Recipient Organization:	Akwesasne Housing Authority
Project Title:	Community-Scale AHA Go Solar Initiative and Net Zero Initiative
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Project Partner:	Saint Regis Mohawk Tribe (SRMT)

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2. Executive Summary:

The Saint Regis Mohawk Tribe is a sovereign, federally acknowledged Indian Tribe. The Tribal Council created the Akwesasne Housing Authority (AHA) by ordinance in July 1984 and has designated the AHA as its agency for purposes of administering the Tribe's Indian Housing Block Grant under the Native American Housing and Self-Determination Act of 1996. The St. Regis Mohawk Reservation is also known by its Mohawk name Akwesasne. U.S. census data indicate that the total population is 2,919, and U.S. Post Office data confirm that there are 1,277 households on the reservation.

St. Regis Mohawk Tribe and AHA have worked together to develop a 10-Year Tribal Strategic Energy Plan. This plan was prepared as a result of an Energy Summit that AHA initiated to discuss the Tribe's critical energy issues, priorities, and strategies. The overall goals of the two initiatives are integrated into the Tribe's long-term goals and visions.

The reservation is located in Franklin County, New York, and bordered by the Towns of Fort Covington, Bombay, Brasher, and Massena. St. Regis Mohawk Tribe occupies a six-mile square territory within its ancestral homeland on the St. Lawrence River. The Go Solar project will install approximately 615 kilowatts (kW) of solar photovoltaic (PV) facilities to serve housing related buildings on the Tribe's reservation and use net metering programs to reduce the energy costs for AHA and Tribal members by up to $4,417,501 over the life of the project. AHA will initiate four (4) net zero buildings: two (2) new net zero low-income housing buildings located at Sunrise Acres III, which include the Veterans Supportive Housing Building and the Seniors Supportive Housing building, and one (1) older, existing net zero building used by the Akwesasne Boys & Girls Club (ABGC Building), and (1) Tribal Administration Building.

The Saint Regis Mohawk Tribe (the "Tribe") and Akwesasne Housing Authority (AHA) as an instrumentality and subdivision of the Tribe has developed a strategic energy plan and long-term energy visions that resulted in goals that include working toward net zero status for buildings on the Reservation, employing complementary energy efficiency measures (EEMs) and green energy systems, using those technologies in a manner that supports a thriving and sustainable local economy, obtaining energy self-sufficiency, becoming a leader in green energy development and minimizing the Tribe's and AHA's energy and environmental footprint. All of these long-term energy goals and visions are advanced by the Project.

One of the objectives for the Tribe and AHA was Go Solar Initiative is to install approximately 615 kW of solar photovoltaic (PV) facilities to serve housing related buildings on the Tribe's reservation and use net metering programs to reduce the energy costs for AHA and Tribal members by up to $4,417,501 over the life of the Project. This includes nearly 615 kW installed as a ground-mounted facility installed in a 25 acres parcel owned by the Tribe and is located close to the Tribe's Casino and hotel, where there is more than sufficient utility infrastructure to support the solar facilities. The electrical power from the solar facilities will be used by net metering programs to offset energy use and costs for AHA's buildings and Tribal members' residences. In the past twelve (12) months of motoring the AHA has transferred approximately 285,120 kilowatt hours (kWh) into the community estimated at $35,000 dollars and helped over 80 tribal residences.

The second objective was to incorporate Net Zero buildings into the Sunrise Acres complex to achieve this objective AHA will create four(4) net zero buildings: two (2) new net zero low-income housing buildings located at Sunrise Acres III, which include the Veterans Supportive Housing building and the Seniors Supportive Housing building, and one (1) older, existing net zero building used by the Akwesasne Boys & Girls Club (ABGC) building). (1) Tribal Administration building. To do this, AHA will first implement several EEMs using an experienced EEM contractor (Contractor) to make the buildings as energy efficient as reasonably practical. The EEMs will significantly reduce the energy use of the Veterans Supportive Housing building, the Senior Supportive building, the ABGC building and the AHA Administration Building. AHA will then partner with an investor (Investor) and experienced solar installer(s) to install solar PV facilities (approximately 31kW) to provide the Sunrise Acres buildings that cannot benefit from the Go Solar, Solar Farm, due to the fact that at construction they were already set up as NetZero buildings. The past twelve (12) months of monitoring has shown a total of 567,000 kWh transferred to the four (4) buildings for a total of $70,000 total savings. The Systems will take advantage of the National Grid net metering program. The Project will also include training and jobs for 3 Tribal members for implementing the EEMs and 4 Tribal members for solar PV installation. The Project will train and provide part-time jobs for up to 2 Tribal members for the operation and maintenance (O&M) of the EEMs and Systems. The Net Metering for the onsite solar arrays for 12 months has been a total of 293,280 kWh resulting in a savings of approximately $3500.00 year.

