance Public Safety across the Navajo Nation as well as providing a means for basic telephone service in many homes that currently do not have access to a landline. A large portion of the younger Navajo population must leave the Navajo Nation for extended periods of time to support their families. While away from home many parents leave their children behind with other family members, most of the time with the elders (Grandparents) to take care of their children to be raised and exposed to traditional Navajo values and life experiences. Having access to Basic telephone services in homes is vital to keeping the family members connected and is critical during home emergency situations, which helps save lives.

WATER and WASTEWATER

It is critical to begin a discussion on clean drinking water with the following statement: we cannot build a piped water system to homes without including a system to deal with the wastewater that is generated. This is so important that it bears repeating: *We cannot build a piped water system to homes without including the wastewater system.*

In 1959, Congress charged the Indian Health Service (IHS) with addressing the water and wastewater sanitation deficiencies in Indian Country and Alaska Native communities. To this day, IHS is the primary federal agency responsible for addressing water and wastewater deficiencies on the Navajo Nation and building domestic piped water systems to homes on the

Navajo Nation. IHS is also responsible for reporting unmet need for water and wastewater services to homes on the Navajo Nation through Public Law 86-121, which requires annual reports to the Navajo Nation.

IHS does not conduct a census of homes; they report “eligible homes.” An “eligible home” is defined as a 24-hour year-round family dwelling within the Contract Health Services Delivery Area (CHSDA). A CHSDA normally consists of a county which includes all or part of a reservation, and any county or counties which have a common boundary with the reservation. In addition, due in part to the large number of homes, IHS has established feasibility criteria for connecting homes on the Navajo Nation to water and wastewater facilities. That being recognized, Ronson Chee, Ph.D., P.E., of Riley Engineering conducted a study of IHS data in three target areas on the Navajo Nation, and noted for every home reported in IHS's system, he could visibly see two additional occupied homes within eyesight of the reportable home. Based on that observation, it appears that the IHS tabulation does not include all of the Navajo homes that are in need service.

The December 23, 2020 IHS report to the Navajo Nation documents 16,100 “eligible homes” without adequate water and/or wastewater. Among those homes, about 3,500 homes lack any water or wastewater facilities. IHS's total estimated cost to serve all deficiencies of these 16,100 homes is \$535,580,490. This cost escalates every year and last year the cost increased by \$15.9 million. At current IHS funding levels it would take over 30 years to provide services to these homes. Another item to note about IHS's reporting is that engineering costs are not included and historically engineering costs add about another 25%.

Based on NTUA's successful experience in deploying CARES Act funds to construct waterline extensions and accompanying septic systems to thirty (30) homes, I am conducting an internal NTUA review to determine how NTUA can build more waterline connections to Navajo homes and may use some margin to fund such construction in the future. Before the CARES Act experience, I had been reluctant to spend time on constructing waterlines and septic systems as it is IHS's responsibility to do so. The pandemic has demonstrated to me that the Navajo people cannot solely rely on IHS and NTUA is responding accordingly.

Last year, through the implementation of expending CARES Act funding allocated to NTUA in to combat COVID-19, NTUA collected information that shows that IHS's data is outdated. Specifically, NTUA identified 61 homes less than 1500 feet from an existing water distribution line. We were able to connect 30 of the homes before the Navajo Nation's timeline for the funding ran out. In the last three weeks, NTUA has been able to confirm over 398 additional homes less than ½ mile from an existing water distribution line. Most of these homes were not identified as being deficient by IHS.

In addition to water and wastewater needs on the Navajo Nation, NTUA estimates a cost of approximately \$30,000,000 to upgrade existing water delivery facilities to serve existing and near-future demands. Critical other needs include the larger water projects that have been

funded through existing water rights settlements in the States of New Mexico and Utah. These projects will be withdrawing, treating, and transmitting bulk water that will meet the needs of many of the homes that lack water and meet other current and projected municipal water demands (“bulk water projects”). These regional bulk water projects are designed for a long-term planning period and are intended to support the livelihoods and economic development of the Navajo Nation. One such bulk water project – the Navajo Gallup Water Supply Project (NGWSP) -- is facing an anticipated funding shortfall of \$295 million, as estimated by the United States Bureau of Reclamation.

