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Design Considerations for Solar Powered Wastewater Treatment Facility for Agriculture and Potable Usage on Acoma Pueblo Reservation

PRESENTED BY

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Background

Pueblo of Acoma

Kewa

The University of New Mexico

Environmental Planning & Design

Community Regional Planning

Motivation

Water is sacred in the Southwest. Living here for all my life I have been told the importance of conserving water.

I was introduced to different sites like landfills and the Albuquerque wastewater facility through my sustainability class at UNM.

Background Research

Site Visits

Acoma Utility Authority
Acomita, NM

Met the tribal Utility Authority Director, Arvind Patel and the Community Development Planner, Raymond Concho.

Navajo Tribal Utility Authority
Chinle, AZ

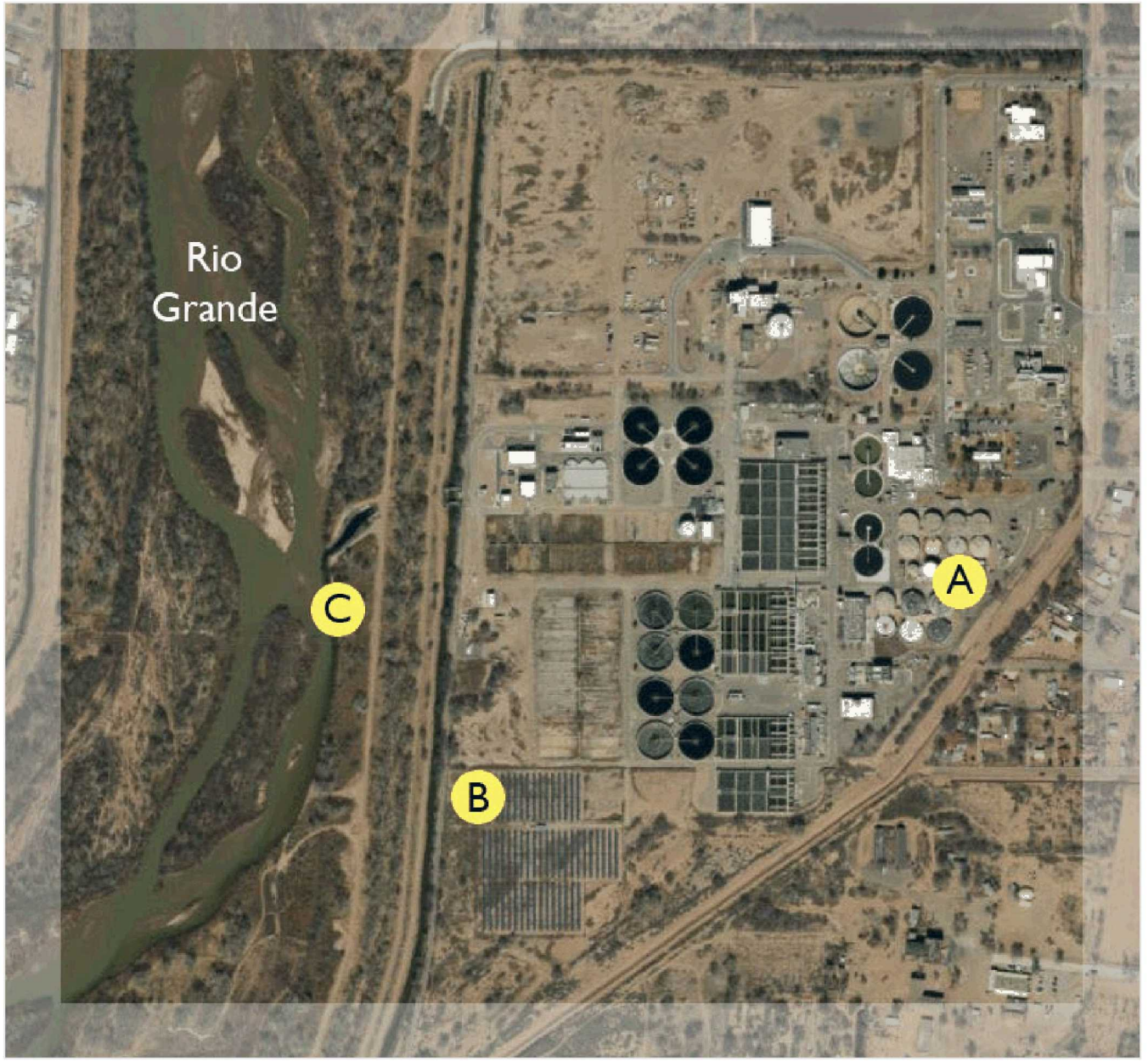
I was introduced to different factors that came with photovoltaics such as sunspots, panel damage, weather, and local flora and fauna.

