Spokane Tribe of Indians

Spokane Reservation Residential Solar Energy Project (AKA COSSI 2.0)

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The Spokane Tribe of Indians ancestors inhabited much of northeastern Washington which consisted of approximately 3 million acres. Spokane ancestors were a river people, living a semi-nomadic way of life hunting, fishing, and gathering all creator had made available to them. Today the Spokane Tribe of Indians primary government operations are located in **Wellpinit Washington** with a citizen population of approximately 2,900 enrolled members.

Spokane Indian Housing Authority

- Established in 1971
- Assists eligible applicants in finding affordable housing on the Spokane Indian Reservation
- Advanced Weatherization Program that provides diagnostic testing and ensure the health and safety of residents
- Home Improvement Loan Program
- Down Payment Assistance Program
- Will soon have an established Solar Program

Children of the Sun Solar Initiative (COSSI)

The 2016 Cayuse Mountain Fire destroyed 14 homes and thousands of acres of tribal land, the Spokane Tribe decided to invest in alternative energy and climate resiliency with solar power.

The Tribe was awarded a DOE grant along with funding from Wells Fargo's Tribal Solar Accelerator Fund and Tax Credit Investment to implement COSSI.

COSSI made it possible for SIHA to install solar panels on essential tribal buildings need to operate during an emergency, along with a number of residential units.

COSSI led to a reduction of tribal energy cost and increased focused on energy self reliance, self-sufficiency and energy sovereignty.

The PAST

Roughly **650 kW** of solar was installed through COSSI. The systems are expected to produce **15,747,482 kWh** of clean renewable energy and save the tribe a total of **$2.8 million** over a 30 year lifetime.

Ford Youth Center

The final building for the COSSI 1 Project. Completed in the spring Of 2022.

The Present

- 2022 Powwow

Spokane Reservation Residential Solar Energy Project, AKA COSSI 2.0

- The Spokane Indian Housing Authority **(SIHA)**
- Spokane Reservation Residential Solar Energy Project **(SRRSEP)**
- Children of the Sun Solar Initiative 2.0 **(COSSI 2.0)**
- Plan to installing approximately **699-kilowatt (kW)** of solar photovoltaic (PV) rooftop and ground-mount facilities on the Spokane Reservation (Reservation) that will serve about **120 SIHA Managed Residences** and provide an expected annual first year savings of approx**. $108,518**, and an estimated **24,440** megawatt-hours (MWh) of emission-free electricity.

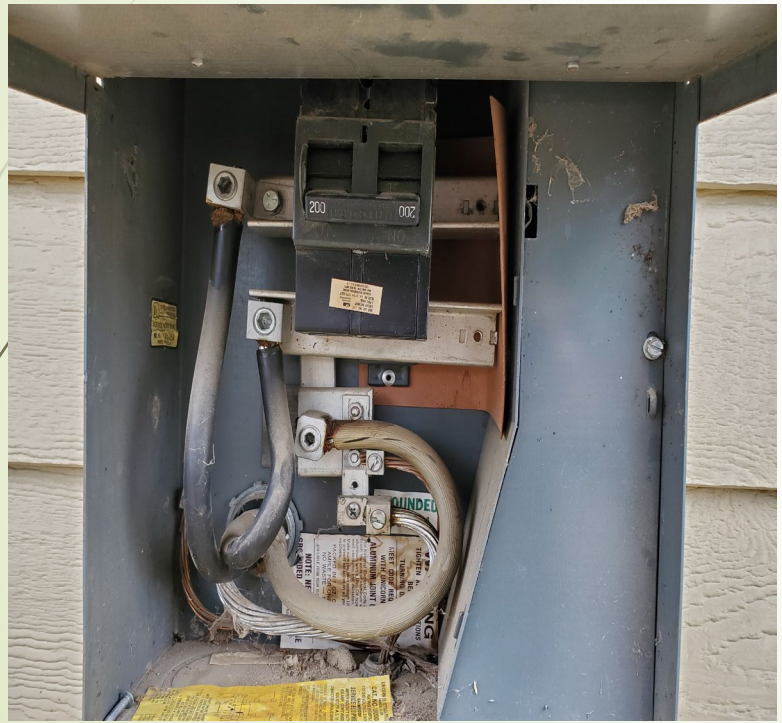
Change of Direction

The Legal structure and potential tax credit deal structures and tax credit investor structuring fell through because the negotiations were taking too long.