3. Project Objectives:

The overall project goals are: (1) decreasing reliance on fossil fuels and thereby reducing AHA, the Tribe's and Tribal members environmental footprints; (2) increasing AHA, Tribal and Tribal member energy self-sufficiency; (3) adding diverse, complementary green energy systems and EEMs; (4) significantly lowering the energy costs for Tribal members and AHA; (5) providing a model for low-income Tribal energy projects; and (6) creating jobs and mentoring opportunities for Tribal members.

The major tasks from the project are to: (1) produce approximately 20,831,320 kWh of clean energy over the life of the solar facilities under Initiative 1 and produce 207,040 kWh of clean energy under Initiative 2; (2) use effective EEMs along with the solar systems to

work toward net zero buildings; (3) provide around 5% of the total Tribal residential community energy load; (4) provide economic benefits including saving approximately $4,417,501 from the electricity generated from the solar system over the life of the system and provide additional significant savings from the EEMs; (5) provide training of up to 11 Tribal members, and creating approximately 17 jobs during the installation and over the life of the project; (6) create environmental benefits including a reduction in greenhouse gas emissions, reducing propane use and electricity form fossil fuel; (7) create a replicable model for housing communities and Tribal members to work towards energy self-sufficiency and affordable energy; (8) further the Tribe and AHA's commitment to environmental stewardship; and (9) advance AHA and the Tribe's goal to become energy self-sufficient.

4. Description of Activities Performed:

Activity # 1: Request for Proposals for Contractor and Investor

AHA sent out an Invitation to Indian-owned economic enterprises on December 21, 2016 for 10 days in the newspaper and the AHA website for Indian-owned economic enterprises to submit a statement of intent to respond to bid announcement, request for proposals, solicitation of quotes for small purchase, and selection of contractor(s) and investor. There were no responses from Indian-owned enterprises. AHA then posted its request for proposals ("RFP") on Solar Energy Industries Association's website on February 27, 2017 and emailed the RFP to all NYSERDA-approved contractors in Franklin County, New York on February 27-28, 2017. AHA accepted responses until March 20, 2017. AHA received responses from five respondents: (1) Monolith Solar; (2) Apex Solar Power; (3) Advanced Contracting Solutions LLC; (4) Active Solar Development & CIR Electrical Construction Corp.; and (5) SunVest Solar, Inc.

Activity #2: LLC Legal Structure

The AHA was tasked with LLC formation documents, operating agreement, capital contribution agreement and related agreements will be drafted, negotiated, and finalized. AHA was able to reach agreements with the Investor through an investor's agreement in its commitment letter to the key terms of the agreements. As a result of the negotiation the AHA was able to establish the LLC, operating agreement, capital contribution agreement and all related agreements.

Activity # 3: Approval of Detailed Site Drawings

The approval of detailed site layouts and site drawings for approval by the Tribe and AHA happened in two phases. Phase one was the preparation of the site drawings that would indicate detailed sizing, layout and siting of the facilities. Phase two was the approval of the site drawings after the Tribe and AHA concerns were addressed. Once all concerns had been addressed the final detailed site layout and drawings were approved.

