



# Utility-Scale Solar Development on Tribal Lands

**2021 Tribal Energy Webinar Series**

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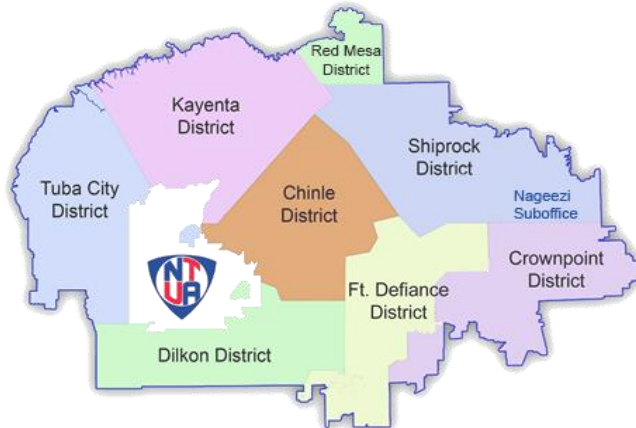
**NTUA Solar Project Manager**

**December 8, 2021**



## History

- The Navajo Tribal Utility Authority (NTUA) has continuously served the Navajo people for more than 60 years.
- NTUA was established on January 22, 1959, and today is the largest tribally-owned and operated multi-utility company in the United States.
- NTUA was created to address the absence of utilities on the Navajo Nation



*Kayenta / Solar Project*

## Mission

- Since inception, NTUA has grown into a thriving tribally-owned enterprise delivering a portfolio of services to a service area of more than 27,000 square miles.
- Currently serving over 42,000 electric customers, NTUA is organized for the operation, maintenance and expansion of electric, communications, natural gas, water, wastewater, and generation, including photovoltaic (solar) services for the Navajo people at a low and reasonable cost.
- NTUA seeks to promote economic development, and employment opportunities on the Navajo Nation, and to improve the health and welfare of the residents of the Navajo Nation.

### Summary

- NTUA created NTUA Generation, Inc. for the purpose of investing in and developing wholesale energy projects within and outside of the Navajo Nation.
- NGI developed and constructed the Kayenta I solar project, a 27.3 MW facility, located within the Navajo Nation.
- NGI has also constructed the Kayenta II solar project, a 27.8 MW facility, also located in Kayenta, AZ.
- Both projects are fully owned, operated and maintained by NGI.

- NGI has also partnered for the development of 100MW of solar and environmental attributes for a California municipal entity.
- NGI is in the development stage for the development of additional solar energy projects; Red Mesa (72 MW), Cameron(200 MW),LeChee(450 MW)