SIHA reviewed several alternative approaches to the project and investigated potential tax investors who have experience with similar project structures.

Design Build Agreement and preparing documents regarding operation and maintenance; Development and Service Agreements.

Change of Direction



Electrical issue on 50 of our rental homes that were built under one project with the same contractor and subcontractors.

SIHA had to investigate all these homes to ensure that the main wire feeds were sized properly.

Here is an IDEA

No other federal funding should be used as a match on this project?

Ask, questions to DOE and NAHASDA grant administrators Who do we need approval from before moving forward.

The new direction for this project is to fund it with the NAHASDA, Indian Housing Block Grant – American Rescue Plan (IHBG-APR) funding. With this funding source SIHA will be able to own the project outright once the project is complete.

Project Overview

Roughly **699 kW** of solar PV systems interconnected to **120 residential buildings**.

All the buildings are owned by the **Spokane Indian Housing Authority (SIHA).**

The Solar energy systems will provide **substantial cost savings** on energy bills for clients.

Local Tribal members will be identified to participate in a **paid training program** during the installation. This will include Operation and Maintenance (O&M) training to build capacity within the tribe to continue workforce development and solar system maintenance after installation.

There will be a focus on **client education** to orient the Spokane community on how to get the most out of their solar systems.

New House Lane Project Site

- **New House Lane 25 Homes.**

- New House Lane, Low Income Housing Tax Credit Project Built around 2005.
- This 25-home project is nearing the end of the Tax Credit term, so the homes are now owned and operated by the Spokane Indian Housing Authority.
- Last year the metal roofs were repaired with new metal where needed and the bottom 2 rows of screws were replaced with larger screws and the metal roofs were repainted with an Acrylic latex paint.

Martha Boardman

SIHA is focusing installing solar on 46 homes in this neighborhood.

Kokanee & Sockeye

SIHA is focusing installing solar on 18 homes in this neighborhoods.

Sherwood Loop Site

SIHA is focusing on installing solar on 7 homes in this rental neighborhood.
Trees are a factor in the area.

McCoy Lake Site

SIHA is focusing on installing solar on 24 homes in this rental neighborhood.
Trees are a factor in the area, but a logging co. will be removing trees within 100 feet of each of the homes.

Project Participants

Spokane Indian Housing Authority

- Tribal organization heading the project

GRID Alternatives Tribal Program

- EPC for the project
- Implement the paid training program

NorthWest Indian College

- Workforce development partner
- Students have the option to participate in the paid training program

Avista

- Utility Company who will work with the Tribe and GRID to interconnect the solar systems

Local Community Members

- Clients receiving solar systems
- Participants in the paid training program
- Participants in project orientations or educational initiatives