Connections from these bulk water projects to existing NTUA water distribution systems need to be constructed. NTUA has over 100 existing water distribution systems across the Navajo Nation, not including the three independent water systems serving satellite Navajo communities in New Mexico. Existing NTUA water distribution systems need to be intertied to convey water from system to system and create regional distribution networks. NTUA estimates connections and interties will cost \$1.7 billion.

It is important to note that there is no bulk water project authorized and funded to serve most of the Navajo Nation located in Arizona. If this area of the Navajo Nation does not benefit from a bulk water project and only the IHS Sanitation and Deficiency Program as currently funded and administered serves this area, most of the Navajo Nation in Arizona will never receive clean drinking water or wastewater services. That being recognized, the Navajo Nation has been diligently working on a project called the Western Navajo Pipeline (WNP) to serve much of the Arizona portion of the Navajo Nation. WNP Phase 1 from LeChee Chapter to Bodaway Gap has a funding shortfall of \$19 million. Future unfunded Phases include a transmission line to Tuba City and a transmission line to Cameron Chapter.

The total NTUA cost for NTUA water services to serve unserved Navajo homes is \$1.73 billion, not including the NGWSP shortfall mentioned earlier.

Delivery of clean water must always include the management of wastewater. Stated simply, “water in is water out.” The build out of NTUA’s wastewater system is estimated to cost \$194.1 million. This amount includes five essential projects to meet immediate needs on the horizon and six additional facilities to meet needs if the bulk water projects are realized.

After IHS constructs water and wastewater facilities, the facilities are then transferred over to NTUA for operation and maintenance. Earlier I discussed that NTUA electric rates have not risen since I started in 2008. NTUA customers enjoy some of the lowest electric rates in the region. I cannot say the same for water and wastewater. Treating water and moving water is costly and we have many miles over which we must move water. NTUA has had to raise water and wastewater rates over the years. We do so incrementally so that our customers do not have a shock to their system. Because NTUA offers six services, the electric and communications side of NTUA essentially subsidize the water and wastewater side.

Operations and Maintenance Support is Critical

When Congress created IHS, it authorized IHS to financially support operations and maintenance for tribal systems. Congress has never funded this support. It is time to fund operations and maintenance. Utilities run on the customers' collective ability to pay. Many Native communities, and Navajo is one of them, suffer from high unemployment rates and high rates of poverty. Some utility organizations in Indian Country need financial support to ensure their systems can thrive for the useful life of the facilities and to ensure aging infrastructure is replaced before a crisis occurs. Crises can be health related, financially related, or both.

NTUA can financially thrive because it offers multiple utilities. NTUA has efficiencies by being a multi-service utility and it can subsidize certain services with higher grossing services. Providing operations and maintenance financial assistance will allow NTUA to upgrade wastewater systems to stay ahead of the ever-changing wastewater regulatory requirements.

Universal Access to Clean Drinking Water

Water is a critical unmet need not only for the Navajo Nation but also for many Native American tribes and Alaska Native communities. It is essential for both physical and spiritual health. Access to clean and safe water is essential to public health, educational attainment, and economic development – in other words, communities without clean water struggle to thrive. A century ago, the U.S. government invested in modern water and sanitation systems as a means of eradicating water-borne diseases and stimulating economic prosperity, but this government investment in water infrastructure over the past one hundred years has largely bypassed reservations. Today roughly 400,000 people -- nearly 30% of homes in Native communities across the United States -- either have inadequate or no access to reliable water and sanitation services. This number compares to the U.S. as a whole where less than 1% of homes lack these facilities. On the Navajo Nation, it is estimated that up to 40% of households do not have clean water to drink or wash with.

The COVID-19 pandemic has shone a bright light on this inequity. COVID-19 has had a disproportionate impact on Native American people with infections 3.5 times higher than in the white population, largely attributable to persistent racial inequity and lack of public health infrastructure, including access to running water. Not only are COVID infection rates higher in the Native American population, but the Centers for Disease Control reports that death rates from COVID-19 are the highest in this country among all ethnic and racial groups. Infectious diseases, respiratory ailments, skin infections, and childhood obesity are all many times more common in these communities that lack reliable and safe water service.

