A Net-Zero Energy Community

Report to Minnesota Legislature Summary

July 2021

HF 1842

Sec. 3. PRAIRIE ISLAND NET ZERO PROJECT.

Subdivision 1. The Prairie Island Net Zero Project is established with the goal of the Prairie Island Indian Community developing an energy system that results in net zero emissions.

Subd. 2. Grant. $16,000,000 in fiscal year 2021 is appropriated from the renewable development account; $15,200,000 in fiscal year 2022; $15,000,000 in fiscal year 2023.

Subd. 4. Plan. (a) The Prairie Island Indian Community must file a comprehensive project plan with the commissioner of commerce and the legislative committees with jurisdiction over energy policy no later than July 1, 2021...

Prairie Island Net Zero Project

The Prairie Island Net Zero Project is broken into three phases:

PHASE 1: Stakeholder Engagement, Technical Analysis, & Project Plan Development *(**report submitted July 1, 2021**)*

COMPLETED

PHASE 2: Project Costing and Vendor Selection *(report due January 1, 2022)*

DELAYED

PHASE 3: Construction and Implementation *(annual reports due on July 1 until project completion)*

DELAYED

The Path to Net Zero – Phase 1

Establish Vision

Achieve energy sovereignty/ sustainability; engage members; foster innovation; honor the past; focus on the next seven generations to create balance with Ina Maka.