Case Study: Albuquerque Water Authority

Facility is located in South Valley of Albuquerque and is able to handle 50 million gallons of wastewater per day.

Renewable Energy & Sustainable practices:

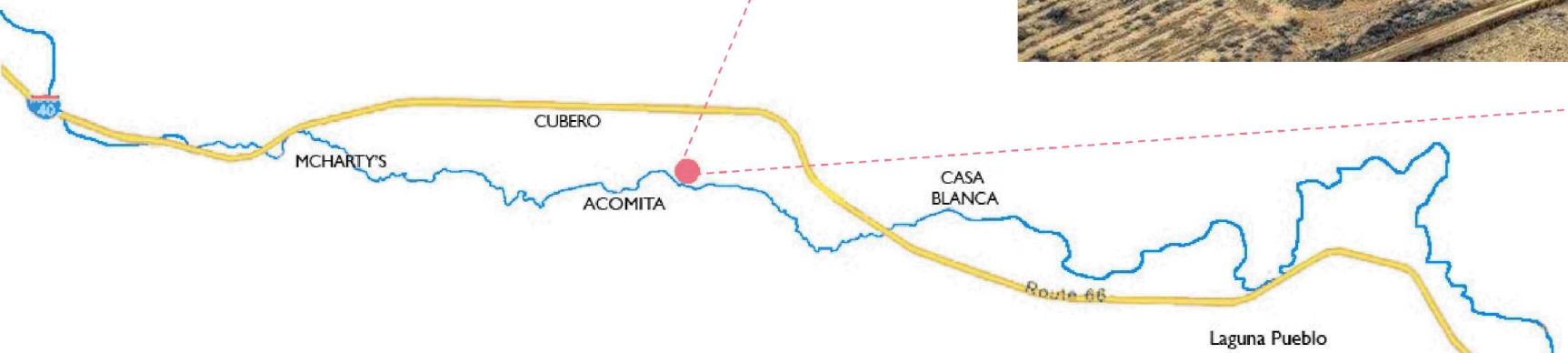
a) Methane collection
b) Solar
c) Recycling and reusing water
d) Designed and processed like a river



Pueblo of Acoma Wastewater Treatment Facility

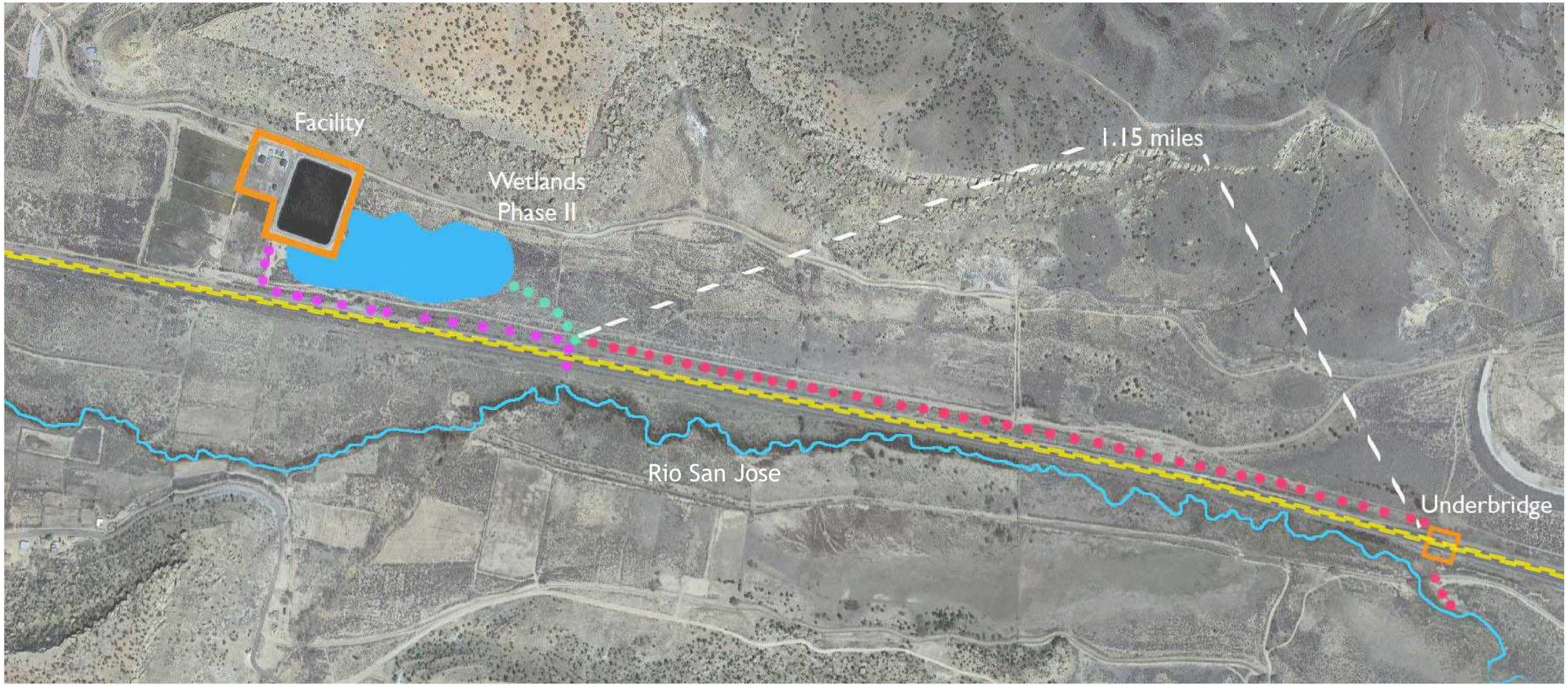
Facility is located in North Acomita in the Acoma Reservation treats 75,000 gallons of wastewater per day.