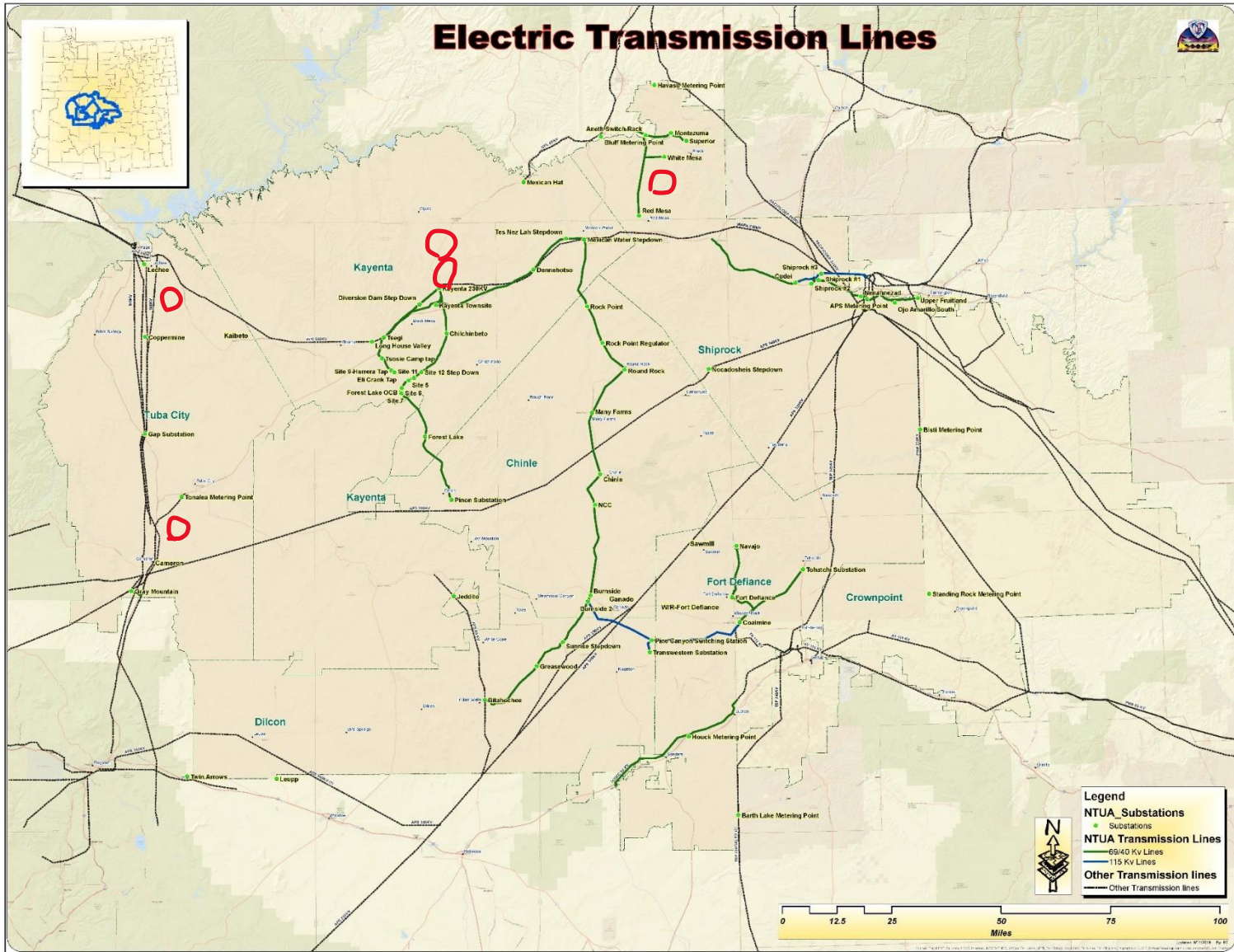


## Project Summary – Kayenta I

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### Successfully Developed, Constructed, and Commissioned in 2017

- 27.5MWac, single-axis tracker solar facility located approximately 4 miles from Kayenta, Arizona
- Total solar plant cost \$55 million. Interconnection \$6 million
- Sited on approximately 200 acres of land adjacent to the Kayenta II Project site
- Construction created over 230 jobs for Navajo residents and nearly \$15.6 million in local benefits
- Kayenta I is interconnected to NTUA's Kayenta Substation and sells its energy output and environmental attributes via a long-term power purchase agreement ("PPA") with NTUA.
- Project execution demonstrates NGL's experience and focus in developing a similarly sited and sized power generating facility (Kayenta I) near the site for Kayenta II.
- NovaSource (formerly First Solar) from Chandler, AZ has been retained to Operate and Maintain the facility on a 24-hour basis