Evaluate Baseline

Eliminate nearly 20 million pounds of CO_2 annually by 2023

Create Priorities

- Energy Efficiency
- Renewable Generation
- Energy Resiliency, Sovereignty

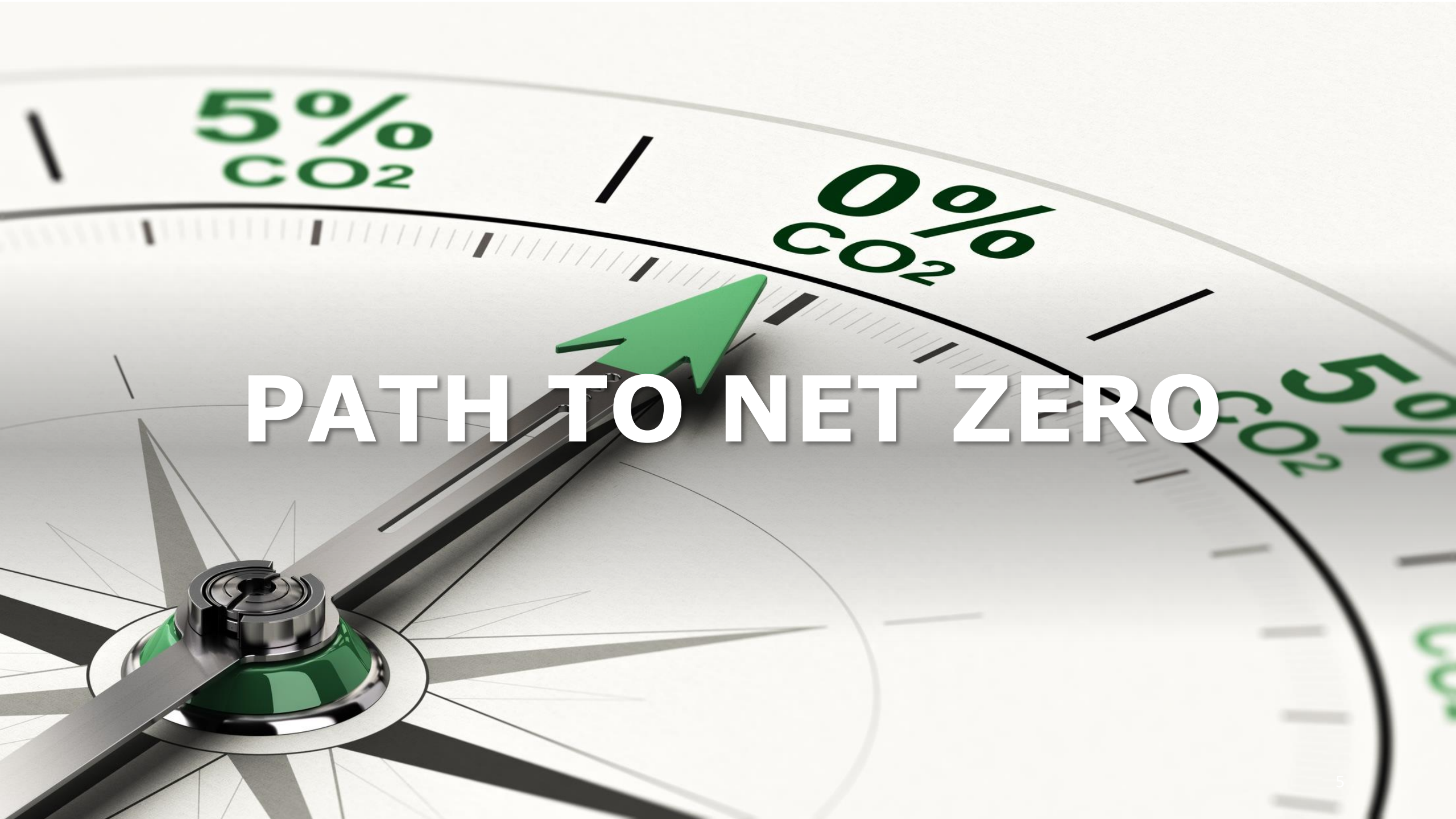
Weigh Options/Costs

- Conservation efforts
- Generation opportunities
- Sustainability needs

Implement Plan

Maximize CO_2 reduction through combination of:

- Energy efficiency
- Solar generation
- Operations, future efforts



PATH TO NET ZERO

Establish Vision

Stakeholder Engagement Process

Vision

To achieve energy sovereignty and sustainability while engaging our members, fostering innovation, honoring the past, and focusing on the next seven generations to create balance with Ina Maka.

Values

Bdewakantuŋwaŋ
Born of the Waters

Woksape
Wisdom

Wowaȟbada
Peace or Calm

Waciŋic'iya
Self-dependence

Akhidečheča or Akhilečheča
Equality

Wowacaŋtohnake
Generosity

Oahde
Foundation

Guiding Principles

- Protect Mother Earth
- Engage members, community, and partners
- Teach and share knowledge
- Energy Resiliency
- Energy Sovereignty
- Provide for our Community
- Innovation