Activity # 4: Access Permit/Agreement

Activity four was to obtain Environmental and Cultural clearance. This activity took three phases to obtain the required Environmental and Cultural clearance needed for the project. The first phase was to submit the application for access permit. This required the LLC's submission of documentation to the Tribe/AHA for environmental and cultural review. As a result of AHA's close working relationship with the Tribe, AHA was able to quickly respond

to and work with the Tribe throughout the review. The result was the LLC submitting all access permit/agreement package. Phase two was the Environmental and Cultural Review of the project and site work. Due to the environmental benefits of the project, the project was placed as a high priority for the Tribe as it reduced the Tribal member's electricity bills and would provide a source of emission-free energy. Phase three was to Acquire Access Permit/Agreement from the Saint Regis Mohawk Tribe. This phase was completed quickly due to the Tribal Council's involvement in the project.

Activity # 5: Design-Build Contract
Activity five was to prepare design-build contacts between AHA and/or the LLC and installer(s). The AHA being a subdivision of the Tribe negotiated and executed a design-build agreement that has key agreement terms to protect Tribal and AHA interests by the LLC and the installers. The result was the investor's commitment to the Tribe and the AHA having authority, direction and control over the design and installation of the facilities.

Task #6: Execute Power Purchase Agreement
Activity six was to prepare the power purchase agreement between the LLC and the AHA/Tribe. The AHA being a subdivision of the Tribe negotiated and executed the power purchase agreement that protected the Tribe and AHA interests. The barriers and risks are addressed by the commitment from an investor for the power purchase agreement to address Tribal and AHA operational issues and other issues. They are also addressed by the jurisdictional authority that the Tribe has over the project with respect to the issuance of the access permit and the Tribe's ability to revoke the access permit if its concerns are not met.

Task# 7: Construction permitting
Activity seven was to apply and receive permits for the construction of the solar facilities and installation of energy efficient measures (EEMS). Installed EEMs include attic insulation, air sealing, lighting replacement, and HVAC upgrades. Barriers and risks include ensuring that appropriate information is provided in a timely manner to permitting agencies. These barriers and risks are addressed by AHA and the Tribe working with an experienced New York installer to design and build the project. AHA already has a commitment from a New York installer with significant experience in obtaining the permits that are necessary for solar facilities and EEMs. Obtaining the construction permits happened in two phases, the first phase was to obtain and get approval for the storm water pollution prevention. With AHA working with experienced New York installer and the Tribe's support for the project, the installer applied and was given approval for the pollution prevention plan. The second phase of task 7 was to obtain building and electrical permits. The second phase of task 7 was completed with the experience of the New York installer who had clear knowledge of the requirements and information needed to obtain necessary permits. The result was the Installer obtained all required permits for the Building and Electrical components of the project.

Task # 8: Interconnection Approval
Activity eight phase one was to obtain interconnection approval from the utility. Barriers and risks include the installer's ability to gather required information for the interconnection application and submit the information to the local utility. These barriers and risks are

addressed by AHA working with an experienced New York installer(s) that has experience in filing interconnection applications on numerous projects involving New York's interconnection standards. Phase two of the interconnection approval was for the utility/Tribe interconnection. The installer addressed any potential interconnection issues with the local utilities. Phase three of the interconnection approval was to receive the approval from the local utility, this approval was given by the installer having experience and having communication with the local utility.

Task # 9: Construction
Activity nine was to have the installer mobilize, installing crews, coordinating material delivery and installing the project. The installer mobilized, installed crews and coordinated the material needed for the successful completion of the solar farm and EEMs project. As a result, the project was constructed in accordance with design-build contract.

Task #10: Commissioning
Activity ten was for the Utility to do inspections and approval of the solar facilities and EEMS project. The installer has worked with the local utilities on numerous successful projects and ensured the timely inspections had occurred.

Task # 11: Monitoring
Activity eleven was that the installer installed monitoring equipment and ensured the equipment was functioning properly. The monitoring equipment was installed and is properly functioning allowing AHA to monitor the Solar Farm remotely.

Task # 12 Verification
Activity twelve was for AHA to verify the reduction in fuel use by monitoring production from the solar facilities and comparing it against energy usage of the buildings that receive solar credits and monitoring the energy usage of the net zero buildings. The AHA will monitor electricity usage/credits as well as the usage of fuel.

5. Conclusions and Recommendations:

The AHA's contribution to the Tribe's energy vision has been to decrease the reliance on fossil fuels, increased self-sufficiency, and has significantly lowered energy costs for Tribal Members and AHA.