## Kayenta I Overview – Site Prior To Construction

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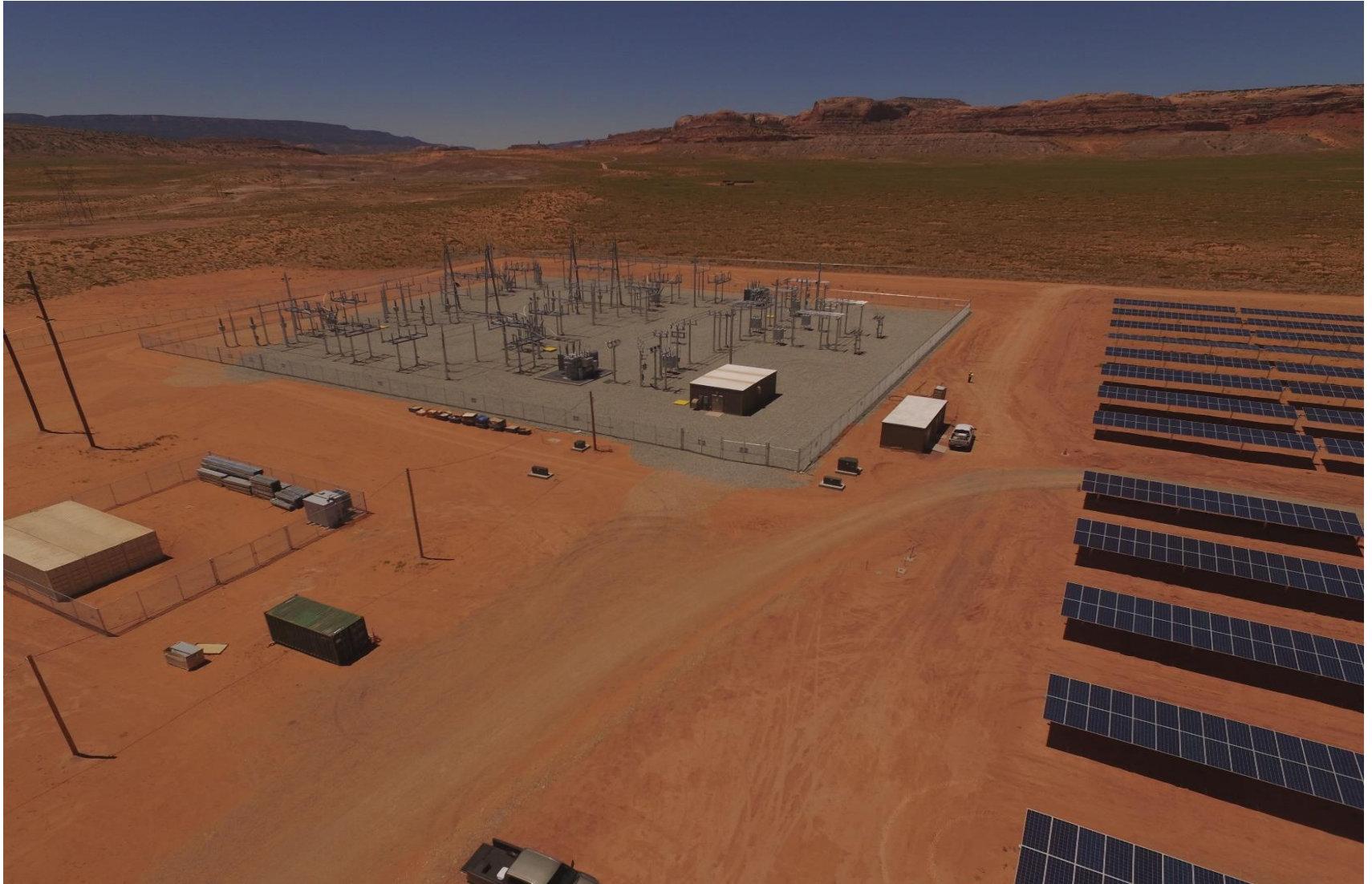






# Kayenta I Overview – On-Site Interconnection Substation

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## Kayenta I Overview – Completed Project

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## Project Overview – Kayenta II

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## Summary

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- **The Kayenta II is a 27.8 MWac solar project located adjacent to the NGI's Kayenta I solar project which and has been operating since August of 2019.**
- **Kayenta II is on approximately 165 acres of the land subleased by NGI from the Navajo Tribal Utility Authority (NTUA), which is leasing the land from the Navajo Nation.**
- **The project cost was \$44 million**
- **NGI and NTUA have entered into a power purchase agreement for the energy and environmental attributes (RECs) associated with Kayenta II. NTUA then sells the RECs and shaped power to SRP.**
- **NGI engaged Swinerton as the Engineering Procurement and Construction (EPC) contractor for Kayenta II. NGI engaged (First Solar) NovaSource to provide Operations and Maintenance (O&M) services, similar to those initially provided for Kayenta I.**
- **Construction commenced December 2018. The project reached Commercial Operation August 15, 2019.**















# Kayenta II Solar Project

## Energizing Ready Work Force

- Similar construction requirements as Kayenta - I
- Because we had an existing workforce to draw from the project had a higher percentage of Navajo workforce
- The specialized training was more than 2500 hours