Establish Baseline

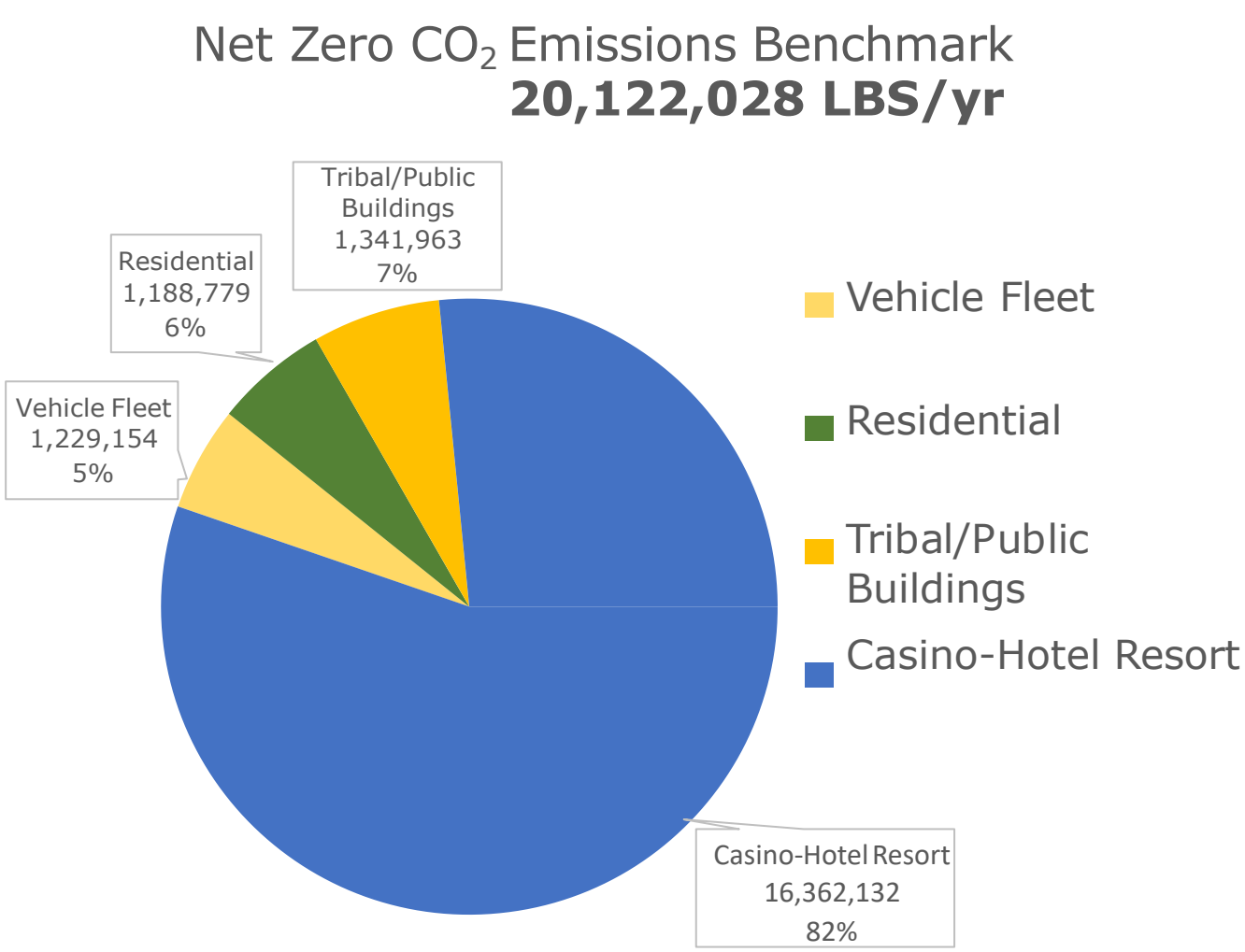
Current Energy Use, Emissions

Establish Baseline

Technical analysis of PIIC 2019 energy use, emissions

- Buildings and purchased utilities
  - Treasure Island Resort & Casino
  - Tribal government buildings (including off reservation)
  - Tribal residences
- Fleet vehicles
  - Treasure Island Resort & Casino
  - Tribal Government
- Water usage
  - Prairie Island Water Plant

CO_2 Emissions



Prairie Island Indian Community emits approximately 20 million pounds of CO2 annually. That is the equivalent of 75 oil tanker cars!

Implement Plan

Maximize CO_2 reduction

Implement Plan

46 projects were selected based on estimated costs and ability to maximize CO2 reduction

- Energy efficiency
- Electrification
- Generation

Priority	Illustrative Projects
Energy Efficiency	• LED Lighting • Electrify Fleet • GS Heat Pump
Generation	• Solar Arrays
Resiliency / Sovereignty	• *Operations* • *Economic Development*