While some tribal communities have obtained water infrastructure as a result of reserved water rights settlements or Indian Health Service programs, many Native American and Alaska Native communities have been left behind. Existing water systems have fallen into disrepair and have suffered from reliability and contamination problems. The federal government has a fiduciary

trust responsibility to federally recognized Indian tribes which simply cannot be reconciled with the widespread lack of access on reservations to this basic necessity of life.

Race is the strongest predictor of water and sanitation access, with Native Americans more likely than any other group to face water access issues. Tribal households are 19 times more likely than white households to lack sufficient plumbing.¹ The lack of access to water and sanitation in native communities reflects historical and persisting racial inequities that continue to result in health and socioeconomic disparities. The COVID-19 pandemic has tragically laid bare the federal government's failure to provide these basic services for tribes and the devastating impacts of that failure. The richest country in the world cannot continue to allow this structural inequity to plague its native citizens. It's time to ensure that all Americans have access to clean water in their homes.

This injustice is even more egregious given the United States' trust responsibility to tribal nations that requires it to ensure livable homelands for Indian tribes. When the United States entered into treaties with tribes to set aside land for reservations or issued executive orders establishing reservations, those lands were to serve as permanent homelands. The Nation entered into such a treaty with the United States on June 1, 1868. Navajo leaders entered into this treaty envisioning a return their people's homeland so they could thrive, as they had from time immemorial. But no one can thrive without clean water -- it is essential to public health, educational attainment, and economic development. Providing basic water and sanitation services is directly tied to the federal government's commitment to provide permanent homelands for tribes, and until all native communities have access to these services, the government's legal fiduciary obligation to tribes will remain unfulfilled.

UTILITY SCALE SOLAR DEVELOPMENT

I want to take some time to discuss NTUA's utility scale solar development because the federal government needs to also assist Indigenous Communities in putting their land and natural resources to use through infrastructure that Indigenous Communities support. From my experience, the Navajo Nation and the Navajo People support renewable energy development on their lands. Of equal importance is development through a structure that honors the sovereignty and self-determination desires of Indigenous Communities.

In 2016 NTUA created NTUA Generation (NTUAG) to develop power generation projects on and off the Navajo Nation. NTUAG has developed two solar plants in the Kayenta Chapter of the Navajo Nation located in Arizona and peak production is 55.3 MW. All the power that is produced from these plants is consumed on the Navajo Nation. On April 6 and April 7, 2021, NTUA/NTUAG has signed two land leases with the Navajo Nation to develop two more solar

1 U.S. Water Alliance and DigDeep, Closing the Water Access Gap in the United States: A National Action Plan (2019), found at uswateralliance.org/sites/uswateralliance.org/files/Closing_the_Water_Access_Gap_in_the_United_States_DIGITAL.pdf

plants. One will be located in the Red Mesa Chapter located in Utah and is rated at 70 MW. Sixty-six (66) MW of Solar power production will be exported to 16 communities served by the Utah Associated Municipal Power Systems. Four (4) MW of Solar power production will remain on the Navajo Nation to serve the local needs of NTUA's customers. The other plant will be located in the Cameron Chapter located near the Grand Canyon and will have 200 MW Solar power production and will be exported to another electric utility. This plant will also be utilizing 100 MW of the 500 MW of the Navajo Nation's transmission rights that were secured from the Navajo Generating Station when it closed in 2019. Additionally, NTUAG has many other sites in the development phase of the process and is currently negotiating Purchase Power Agreements (PPAs) for two of these sites.

Solar generation development helps the Navajo Nation and the region by providing a significant number of construction jobs, tax dollars and economic activity. NTUA and the Navajo Nation's approach to Solar generation development is unique and is built upon lessons learned from energy development and mining on the Navajo Nation. Most tribal communities are leasing their lands to private developers or are being encouraged to lease their lands to private developers. The Navajo Nation, and all federally recognized tribes, have the opportunity to take a greater role in the development of Solar generation plants and have direct ownership in these projects.

One lesson learned from the Navajo Generating Station (NGS). NGS was built on the Navajo Nation in the late 1960s and early 1970s and used Hopi and Navajo coal to run the plant. Importantly, the plant's low-cost power was used by the owner's utility companies to help grow the economies of the City of Las Vegas, Los Angeles, and Phoenix and their surrounding communities. In addition, the low-cost power fueled the development and operation of the Central Arizona Project, which provides a significant amount of water to the valley of Arizona. None of the low-cost power was used on the Navajo Nation to help it grow and prepare itself for the future and the now pandemic.