# Kayenta II Solar Project

## Additional Benefits to Navajo Nation

- The construction generated **\$2,217,192** in taxes to the Navajo Nation
- The first- year tax revenue was **\$144,029** and the 30-year total will generate **\$4,320,870** in taxes
- Navajo people received over **\$7.5 M** in wages as a result of the construction of this project
- The **\$7.5 M** generated over **\$22.5 M** in economic activity in the Kayenta region





# Kayenta II Project Snapshot

## Key Operating Parameters & Equipment

<b>Project Size (MWdc/ac):</b>	37.63 / 27.76	<b>Target COD:</b>	May 30, 2019
<b>Location:</b>	Kayenta, AZ	<b>Inverter:</b>	Sungrow
<b>PPA Offtaker &amp; Term:</b>	NTUA 30 years	<b>Module:</b>	Jinko
		<b>Tracker:</b>	NEXTracker

## Project Photo



## Development Status

### Site Control

- Lease Amendment completed on March 30, 2018

### Permitting

- Environmental Permitting – FONSI completed on March 30, 2018
- Construction Permitting granted under Lease and Lease Amendment

### PPA

- PPA in Place

### Interconnection

- Existing NTUA Kayenta Substation

### Other

- On-site 69/230 KV switching station (Owned by Western Area Power Administration)

## Production Forecast and Engineering

### Module Mounting System Type

- Single-axis tracking

### Specific Yield at Revenue Meter

- 2.030 kWh/kWp

### Inverter CEC Efficiency

- 98%

### Nominal Module Power

- 355 W

# PPA Summary

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Seller/Buyer	■ NGI/NTUA/SRP
Contract Capacity	■ 27.8 MW <sup>ac</sup>
Product	■ Plant energy output plus related Environmental Attributes
Delivery Point	■ NTUA Kayenta Substation
Price	<ul style="list-style-type: none"><li>— Term Price: \$55/MWh</li><li>— Excess Deliveries: Directly to NTUA energy system mix</li></ul>
Term	■ 30 years
Milestones	<ul style="list-style-type: none"><li>■ EPC contract executed by all parties</li><li>■ Project construction initiated on 12/1/18</li><li>■ Substantial completion 7/15/19</li><li>■ Commercial operation 8/15/19</li></ul>
Curtailment	■ None



# Interconnection Agreement Summary

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Generation Facility / Interconnection Customer	■ Kayenta II Solar Project/NGI
POI	■ Kayenta Substation 69kV
Term	■ 30 years
Performance Obligations	■ None
Maintenance	■ NTUA
Termination	■ Usual and Customary



## Project Projections: Performance

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## Kayenta II – Energy Performance Projections

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<u>Year</u>	<u>Projected Output (GWH)</u>
<b>1</b>	<b>80.98</b>
<b>5</b>	<b>79.38</b>
<b>10</b>	<b>76.95</b>
<b>15</b>	<b>74.12</b>
<b>20</b>	<b>71.35</b>
<b>25</b>	<b>66.84</b>
<b>25-Year Total GWH</b>	<b>1872.78</b>

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# **Red Mesa Tapaha Solar Project**

## **Created to Bring Development for Utah Navajo**

**Construction set to begin January 2022**





## NTUA Solar Development: Red Mesa Tapaha Solar Project

### **Project Overview**

- The Red Mesa Tapaha Solar project, a 70MW solar energy project, which will serve both the citizens of the Navajo Nation and the sixteen municipal members of the Utah Associated Municipal Power Systems (UAMPS)
- The project is scheduled to deliver power to UAMPS and NTUA in the third quarter of 2022
- The UAMPS has agreed to purchase 66MW of the 72 MW from the project for a period of 25 years
- The remaining 6MW of the 72MW project will be distributed by NTUA to serve its customers throughout the Navajo Nation
- The Red Mesa Tapaha Solar Project will be set on approximately 550 acres
- Anticipated creation of approximately 300 new jobs during the construction period for Navajo citizens, with a projected salary revenue of \$7.2 million
- Fiber Optics cable will be built into the area providing additional high broadband opportunities for homes, schools, and businesses