Implementation in three cycles to coincide with grant funding

- CapEx: $41.8M invested

Cycle 1
2021/2022

Measures	Buildings	Estimated Cost
Energy Efficiency		
Water/Energy Improvement	Casino	$ 59,000
Commercial Lighting - Replace with LED	Casino & Tribal Buildings	$ 340,000
Lighting Controls	Casino & Tribal Buildings	$ 355,000
Wastewater Reuse for Irrigation	Water Plant	$ 350,000
Exterior Lighting	Casino	$ 47,000
Monitoring Based Commissioning	Casino	$ 28,000
Exhaust Hood Controls	Casino	$ 20,000
Refurbish original ERUs	Casino	$ 136,000
Bathroom Exhaust ERUs for Makeup Air	Casino	$ 651,000
Various Water/Energy Measures	Residential	$ 11,000
Reports & Monitoring: Electric & Water	Residential	$ 103,000
Electrification		
Heat Recovery GSHP Wellfield	Casino	$ 8,424,000
Heat Pump Water Heaters	Community Center/Clinic	$ 64,000
	Administration	$ 23,000
	Public Safety	$ 23,000
	Casino-Hotel Resort	$ 93,000
	Residential	$ 246,000
Air Source Heat Pump	Casino	$ 376,000
Fleet Vehicles	Casino & Tribal Government	$ 1,251,000
Generation		
South Facing Solar Thermal	Casino	$ 532,000
Photovoltaic	Community Center/Clinic	$ 60,000
	Dakota Station	$ 70,000
	Elder Center	$ 57,000
	Mount Frontenac Golf	$ 33,000
	PiIC Administration	$ 82,000
	Public Safety	$ 23,000
	Residential	$ 901,000
	Tinta Wita Tipi	$ 64,000
Cycle One Total		**$ 14,422,000**

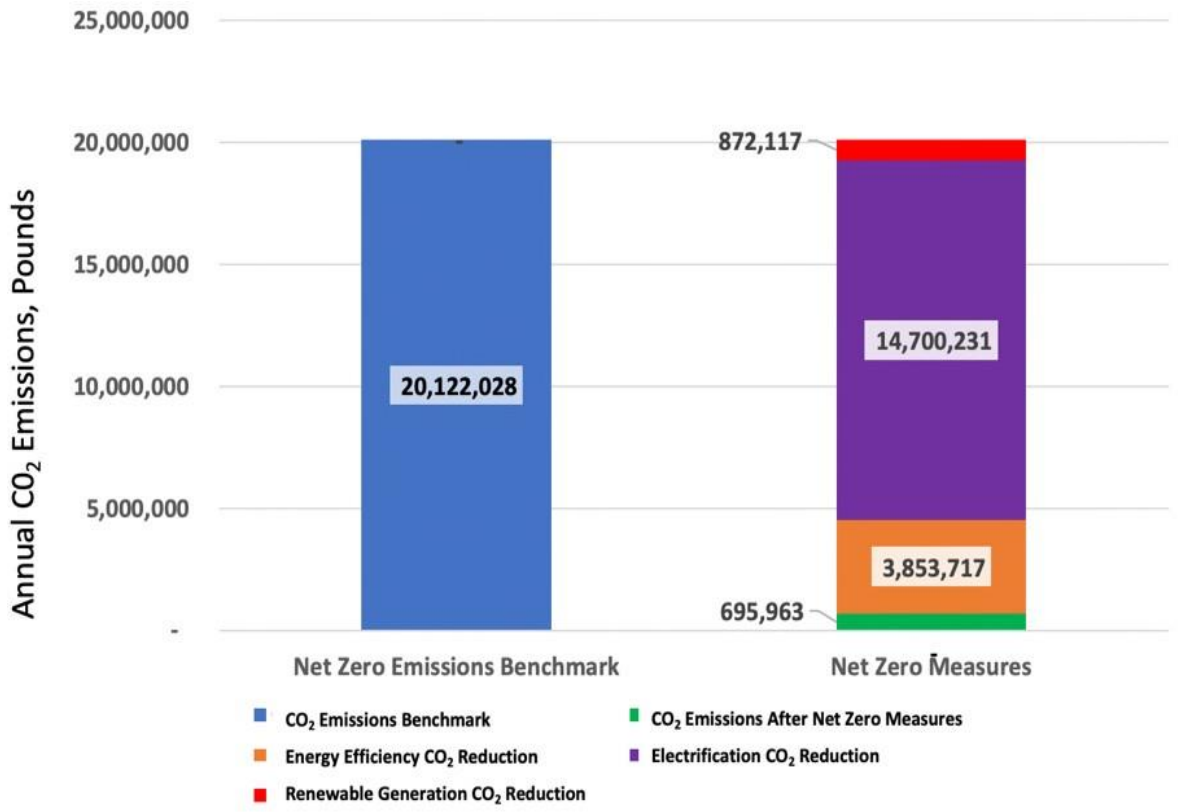
Cycle 2
2022/2023

Measures	Buildings	Estimated Cost
Electrification		
Heat Recovery Ground Source: Balance of Plant	Casino	$ 15,032,000
Dryer Heat Recovery and Electrification	Casino	$ 247,000
Air Source Heat Pump	Community Center/Clinic	$ 849,000
Cycle Two Total		**$ 16,128,000**