The Navajo Nation was the landlord in that it was and continues to lease lands for the NGS plant and had a coal lease with the Peabody Western Coal Company to supply the coal to the plant. In 2016, when the non-Navajo owners of NGS saw that power prices were above market and would most likely continue to be above market, they determined they needed to shut down the plant. The Navajo Nation is not an owner of NGS and therefore had no vote in the decision to close the plant in 2019. The Navajo Nation was caught off guard as it had negotiated a lease extension with the owners to significantly increase the plant rental rate. The Navajo Nation understood that NGS was to stay open through 2024. The NGS owners informed the Navajo Nation of their intentions to close NGS several years after the negotiations for the lease extension had concluded but the lease was had not yet been signed as the United States was still conducting the required National Environmental Process (NEPA) review.

NGS and the Peabody owned coal mine provided more than 1,000 good paying jobs and it was estimated that it provided another 2,000 indirect jobs. These were critical jobs that allowed

Navajo people to thrive on their homeland. We have observed that when the jobs go away, the families go away. We saw this when Mojave Generating Station closed in the earlier 2000s and again in 2019. In 2019, the Kayenta School District reported that the student enrollment dropped by nearly 300 students from the spring to the fall. Today Kayenta School District's enrollment is reported to be 1,716 students.

NTUA's model of direct ownership in solar plant development ensures that the Navajo People through the Navajo Nation's ownership of NTUA are in a major decision maker's role: from the project development concept, during the operation and management of the plant, to possible re-powering the plant and to ensure the land is properly cleaned up at the end of the Solar plant's life.

After the Solar plants have lived their useful lives, the Navajo Nation, through NTUA, will be able to ensure that the solar panels are disposed of safely and the land is returned to its natural state. Solar panels contain rare metals that can become very toxic if not disposed of correctly. The lessons learned from uranium mining has taught us that if a private company goes bankrupt, it is nearly impossible to have the site cleaned up and returned to its previous state. This is one of the reasons there are 523 abandoned uranium mines on the Navajo Nation, which have left a polluted legacy in their wake.

NTUA's Management Board authorized NTUA management to create an energy transition plan that built upon the Navajo Nation's desire to transform the Nation's existing fossil fuel economy to a renewable energy economy with the understanding that the renewable energy economy cannot completely replace the economic benefits of the existing fossil fuel economy. NTUA set forth to develop at least five Solar powered generating plants. The goal is to build one plant after another while minimizing the construction downtime between plant constructions. This will enable construction jobs to be available over a 7–10-year period of time. Navajo workers will have the opportunity to grow their skill level from project to project and move up to higher paying jobs as they master new skill levels. We are also hoping to move beyond just Solar generating plants by adding a battery storage component at one of our future generating plants.

To minimize risk and develop necessary knowledge to succeed, NTUA started by developing two smaller size utility scale Solar generating plants over several years. Navajo workers who worked on NTUA's first plant and worked on the second plant, will be able to work on the third, fourth, fifth, and any future solar generation plants. This raises their skill level and their pay increases as their skills grow. This keeps Navajo family's home and allows them to become highly skilled workers with skills that are in demand and transferrable to other industries.

This model is already in action. Over 1,100 people attended the two Kayenta I and Kayenta II solar generation plant jobs fairs. The Kayenta I and II solar generation plants created 434 construction jobs, of which 90% of the workforce were Navajo Nation citizens. The workforce received over 7,000 hours of specialized training. The \$10 million plus payroll generated over

\$30 million in economic activity in the Kayenta region. The two plants construction generated over \$5 million in taxes to the Navajo Nation. With two other larger Solar projects scheduled to start construction in 2021 and 2022 and two other sites being selected to continue discussions on PPAs, we are well on our way to implementing our renewable energy transition plan. As the Navajo Nation looks toward several more solar generation projects, we can ensure these construction jobs continue for years to come. While permanent employment is small at each plant, each new plant brings new permanent jobs to project sites on the Navajo Nation.