The AHA's Go Solar project accomplishments have been the creation of a community distributed generation (CDG) through the New York State Public Service Commission. Through the CDG program AHA is able to allocate credits produced from the 615 kW Solar Facility under the Go Solar Project supported by U.S. Department of Energy Office of Indian Energy to the low to moderate income tribal families. Resulting in lower electricity bills for 80 tribal members and AHA's Sunrise Acres Low Rent Elderly apartments. Since the monitoring of the solar facility in March 2020 until December of 2021, the Solar Farm was able to apply approximately 825,000 kWh to Low to Moderate Income Tribal members, Low-income Elderly members and community buildings, and the kWh credits applied to LMI solar subscriptions demonstrated significant energy savings of approximately $105,000.00.

AHA 617 Kw Solar Farm Site as of September 2021

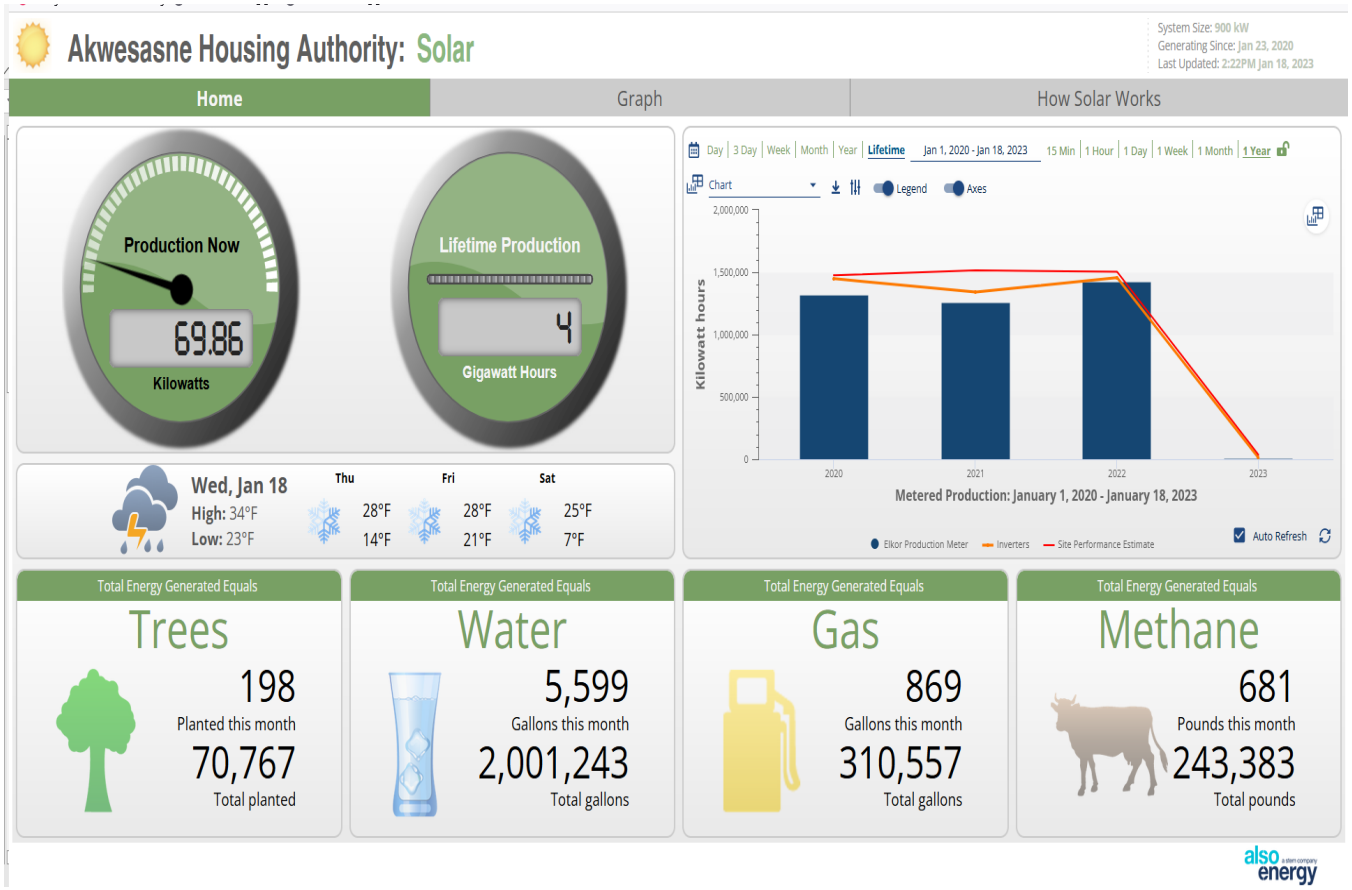
Net Zero Onsite solar (net metering)