Cycle 3
2022/2023

Measures	Buildings	Estimated Cost
Electrification		
Electric Stoves/Ovens	Casino	$ 238,000
	Residential	$ 116,000
Electric Dryers	Residential	$ 254,000
Washwater Heat Recovery	Casino	$ 47,000
Air Source Heat Pump	Public Safety	$ 339,000
	Residential	$ 707,000
Ground Source Heat Pump	Administration	$ 615,000
Generation		
Large Array: 2 MW	Casino	$ 4,671,000
Large Array: 2 MW	Community	$ 4,671,000
HRSG Plant	Heating Plant	$ 331,000
Cycle Three Total		**$ 11,989,000**

Reduction of Emissions

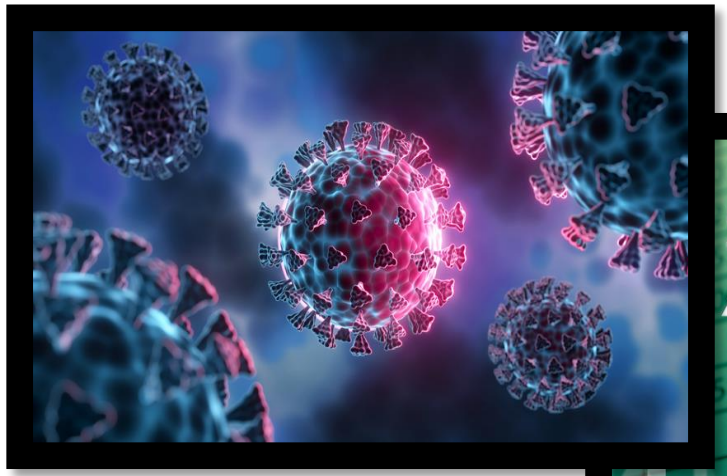


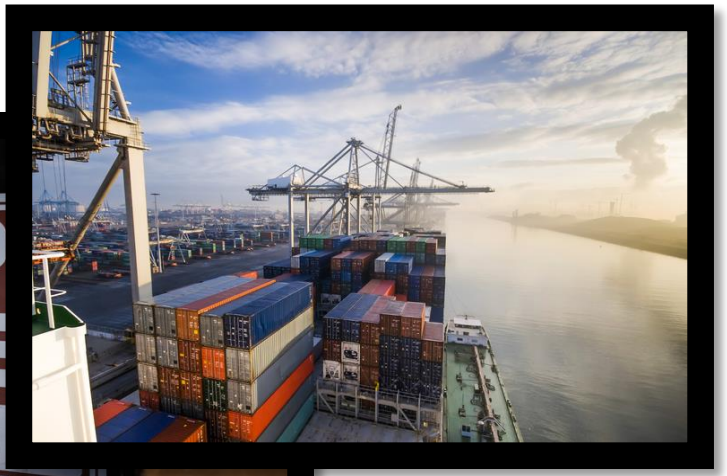
Type of Measure	Reduction of CO2 Emissions	
	Pounds	%
Energy Efficiency	3,853,717	19.8%
Electrification	14,700,231	75.7%
Renewable Generation	872,117	4.5%
TOTAL	19,426,065	100%

19.4M lbs carbon eliminated (remainder eliminated through future projects)

Prairie Island Net Zero Project

- Phase 2 and Phase 3 delayed by new global realities
  - Increased costs
  - Supply-chain issues
  - Labor shortage





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New Global Realities

Costs for Net Zero project have risen dramatically due to COVID

Steel prices are **up 31 percent** since 2020. Steel is the critical component for solar racking systems, appliances and general construction.