Importantly, NTUA owned solar plants are the only power generation on the Navajo Nation owned and controlled by the Navajo people. This is a significant shift as historically non-Navajo entities have controlled energy development and production on the Nation. The Navajo people, through the Navajo Nation's ownership of NTUA, are majority owners of Kayenta I and II solar generation plants. The Navajo People will be majority owners of the Cameron Solar Project and Red Mesa Tapaha Solar Project.

NTUA takes some margin from the existing solar plants and will take some from the future plants to pay for costs to connect Navajo family homes to the electric grid, who could not afford on their own to be connected and also uses proceeds from each plant to keep the electric rates affordable for all of NTUA's electric customers.

WHOLE OF GOVERNMENT APPROACH TO PERMITTING

When NTUA is approached about funding opportunities, one of the first questions asked is what NTUA can construct. My immediate response is that NTUA can construct what it has permission to build. = By that, I mean access to land and the necessary permits. After funding, the single greatest impediment to construction is the process and cost for obtaining access to land and the necessary environmental permitting for constructing.

To build an electric line or fiber line that is solely on Navajo Nation trust land, NTUA must obtain permission from the Navajo Nation to access land to construct in the form of either a Service Line Agreement (SLA) (for a line under 1 mile) or a Tribal Access Authorization (TAA) (for a line over 1 mile). To apply for an SLA or TAA, NTUA must obtain what are called clearances for archaeological and cultural resources from the Navajo Nation Heritage and Historic Preservation Department and biological resources from the Navajo Nation Department of Fish and Wildlife. These two Departments are funded by the Bureau of Indian Affairs through P.L.93-638 contracts. They are sorely underfunded which is a cause for concern as we need the pace of permitting to increase significantly.

If we are crossing forested areas, we must obtain a tree cutting permitting jointly issued by the Bureau of Indian Affairs and the Navajo Nation Forestry Department. If we are crossing a paved road, we must obtain permission from the entity that maintains the road - this could be a

Navajo Nation, state, county, private, or federal entity. If we are crossing another utility, we must obtain permission from whoever maintains that utility.

If NTUA is building on or crossing land held in trust for an Allottee or Allottees, the process differs in that we have to obtain permission from the Bureau of Indian Affairs to obtain a right-of-way under federal regulations, requiring compliance with the National Environmental Policy Act. We also have to obtain permission to survey and a different permission to actually construct from a majority of Allottees. If the Navajo Nation holds an interest in the Allotted land, then we have to obtain permission from the Navajo Nation, no matter the size of the Navajo Nation's interest. The process changes if we have to cross public domain land managed by the Bureau of Land Management, private land, or Hopi Tribe's Land. The process is different if we are building water lines on Navajo Nation trust lands because we can only obtain a Service Line Agreement for a water line under 1,250 feet and a Tribal Access Authorization for anything longer.

I chose to provide demonstrative examples to underscore the dizzying nature of obtaining land access and permits. The point is to end with where I began, there needs to be a focused leadership approach from the federal government to commit to getting infrastructure in the ground.

I am often asked how long the permitting and land acquisition process delays construction. That is a challenging question to answer because there are some projects that never occur due to permitting. I will end this section of the testimony with two examples of permitting that could have or does result in no resolution.

During the CARES Act implementation process, NTUA reached out to the other utilities serving the Navajo Nation to determine if we could pool resources and better serve the Navajo people. NTUA utilized its allocation of CARES Act funds to pay several utilities to connect homes to the electric grid. My staff reported that if a project was going to cross public domain land managed by the Bureau of Land Management (BLM), the other utilities reported that there is not sufficient time to complete the permitting process with a December 30, 2020 deadline. Therefore, those projects were not pursued. This means that those projects are on a standstill until funding is obtained. The Navajo Nation reported that for a powerline project in the Eastern Agency, BLM insisted on a process that took a year to complete for a powerline that was an aerial crossing over public domain land, there was no public land disturbance. The Eastern Navajo Agency of the Navajo Nation consists of checkerboarded land with multiple jurisdictions. It seems that the Department of Interior could take a "whole of government" approach to permitting on the Eastern Agency and in the Satellite Chapters for the purpose of delivering basic utility services.