## NTUA Solar Development: Red Mesa Tapaha Solar Project

### **Direct Benefits to Red Mesa Community**

- Hundreds of solar construction jobs
- Specialized solar job training to be provided
- Projected construction period is 9 months
- Red Mesa Chapter will host job fair(s) and job training workshops
- This project will help NTUA's electric customers by keeping their electric rates low
- Proceeds from this project will help provide funding to bring electricity to 21 additional families in the Red Mesa Chapter and 181 additional Navajo families living on the Utah section of the Navajo Nation during the next four years
- NTUA will support Red Mesa Chapter in securing a portion of the lease revenue from the Navajo Nation





## NTUA Solar Development: Red Mesa Tapaha Solar Project

### **Projected Financial Benefits to Navajo Nation**

- The construction is expected to generate over \$4 million in taxes to the NN
- The NN land lease is expected to generate \$140,000 per year approximately \$4.2 million over the 30 year life of the project
- 300 people are expected to receive at least \$7.2 million in wages as a result of the construction of this project
- The \$7.2 million is expected to generate between \$20.6 million in economic activity
- Project that \$1.35M in additional NN sales tax dollars provided from wages spent within the Navajo Nation





## **NTUA Solar Development: Red Mesa Tapaha Solar Project**

### **Moving the Project Forward**

- **NTUA worked with the Navajo Nation government to complete the Biological and Cultural Resources Compliance studies necessary for a land lease legislation the Navajo Nation**
- **NTUA submitted the land lease legislation to the Navajo Nation General Land Development Department (GLDD) in May of 2020**
- **August 2020, NTUA met with the Navajo Nation Division of Natural Resources - Minerals to initiate discussions regarding lease payment and related terms**
- **Subsequently, NTUA was informed by the GLDD that the Navajo Nation Department of Justice (NNDJ) needed to review the land lease legislation package**







# **Cameron Solar Project Bringing Renewable Development to the Navajo Nation**





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## NTUA Solar Development: Cameron Solar Project

### **Overview for Phase One Development**

- **Phase One**
  - **1,100 acres**
  - **200 MW**
- **Cameron Chapter passed Resolution CAMJUL-11-18 #6 on July 11, 2018**
  - **supporting NTUA's development, operation and construction of a solar generation plant**
- **Salt River Project (SRP) and the Navajo Nation conducted a competitive procurement process**
  - **NTUA submitted a bid**
  - **SRP shortlisted NTUA's proposed Cameron Project in early November 2020**
  - **SRP provided the Navajo Nation and NTUA with Notice of Award in December 2020**
- **Navajo Nation, SRP and NTUA negotiated terms for the use of 100 MW of Navajo controlled transmission rights**





## NTUA Solar Development: Cameron Solar Project

### **Project Financing Partner – D. E. Shaw**

- NTUA will maintain the majority ownership in the proposed Cameron Solar Project
- NTUA selected the D. E. Shaw group to partner in financing and developing project.
- The D. E. Shaw group is a leader in renewable energy
  - raised more than \$15 billion of capital through its renewable energy projects and portfolio companies since 2005
  - currently owns, operates, or has a signed power purchase agreement in place with respect to about 4,761 MW of solar and wind assets in the U.S. across 63 projects and has significant knowledge experience in project development, interconnection analysis, structuring power purchase agreements, and securing debt and tax equity financing to the partnership
- The D. E. Shaw group is partnering with NTUA on
  - the Red Mesa Tapaha Solar Project, 72 MW, located in Red Mesa Chapter
  - the Drew Solar Project, 100 MW, located in Imperial Valley, CA, which requires a Navajo Employment Preference during construction that commenced in March 2021







## NTUA Solar Development: Cameron Solar Project

### **Benefits to Navajo Nation & Cameron Community**

- Anticipated creation of approximately 400 construction Jobs
- Projected total salary payroll of \$8.3 million
- Project will require infrastructure development within the region and will be an anchor tenant to promote further renewable and business development within the Cameron Chapter
- Projected New Infrastructure to support the Project:
  - Fiber Optics cable or communication tower
  - Water and Wastewater
  - Low voltage power interconnection for the operating building
  - Operating building