Project Objectives

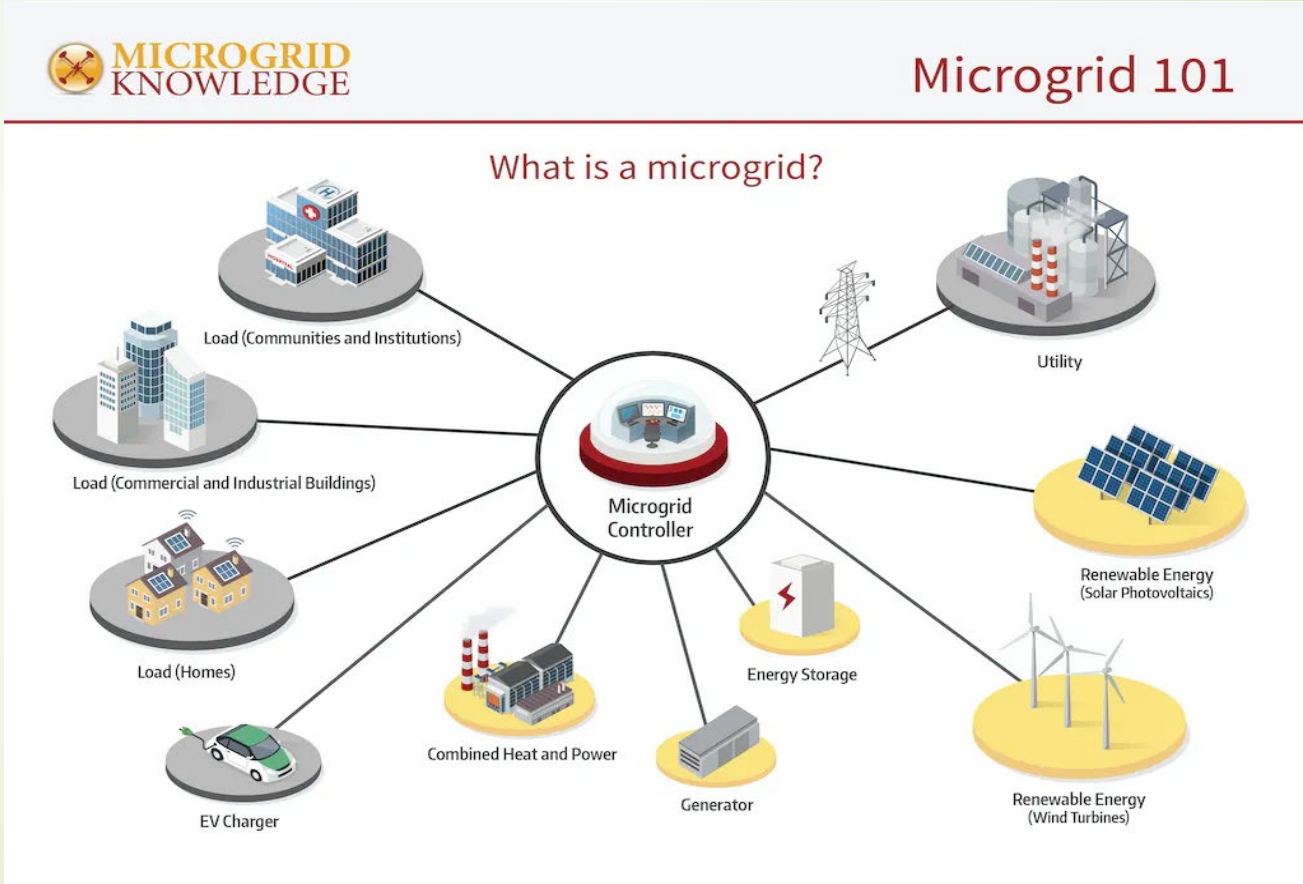
- **Client education: SIHA has a goal to create educational packets to better orient people on their solar and energy savings.**
- **What the project will do for the community: Projected cost savings, clean energy production, increased energy sovereignty, etc.**
- **Workforce development goals - building capacity within the tribe to create local solar jobs, perform O&M on the solar systems, etc.**

The Future of Solar and the Children of the Sun

Future Initiatives - Microgrid Feasibility Study

Microgrid Feasibility Study completed in March of 2021.

Microgrid - A system of interconnected loads, renewable energy generation and storage that is capable of islanding itself from the main utility grid.



Future Initiatives - Microgrid Feasibility Study

1.2 Microgrid Project Roadmap

SIHA microgrid Concept 3 –Was utilized as the basis for the Project Roadmap, due to the concept providing the greatest overall benefit of all strategies assessed. The following tasks are proposed to obtain funding, advance the microgrid system design, establish the project team for implementation:

- Evaluate load profile of each critical facility, including submetering of prioritized critical loads, recorded at hourly intervals or finer resolution intervals, ideally for a year or more
- Coordination with utility representatives to determine partnership opportunities for grant funding, infrastructure upgrades, and microgrid project development
- Specifications development for final system design, contracting, testing, and installation

As a result of coordination meetings with the utility and with Washington State Department of Commerce (Commerce) relative to 'Grid Modernization' grants, additional phases and tasks associated with microgrid system implementation were identified and incorporated into the following roadmap and schedule for consideration:

SIHA Campus Site

Project will include
5 Public Buildings &
9 Duplex Buildings

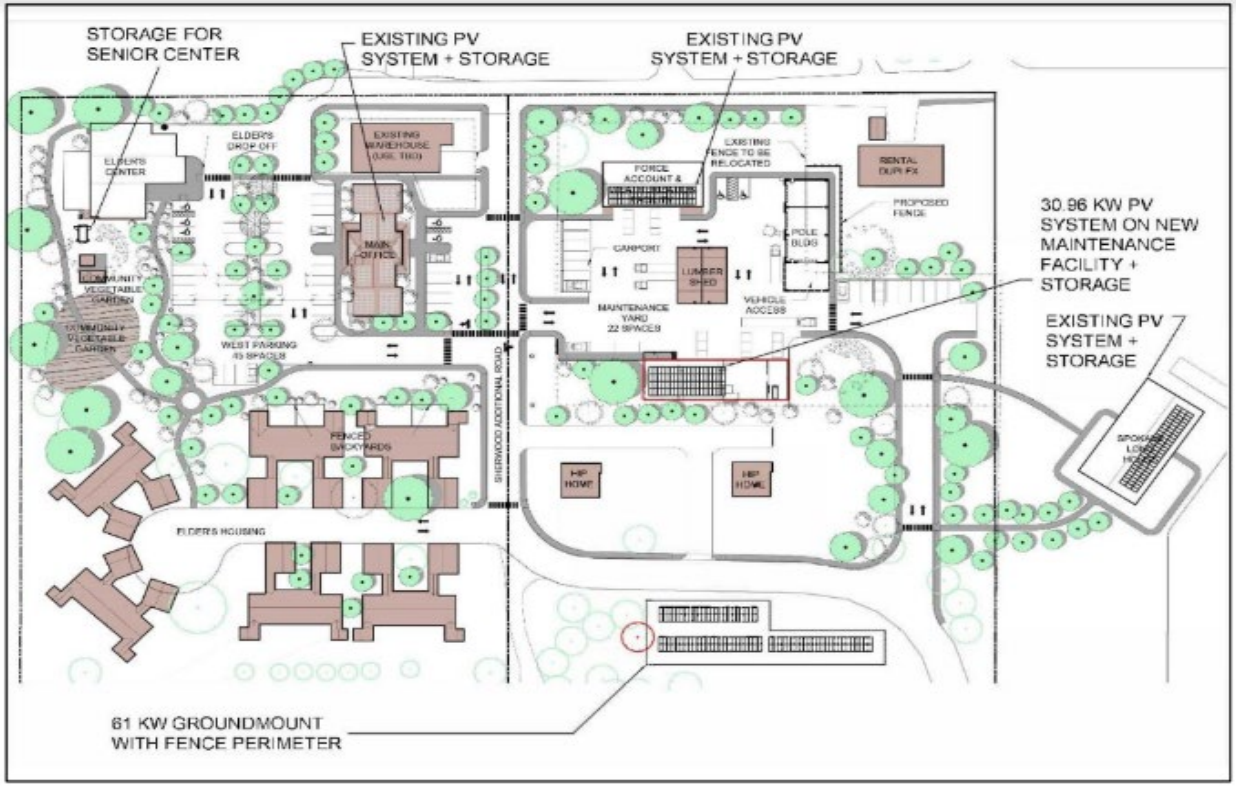


Figure 2: SIHA Microgrid Concept 3 – Option 1 Site Plan

Microgrid Concept 3a selected

Project Concept 3 Was selected and appears to be cost effective.
The project was selected by Washington State Dept of Commerce for a Research and Development grant

		Cost Benefit			Complexity		System Performance					
SIHA Microgrid System Options		Lowest Capital Expense	Lowest Operating Cost	Greatest Financial Benefit	Engineering & Construction Logistics	Operation & Maintenance	Maintain Net Metering for Exisitng PV	Uninterrupted Power to Loads	No Load Management Needed	% of Building Loads on Loadcenter	Fire Season Autonomy	Recommendation
Concept 1	Concept 1 + 100 KW PV	5	4	5	5	3	Yes	Some	Some	100%	Yes	Not Recommended
Concept 2	Concept 2 Main Load Center + 100 KW PV	4	4	4	3	2	Yes	Some	Some	100%	Yes	3
	Concept 2 Critical Load Center + 100 KW PV	3	3	3	3	2	Yes	Some	Yes	25%	Yes	3
Concept 3	Concept 3 Main Load Center + 61 KW PV	2	1	1	1	1	Yes	Yes	Some	100%	Yes	1
	Concept 3 Critical Load Center + 61 KW PV	1	1	2	2	1	Yes	Yes	Yes	25%	Yes	2

Figure 1: SIHA Microgrid Qualitative Matrix & Evaluation Criteria

ACKNOWEGMENT
U.S. Department Of Energy Office of Indian Energy

Grid Alternatives

Godfrey & Kahn

FOR MORE INFORMATION ABOUT THIS PROJECT,

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