- Water quality is currently at the NM Class 2B: irrigation use
- Facility technology is Sequencing Batch Reactors (SBR)
- Monthly electrical usage for facility is 9,000 kWh and electrical and utility cost $37,500 annually

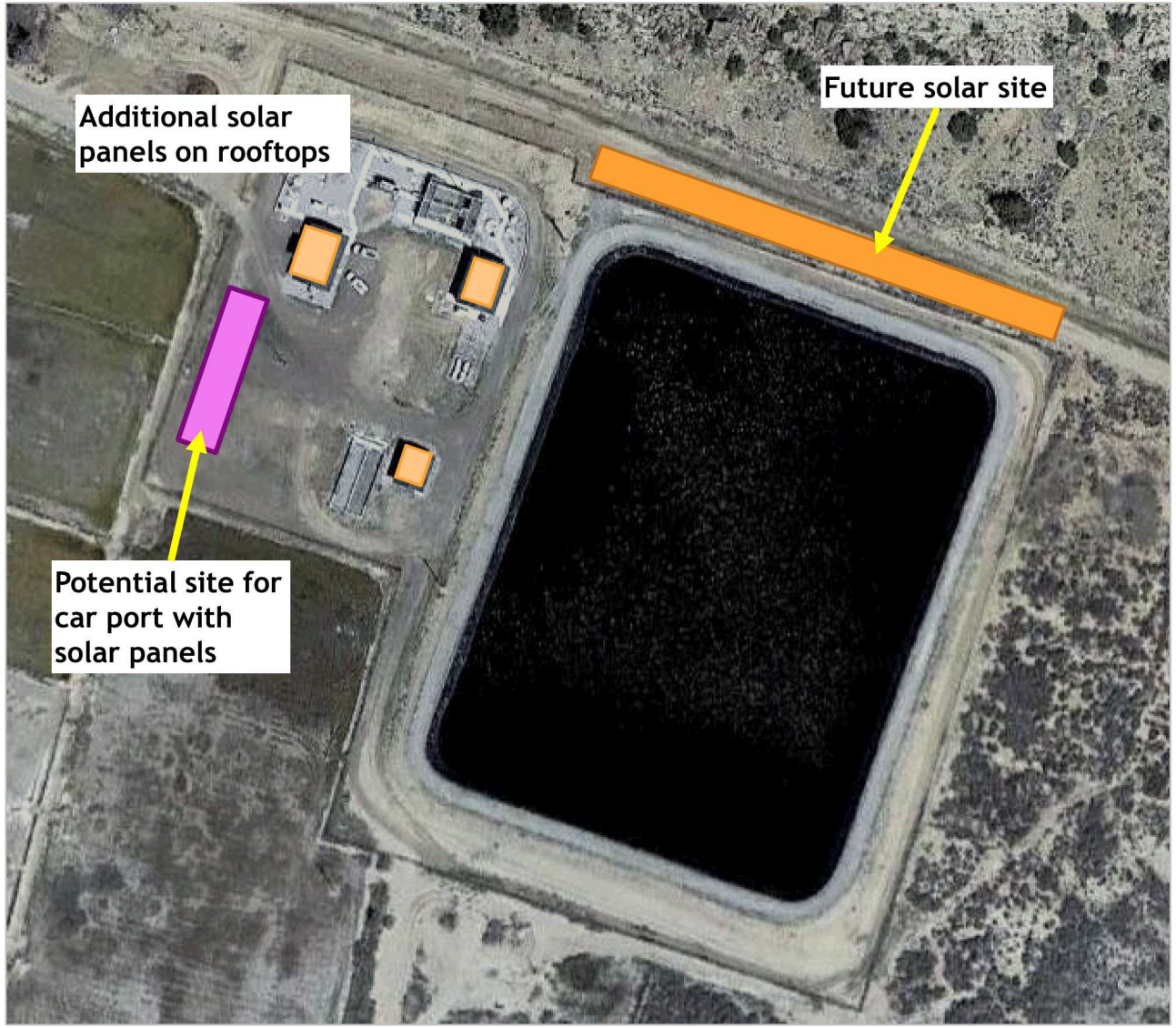


Results

Siting of Outflow of Treated Water to Rio San Jose