## NTUA Solar Development: Cameron Solar Project

### **NTUA Supports Cameron Chapter**

#### **CARES Act 2020**

- Since March 2020, NTUA committed to not disconnect utility services to homes served by NTUA for non-payment–this commitment is on-going until as least April 2021
- NTUA installed a Water Loading Station in Cameron Chapter
- NTUA - APS Partnership: NTUA paid APS to connect 5 homes to APS powerlines – 3 homes were located in Cameron Chapter
- NTUA connected 1 home in Cameron Chapter to the NTUA electric system and a total of 719 homes were connected throughout the Navajo Nation
- 13 homes in Cameron Chapter have received NTUA's off grid solar units and a total of 300 homes will receive off grid solar units throughout the Navajo Nation
- Broadband improvements: During pandemic NTUAW committed not to disconnect services for non-payment from March through June 2020
  - 55 families/individuals are receiving broadband services and 5 families signed up for Student/Teacher discount services (free equipment, 4 months of free service and after 50% reduction in the monthly rate \$29.99/month)
  - Community free Wi-Fi Hot Spot installed in Cameron Chapter- NTUA/NTUAW will provide this free service until at least the end of this school year
  - New Citizen Broadband Radio Service and Educational Broadband Service (EBS) 2.5GHz was installed Nov. 30, which has increased the capacity and speed of our broadband network. Our top internet plan's speed will be raised from 9Mbps to 25 Mbps per customer





## NTUA Solar Development: Cameron Solar Project

### **Direct Benefits to Cameron Community**

- Creation of Hundreds of solar construction jobs
- Specialized solar job training will be provided
- Projected construction period is 12-18 months
- For allowing NTUA to build this phase of the project, NTUA will provide 2 scholarships and 1 internship annually for students from the Cameron community
- Cameron Chapter will host job fair(s) and job training workshops
- 4 Full-Time permanent jobs will be created
- NTUA will support Cameron Chapter in securing a portion of the lease revenue from the Navajo Nation, as provided in Navajo Nation Energy Policy Act of 2013







## NTUA Solar Development: Cameron Solar Project

### **Projected Financial Benefits to the Navajo Nation**

- Additional Annual Payment to Navajo Nation for use of their 100 MWs of Transmission Rights is approximately \$3 million and \$90 million over the 30-year life of the project
- The construction is expected to generate over \$6 million in taxes to the Navajo Nation
- NTUA has proposed a land lease fee with the Navajo Nation which will generate approximately \$358,600 per year and approximately \$10.8 million to the Nation over the 30-year life of the project
- Approximately 400 construction jobs are expected to generate at least \$8.3 million in wages as a result of the construction of this project
- The \$8.3 million in wages is expected to generate \$24.9 million in economic activity for the Navajo Nation and the region.
- Projected that \$1.49 million in additional NN sales tax dollars provided from wages spent within the Navajo Nation





## NTUA Solar Development: Cameron Solar Project

### **Timeline for Phase One Development**

- On January 11, 2021, NTUA submitted the solar lease and all supporting documents to the General Land Development Department (BRCF, CRCF, Grazing Permittee Consent, Survey, etc.) and it was entered into the Navajo Nation review process (EOR 015724)
- On January 22, 2021, NTUA met with the newly inducted Cameron Chapter Officials and provided them an update on the project
- RDC is empowered to approve the land lease and NTUA plans to submit legislation approving the Cameron Solar Lease for RDC approval no later than February 10, 2021
- Goal to have project built and deliver energy No Later Than December 2023
- SRP also stated and maintains that pursuant to the competitive solicitation process that only the NTUA project is eligible for award, not any other project on Navajo.
- As a Navajo Nation owned entity, NTUA is honored to promote the Nation's renewable energy portfolio potential and implement the Energy Policy Act of 2013.



# Lessons Learned

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- **Educate stakeholders; Grazing rights holders, Chapters, Governmental officials**
- **Assure fair compensation where appropriate**
- **Obtain financing early; primary and “tax credit”**
- **Analyze and engineer equipment to operate effectively with on-site conditions**
- **Hire financially stable construction EPC**
- **Retain third-party Operations and Maintenance provider**
- **Create in-house dedicated solar administration group**
- **Expect variance in actual versus design expectations**
- **Integrate cost of major “spare” components (inverters, transformers, etc) in the overall project budget**



# Thank You!

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