New Solar Arrays for Onsite Solar (net metering)

Solar Subscribers:	kWh transferred
Low to Moderate Income Tribal Families 80	285,120.28
Low Income Elderly Tribal Members 57	493,590.85
Community Buildings Sunrise Acres/ABGC	46,811.65
TOTAL kWh Transferred	**825,522.78**

In the lifetime of the Solar Farm the Solar Farm has produced 4 Gigawatt hours, as shown in the picture below. The lifetime or specific range of the production can be found on the AHA's website www.aha-nsn.gov. The graph below shows the production of the NetZero project supported by the Department of Energy that offsets Sunrise Acres Elderly Apartments. The credits received towards the electricity bills helps to keep the cost of living at the Sunrise Acres Elderly Apartments affordable for our tenants.

NetZero	kWh	Estimated credits @ .0434 kWh
Building 9	37,960	$1,647.46
Building 10	49,920	$2,166.53
Building 11	51,360	$2,229.02
Building 12	54,200	$2,352.28
Building 13	68,600	$2,977.24
Building 14	63,680	$2,763.71



6. Lessons Learned:

During the project life, the AHA has encountered numerous delays. The delays include COVID-19, material shortages and alternative installers for the onsite project.

The AHA worked diligently with the DOE addressing timeline extensions and revisions to the original Scope of Project. The revisions to the Scope of Project were to increase the EEMs at the Administration building due to available funding. The timeline extensions were due to material shortages and finding a new installer for the onsite project. The AHA had weekly meetings with the DOE Project managers so we could come up with solutions that would meet the original application Statement of Project Objectives (SOPO). With the help of the DOE the AHA was able to add more onsite solar arrays and increase the EEMs of the administration building during COVID-19.

The onsite solar project has seen numerous delays due to COVID-19 that seriously affected the project implementation and timeline. There were several issues related to COVID-19 restrictions; such as, tribally mandated travel restrictions that affected the installer from project management because they are based out of state. There were workforce shortage issues, and material shortage and supply chain delays. A significant delay caused by the pandemic is materials supply. The project was initially slated to be completed by May 1, 2021 but some of the inverters were backordered and were not scheduled to be delivered until the beginning of May 2021 due to COVID-19 work stoppages. The lessons learned due to the COVID-19 pandemic for AHA has been to have open communications with the granting agencies and installers.

Lastly, the project is located in Northern New York on the Canadian border, so we did see some weather delays due to extreme cold and snowy conditions. Once the weather warmed up, the installers were then hampered by wet and saturated ground conditions. There were no work stoppages just conditions making the installation of the racking system and trenching laborious and a lot more time consuming than originally anticipated but did not affect the already delayed completion date. The project was already delayed by materials supply interruption, so either way the project would have still been over the initial implementation schedule. The lesson learned with this challenge would have been to plan and coordinate better with the installer to start the project earlier as to avoid the extreme cold and snowy conditions.

7. Conclusion:

The installation of the Go Solar Project's 617 kW Solar Farm, additional onsite solar and EEMs project have reduced the environmental footprint on our tribal community. EEMs installed include LED lighting, installation of new boilers, HVAC system and weatherization to both the Administration building and the Akwesasne Boys & Girls Club building. The projects have brought significant savings and benefits, which have been identified in the above graphs, to the Saint Regis Mohawk Tribe Community and will continue for more generations to come. The AHA along with the Saint Regis Mohawk Tribe through the Strategic Energy Plan of the SRMT are committed to seek and keep an eye out for energy savings and community energy programs.