

GODFREY  KAHN S.C.

**AKWESASNE HOUSING AUTHORITY
Community-Scale AHA Go Solar Initiative**



**Presented By:
Retha Leno & John Clancy**



Saint Regis Mohawk Tribe

- Akwesasne
- Contiguous Mohawk Community spanning parts of:
 - One state (NY);
 - Two provinces (ON & PQ); and
 - Two countries (US, CA).





Saint Regis Mohawk Tribe

- Easternmost member of the Haudenosaunee Six Nations Iroquois Confederacy affected by the Jay Treaty of 1794 resulting in international split border between the United States and Canada.
- SRMT occupies 6 square miles within its ancestral homeland along the St. Lawrence River.
- 19.4% of all Tribal families and 22.4% of the Tribal population is below the poverty line, including 31.3% of those under age 18 and 14.9% of those age 65+.
- Unemployment: 11% (surrounding areas 5.4%)



Saint Regis Mohawk Tribe

- The Saint Regis Mohawk Tribal Council created the Akwesasne Housing Authority (AHA) by ordinance in 1984 for the purposes of:
 - Remediating unsafe and unsanitary housing conditions that are injurious to the public health, safety and morals;
 - Alleviating the acute shortage of decent, safe and sanitary dwellings for low income persons; and



Saint Regis Mohawk Tribe

- Providing employment opportunities through the construction, improvement, extension, alteration or repair and operation of low-income dwellings.
- AHA has constructed a total of 405 homes and 41 elderly (Sunrise Acres) rentals for low-income members since 1984. AHA pays all utilities for Sunrise.

AHA Mission

Providing Low Income Housing Support to the Akwesasne Community since 1984:

“The mission of the Akwesasne Housing Authority and the St Regis Mohawk Tribe is to develop a comprehensive housing program that will address the needs of all Mohawks living on and around our designated Indian area. We will seek to generate and promote community strength and prosperity through safe housing, supportive ventures, economic development, and program efficiency. In the spirit of this mission, we will strive to protect and educate our future generations.”

AHA's Rise to Green

- In the recent past, the AHA spearheaded **Sustainable Design Practices** and **Renewable Energy** for all of its projects as a matter of policy. It has also been advocating for similar policies in the broader Akwesasne Community.
- 2015-2016 - AHA realized a valuable partnership with the US Department of Energy/Indian Energy, NREL & Sandia Labs - provided excellent TA to develop the Tribe's draft Strategic Energy Plan for our community to jump start efforts.

DOE T/A ~ Planning Towards 2025

Energy Vision



Back Row: Noah Ransom Jr., Michel Simon, Shelley Jacobs, Ernie Thompson, John MacArthur, Barry Halperin.

Front Row: Theresa Cole, Cecilia Cook, Barbara Lazore, Retha Herne, Melanie Conners, Elizabeth Jacobs, Colleen Thomas.

Responsive structures that meet our community needs.

Accountability for traditionally held principles that conserve and consideration of families' economic resources.

Being the community we want to be.

Healthy, affordable, and energy efficient community.

Energy independence

Unified international systems managed efficiently and self-supporting.

AHA's Rise to Green

- AHA's Considerations for Moving Away from Standard Project Methods
 - Organization's emerging philosophy of responsible construction.
 - Urgency for more cultural/environmental awareness on the long term impacts of construction on Mother Earth.
- AHA's Start: 2011 Ribbon Cutting for Sunrise Acres Expansion II: Creation of a safe/pleasant neighborhood for tribal elders
 - Expansion of Existing Elderly Housing
 - Convenience to Services (clinic, senior center, etc.)
- Going Green makes Financial Common Sense!



Sunrise Acres Phase 2 Expansion

- Funded by HUD's Native American Housing Block Grant Program/ARRA Funds
- Project Goals:
 - 20 Two Bedroom Apartments
 - Self sustaining Training Space for AHA & Community Groups
 - "Sustainable design strategies will be employed where agreed to be practical and cost effective."