In 2019, NTUA was constructing a fiber line that crossed several Indian Allotments in forested

areas. We needed to cut trees to install the fiber line. The Bureau of Indian Affairs (BIA) and the Navajo Forestry Department are responsible for issuing tree cutting permits, also known as harvesting permits. BIA reported that it had never issued a tree cutting permit for a Navajo Indian Allotment and a tree cutting permit has not been issued for the fiber line project. We had to have staff walk the fiber line across the allotment and attach the fiber to an existing power line. We still need the tree cutting permit for safety and maintenance issues for the power line.

BUILDING BACK BETTER

Addressing infrastructure and the lack of it in Indigenous Communities aligns perfectly with the priorities of the Biden-Harris Administration – COVID-19, Economic Recovery, Racial Equity, and Climate Change.

COVID-19.

Investing in infrastructure will help Indigenous Communities fight off this pandemic and prepare them for the next pandemic.

Economic Recovery.

Investing in infrastructure development now will ensure both short term and long-term economic recovery through much needed construction jobs and entrepreneurial endeavors to respond to the needs of families able to stay closer to home after they have received basic services.

Racial Equity.

Investing in infrastructure in Indigenous Communities will address the wrongs of the past and will continue along the path of righting the wrongs.

Climate Change.

I have testified on how investing in Solar development on the Nation is important as this Subcommittee defines what type of infrastructure it wants to invest in. I also want to assure the Subcommittee that by investing in infrastructure to serve homes, Navajo homes served by NTUA will not be contributing to increased greenhouse gas emissions. This is because the majority of NTUA's electric generation is non-carbon emitting. The sources of the non-carbon emitting generation are derived from hydropower generation-from the Colorado River Storage Act Projects and Hoover Dam and NTUA's Kayenta I & II Solar Projects which are located on the Navajo Nation. Once the solar plant to be built in Red Mesa Chapter comes online late next year, 60% of NTUA's total electric use will be non-carbon. NTUA's total and non-carbon energy sales are found in the following table.

NTUA Energy Mix - Non-Carbon Resource				
Year	Peak Load (MW)	Total Energy Sales (MWh)	Non-Carbon Resource (MWh)	Non-Carbon Resource %
2016	125	702,304	192,680	27.44%
2017*	185	862,422	256,526	29.74%
2018	201	1,027,068	383,986	37.39%
2019*	217	1,017,298	414,749	40.77%
2020	170	829,678	474,446	57.18%
2021	170	829,678	485,036	58.46%
2022	170	829,678	494,121	59.56%

*Resolute became an NTUA Customer on June 29, 2017.

*Peabody Coal Mine and Navajo Generating Station Railroad closed in August 2019.

Total Estimated Funding and Timelines for Some Equitable Access to Electricity, Water / Wastewater, and Broadband on the Navajo Nation

Utility	Estimated Cost	Approximate Years for Construction**
Electricity	\$ 1,060,961,000.00	15 years
Communication	\$ 324,500,000.00	5 years
Water and Wastewater*	\$ 2,858,680,490.00	20 years*
IHS Water and Wastewater \$ 535,580,490.00 NGWSP cost overruns \$ 295,000,000.00 NTUA Water Systems \$ 1,730,000,000.00 NTUA Wastewater Systems \$ 194,100,000.00 NGWSP Connections \$ 85,000,000.00 WNP (AZ) Phase 1 \$ 19,000,000.00		
Total	\$ 4,244,141,490	20 years*

*This does not consider build out of a bulk water system throughout all of Arizona.

**This assumes land access and environmental permitting at its current pace.

CONCLUSION

Building back better can be done. When I started with NTUA in 2008, we have just under 500 employees. NTUA now has 800 employees, over 97% of whom are Navajo. We have constructed much needed modern facilities for NTUA and continue to replace the outdated NTUA infrastructure.

When I toured the country pre-pandemic to recruit sister public power utilities to volunteer their time and mutual aid funds to come to the Navajo Nation to build powerlines for Navajo families through the Light Up Navajo initiative, the common response I heard was, “this is not the America I know.” It’s time for America to support the Navajo Nation and all Indigenous

Communities and invest in utility infrastructure. Funding for infrastructure for Indigenous Communities will ensure that the United States builds back better and lives up to the unique trust obligation it has for and with Indigenous Communities. Improving the lives of Native American people and raising their standard of living will improve their health and allow them more opportunities to advance themselves economically. This will lessen their reliance of Federal support, which will help all Americans prosper.