Siting for Solar at Wastewater Treatment Plant



Current/Potential Projects

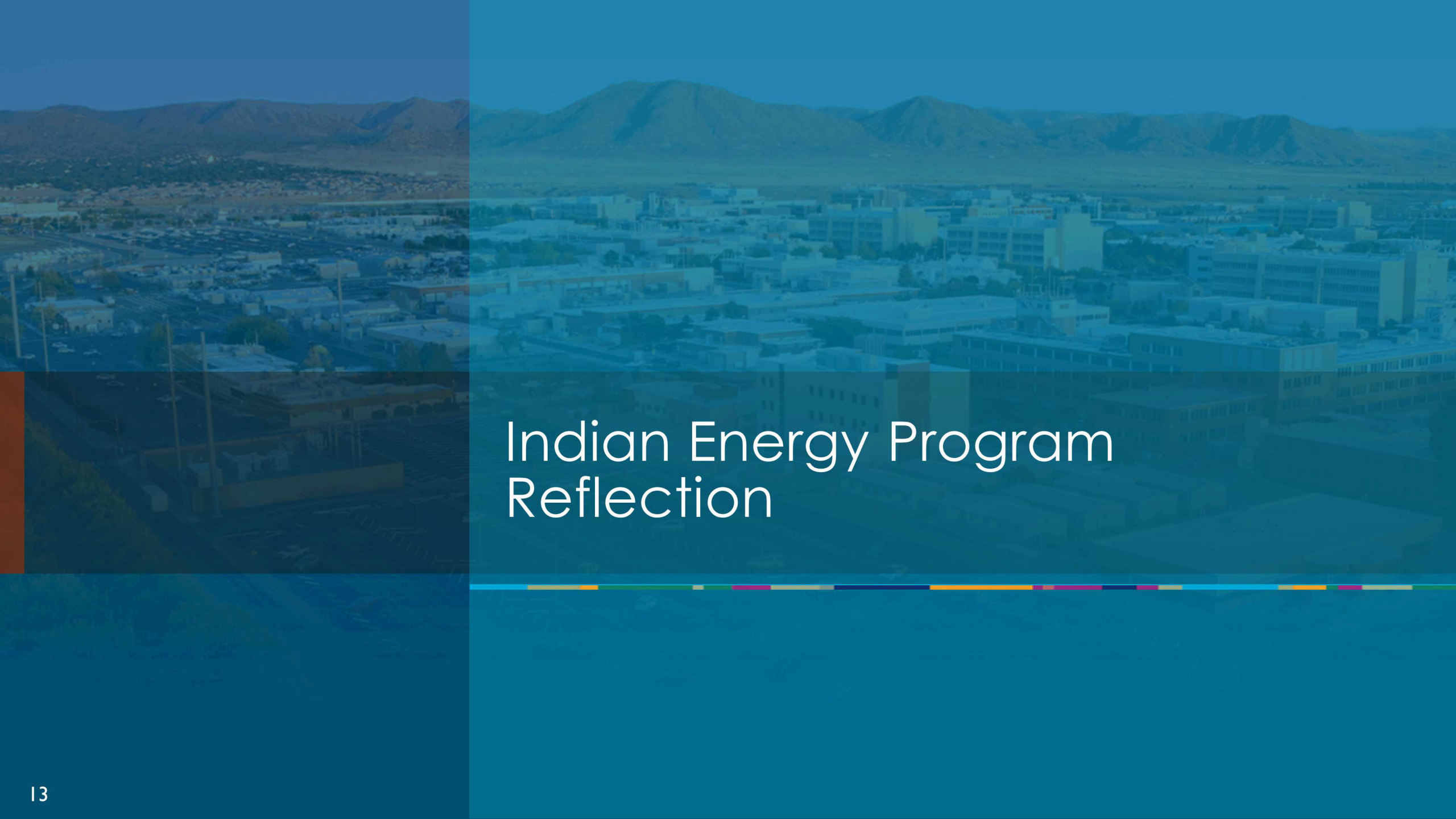
Tribal Electric Utility

McCarty's Solar Farm

Greenhouse

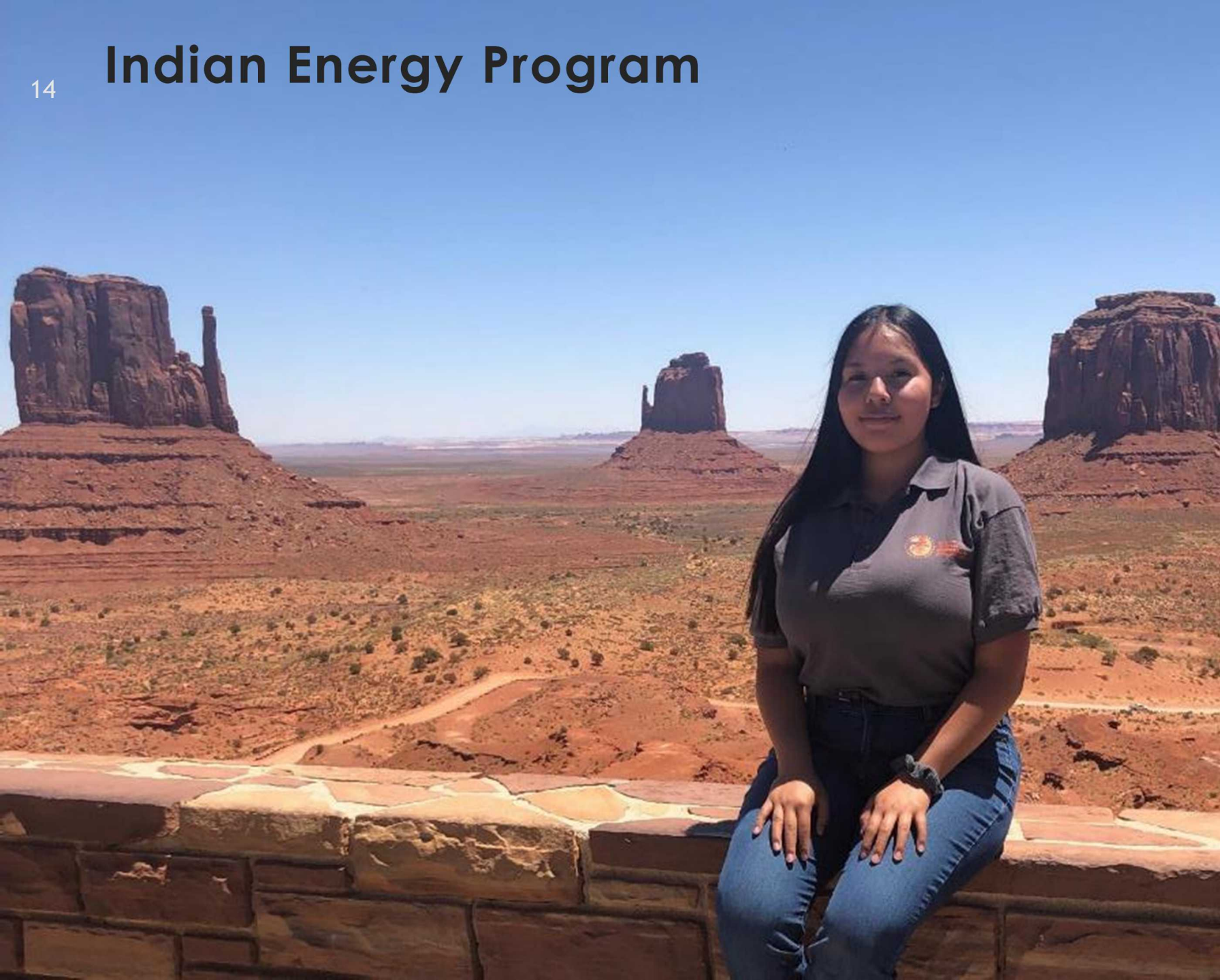
Conclusion

Through tribal utility funding with future projects in renewable energy, the wastewater treatment facility will be able to run on solar power. Facilities can be updated and the water class (quality) can be safe enough for potable use for the Acoma community.



Indian Energy Program Reflection

Indian Energy Program



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