Sunrise Acres Phase 2

Overview of Systems

- Building Envelope
- Geo-thermal System
- Photovoltaic System
- Solar Thermal System
- Energy Efficient HVAC System
- Energy Efficient Lighting
- Energy Conserving Equipment & Fixtures



Energy Efficient Building Envelope

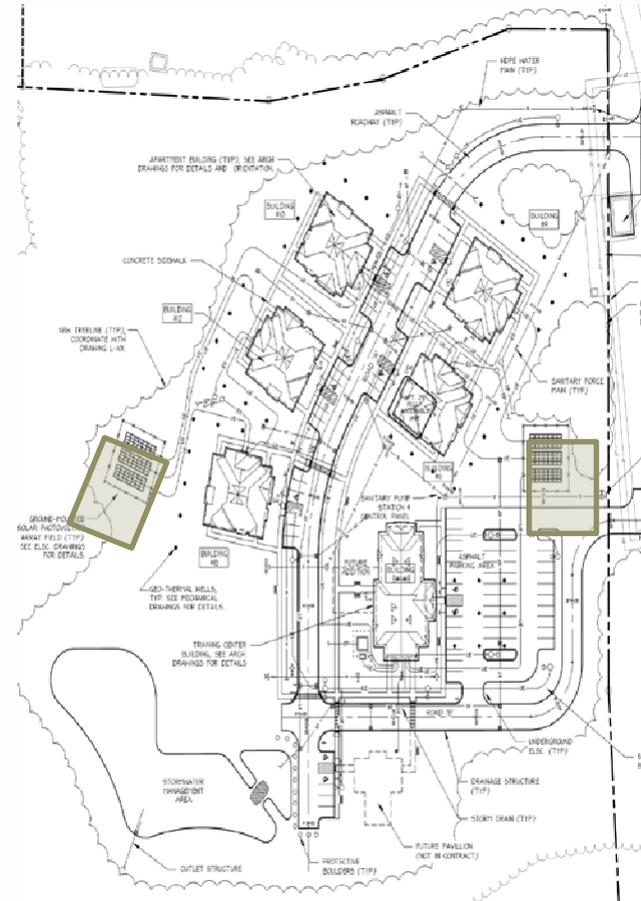
- Insulated Concrete Form (ICF) Construction for Walls & Foundation - R20
- Traditional pre-engineered wood truss roof - R40
- Fully insulated concrete slab floors – R10
- Windows – Double Hung, Anderson 400 Series, Argon gas filled Low E, $U=0.41$





Photovoltaic System

- 6 ground mounted arrays— 30 kW Total
- Training Center – 5 kW
- 5 Apartment Bldgs – 5 kW each
- Net metering
- Provides approximately 20% of electrical energy consumed by the buildings

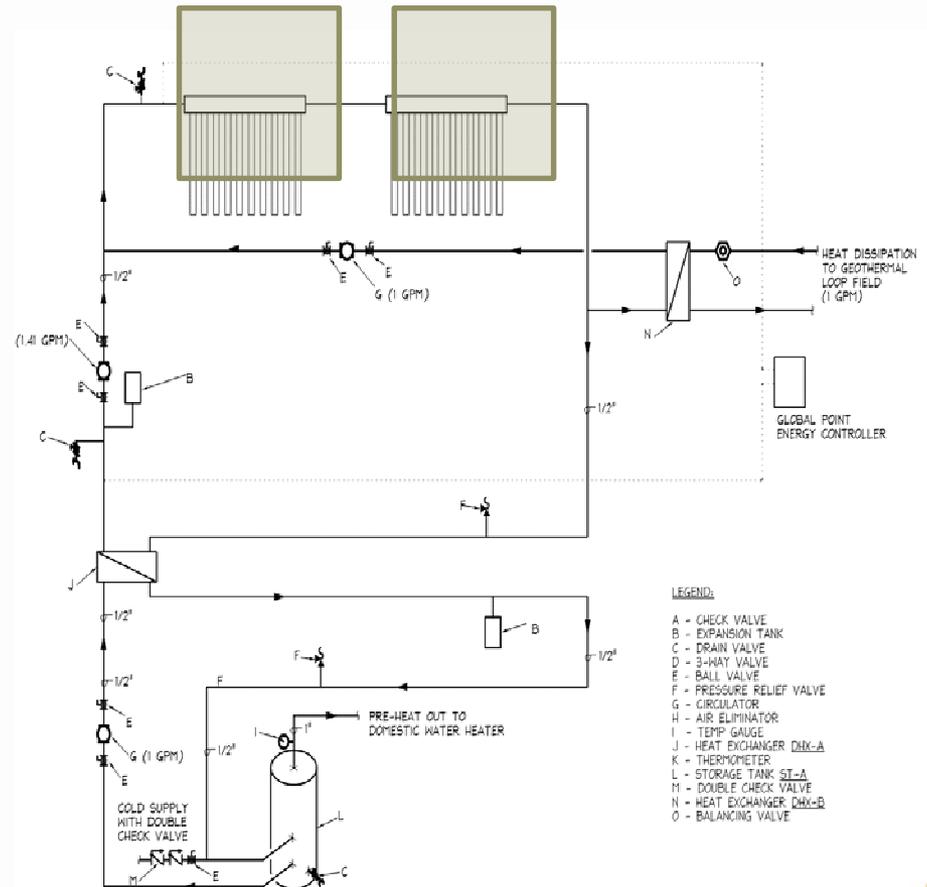
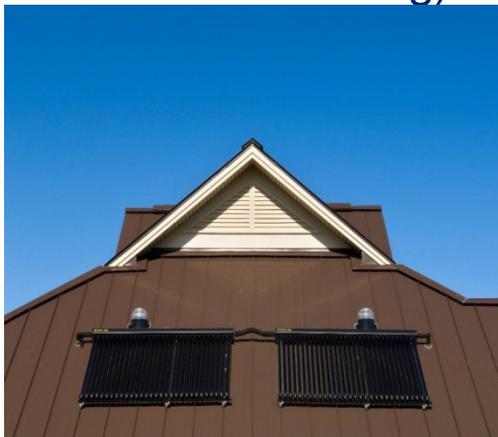