Navajo Nation CARES Act Summary

Navajo Tribal Utility Authority (NTUA) Projects

The Navajo Nation approved the Navajo Nation CARES Act funding allocations on August 16, 2020 through legislation CJY-67-20. NTUA worked with the Navajo Nation Office of Controller and received its first disbursement on October 5, 2020. The Navajo Nation disbursed NTUA's allocation in four (4) increments, the first on October 15, 2020 and the last on December 22, 2020.

To make the Navajo Nation CARES Act a success and to connect as many Navajo homes with utility infrastructure as possible, NTUA had to self-fund to meet the December 30, 2020 deadline. Although Congress extended the CARES Act, the Navajo Nation did not extend the deadline except for a few exceptions where projects had been substantially started but not yet completed.

NTUA completed an unprecedented amount of work in a very short time. NTUA organized internally and limited the granting of personal leave before December 30, 2020. In the fall, NTUA employees worked 75-hour work weeks and in the winter worked 70-hour work weeks (7/10 days). Below is information concerning the type and numbers of projects completed.

PROJECTS COMPLETED

Below is an overview of projects completed by NTUA under Navajo Nation CARES Act CJY-67-20:

- **NTUA Water/Wastewater**
 - 142 total projects completed (AZ 88; NM 47; UT 7)
 - 9 new water loading stations for human consumption
 - 6 repairs to water loading stations for human consumption
 - 4 new water loading stations for livestock
 - 64 pump/motor replacements for water wells
 - 10 water well renovations
 - 1 water storage tank renovations
 - Dilkon Well 3 to Well 1 Pipeline Upgrade
 - Tohatchi Sewer Wash Crossing Design
 - Ganado Water Supply Well
 - Pressure Reducing Valve Upgrades
 - Smeal Rig
 - Park Estates Water System Design Phase I & II
 - Park Estates Water System Design Phase III
 - Halchita Water Treatment Plant Upgrades
 - Window Rock WWTP Emergency Sewer line repairs Phase II (slip-lining)
 - Window Rock WWTP Emergency Sewer line repairs Phase II(a) (slip-lining)
 - Boring projects
 - Pinon WWTP total retention expansion project

- **NTUA Waterline Extensions with Septic to Home**
 - 30 total waterline extension & septic to home (AZ 19; NM 11)
- **Cistern Systems** (includes septic, drain field, bathroom addition (if needed), plumbing (if needed), Housewiring (if needed) and power source (connection to grid, solar unit, generator)
 - 105 total cistern systems completed (AZ 47; NM 53; UT 5)
- **NTUA Electricity Capacity**
 - 140 total projects completed (AZ 81; NM 43; UT 16)
- **NTUA Powerline Projects**
 - 682 Navajo homes connected to NTUA electric distribution system (AZ 489; NM 171; UT 77)
- **NTUA Solar Units and Electric Connections**
 - 300 solar units installed & commissioned (141 AZ; 132 NM; 27 UT)
 - 77 Navajo homes connected to NTUA electric distribution system
 - Due to the red tape with other utility providers receiving funds from the Office of Controller under the Navajo Nation CARES Act, NTUA partnered with other utility providers serving the Navajo Nation (CDEC, JMEC, APS, SEC) to fund their projects with so that Navajo homes can receive electricity.
 - 5 Navajo homes connected to Arizona Public Service electric distribution system
 - 24 Navajo homes connected to Continental Divide Electric Cooperative electric distribution system in New Mexico
 - 19 Navajo homes connected to Jemez Mountains Electric Cooperative electric distribution system in New Mexico
 - 1 Navajo home connected to Socorro Electric Cooperative electric distribution system in New Mexico
- **NTUA Broadband**
 - 143 total projects completed (AZ 116; NM 24; 3 UT)
 - 42 Student Wi-Fi Hotspots
 - 81 broadcast uplifts to existing tower locations
 - 4 new towers constructed with coverage build-out
 - 4 broadcast uplifts to new tower locations
 - 13 fiber buildouts to locations across the Navajo Nation (Tuba City, Kaibeto, Mexican Water, Preston Mesa, Black Mesa, etc.)
 - Fiber backbone upgrade (10Gbps to 100 Gbps)
- **NTUA Student/Teacher Broadband**
 - 3100 Student/Teacher Discounts to Internet/Broadband as of 3/1/2021(AZ 2164; NM 799; UT 137)