Copper prices are **up 52 percent** since 2020. Copper is the critical component in wires and motors. It has uses in construction (for example roofing and plumbing), and industrial machinery (such as heat exchangers).

Aluminum prices are **up 66 percent** since 2020. Aluminum is the critical component in solar panel frames.

Polysilicon prices are **up 220 percent** since 2020. Polysilicon is a critical component is solar cells and wafers for computer chips.

Labor Costs / Availability– Labor shortage forecasted to continue well into 2022.

Prices are expected to hold or increase through 2022 and begin to normalize in 2023.

Supply chain issues are driving solar prices higher and delaying some projects, LevelTen says

Around 12% of developers who were surveyed said they were delaying projects, and the firm's price index ticked up 4.3% during the second quarter.

JULY 19, 2021 DAVID WAGMAN

BUSINESS MARKETS UTILITY SCALE PV UNITED STATES

Proposed Approach

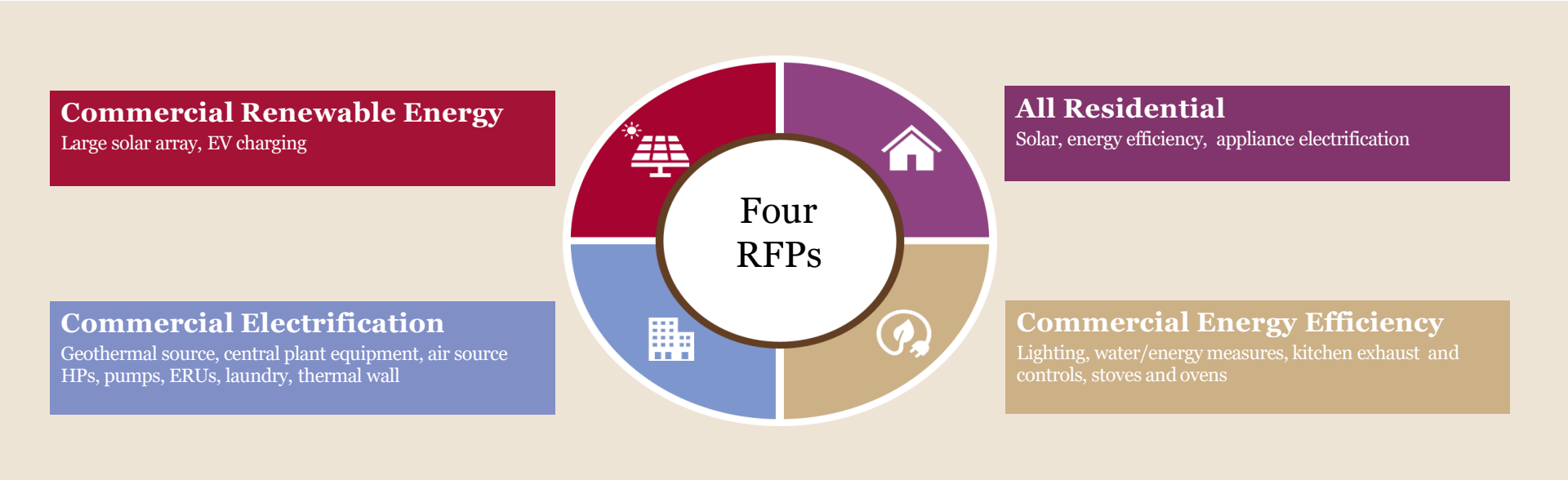
- Extend mandated timing requirement to reflect new realities

FROM	TO
Costing, contracting due Jan. 1, 2022	Costing, contracting due **Jan 1, 2023**

- Determine allowability for replacement projects if costs or tests show selected projects are unviable

Revised Sourcing Strategy

- Four RFPs versus One
  - The single-RFP approach would not have provided the required 3 bids



- In-market, March 2022
  - June 2022: Award RFP 1, 2
  - August 2022: Award RFP 3, 4
- Submit Certified Cost Report, January 1, 2023

Questions?

Blake Johnson, Government Affairs
Prairie Island Indian Community
blake.johnson@piic.org