NAVAJO NATION CARES ACT FUNDING AND EXPENDITURES

The following three (3) tables shows where CARES Act was expended by project type and by state. The Navajo Nation originally allocated \$147 million to NTUA. NTUA completed an unprecedented amount of work by December 30, 2020. The Navajo Nation requested that NTUA return funds that were not expended by December 30, 2020 or were not committed to projects that had been started but not completed by December 30, 2020. These are called Reversions. The Navajo Nation did not extend the CARES Act deadline to the end of 2021.

NN CARES ACT NTUA BREAKDOWN	Award	Reversion 1	Reversion 2	Total Spend
E-POWERLINE	13,897,562.00	-	6,300,745.42	7,596,816.58
E-CAPACITY	24,747,269.00	6,700,000.00	9,307,195.42	8,740,073.58
SALT SPRINGS (POWERLINE)	850,000.00	-	440,910.44	409,089.56
WATER/WASTEWATER	18,635,000.00	2,151,578.00	2,585,494.87	13,897,927.13
CISTERN	20,946,523.00	6,300,000.00	8,507,514.63	6,139,008.37
OFF-GRID SOLAR	35,192,000.00	17,100,000.00	5,141,219.38	12,950,780.62
BROADBAND	32,848,207.00	1,800,000.00	3,583,639.27	27,464,567.73
GRAND TOTAL	147,116,561.00	34,051,578.00	35,866,719.43	77,198,297.57

Reversion 1 occurred on 2/5/2021 and Reversion 2 occurred on 3/7/2021 for Total Reversion of \$69,918,297.43

STATE BREAKDOWN	Total Complete
Arizona	60,233,268.31
New Mexico	15,776,976.89
Utah	1,188,018.37
GRAND TOTAL	77,198,263.57

STATE BREAKDOWN DETAILS	Total Complete
BROADBAND	
Arizona	23,780,258.32
New Mexico	3,672,738.10
Utah	11,571.31
CISTERN	
Arizona	4,721,129.33
New Mexico	1,835,994.73
Utah	327,856.21
E-CAPACITY	
Arizona	7,130,301.63
New Mexico	1,376,535.39
Utah	233,236.56
E-POWERLINE	
Arizona	6,144,647.87
New Mexico	953,807.04
Utah	498,361.67
SALT SPRINGS (POWERLINE)	
Arizona	409,089.56
OFF-GRID SOLAR	
Arizona	7,077,652.87
New Mexico	5,789,294.51
Utah	83,833.24
WATER WASTEWATER	
Arizona	10,970,188.73
New Mexico	2,148,607.12
Utah	33,159.38
GRAND TOTAL	77,198,263.57

CONTRACTORS

NTUA also worked closely with vendors and contractors across the United States on Navajo Nation CARES Act projects. 149 vendors and contractors were contracted by NTUA to provide materials, equipment, labor, and transportation on Navajo Nation CARES Act projects with a total expended amount of \$47,157,418.88. The table below identifies the number of contractors per state and the total amount expended per state. This is a preliminary analysis and may be refined over time.

Navajo Nation CARES Act Vendor Expenditures by State		
State	Vendor Count	Amount
AZ	44	\$ 19,394,012.94
CA	7	\$ 629,447.21
CO	7	\$ 1,727,387.23
DC	1	\$ 83,240.00
GA	3	\$ 373,296.50
IA	2	\$ 457,880.20
IL	6	\$ 411,305.61
IN	1	\$ 306,929.00
KS	1	\$ 19,575.00
LA	1	\$ 122,218.53
MN	2	\$ 1,489,346.55
NM	54	\$ 19,054,173.33
NV	1	\$ 148,564.95
NY	1	\$ 72.11
OH	1	\$ 10,465.38
OR	1	\$ 5,569.83
PA	1	\$ 4,194.84
TX	9	\$ 2,347,308.65
UT	3	\$ 549,119.35
WI	2	\$ 16,527.67
WY	1	\$ 6,784.00
Grand Total	149	\$ 47,157,418.88