OVERALL SITE PLAN
SCALE: 1/8"=1'-0"



Solar Domestic HW

- Evacuated Tube Heat-Pipe Collectors
- 2 panels per building – 45 ft² each
- Provides approximately 50% of hot water demand
- When hot water is not required, excess heat is injected into geothermal loop (stored in the ground for use in heating)



3 SOLAR WATER HEATING SYSTEM SCHEMATIC
SCALE: NONE

AHA/SRMT Dreamed of More!

- Success of Sunrise Acres Phase 2 lead the AHA to continue down the path to renewables.

**Energy Efficiency + Conservation +
Renewables = \$ Saved**

Backup by Tribal Gov't

- Saint Regis Mohawk Tribe
 - Leadership in full support of AHA efforts
 - Future wish to create an energy office w/in SRMT
- AHA's High Energy Efficiency Initiative
 - Leveraging of NYS Energy Funds (NYSERDA), Federal ICDBG, IHBG – home energy efficiency project
- Forward movement of AHA and its energy efficiency and renewable energy initiatives – effects felt throughout and now expected by the community



Sunrise Acres Phase 3 Expansion

- Project Goals:
 - Two new Buildings adjacent to Phase 1
 - Seniors Building – 10 one Bedroom & 2 two Bedroom Independent living apartments with common spaces including Kitchen, Community Room, Laundry Room, Offices and Library
 - Homeless/Veterans Building – 5 one Bedroom & 1 two Bedroom apartments and common space including Lounge, Laundry and Offices.
 - Sustainable Design Strategies will include off-site Solar PV with net metering
 - Construction in Spring 2018
- Funded along with IHBG funds:
 - Office of Temporary and Disability Assistance (OTDA) Homeless Housing and Assistance Program (HHAP)
 - New York State Homes and Community Renewal (HCR)



CONCEPTUAL SITE PLAN

SCALE: 1/8" = 1'-0"





Energy Efficiency Strategies

- High Efficiency Envelope – ICF construction, R30 walls, R50 Roof
- High Efficiency HVAC Systems – Air Source VRF Heat pumps with radiant floor heat in the Seniors Building Common spaces. ERV for ventilation
- High Efficiency Lighting – CFL & LED interior lighting, LED exterior lighting, Solar Daylighting tubes
- Off-Site Solar PV array with Net metering – AHA “Go Solar Project”

In Support of AHA Projects: **AHA – Community Scale AHA Go** **Solar and Net Zero Initiatives**

Project Summary

- SRMT/AHA as part of a developing strategic energy plan with a long term energy vision, embraced goals that include working towards net zero status by employing the installation of EEMs and green energy systems.
- \$1.0 million and \$500,000 DOE funding to help meet these goals
- Tax credit investor

Long Term Visions Supported by the Project

- Support of a sustainable local economy

Over arching vision to develop “ an economically viable, environmentally sound and socially responsible community built through participation from all sectors of the community”

Long Term Visions...cont'd

- Obtain energy self-sufficiency
- Become a leader/example in green energy development for the community, other tribes
- Minimize the tribe's and the AHA's energy and environmental footprint.



Initiative #1:

Community-Scale Solar – AHA Go Solar!

- AHA will install 1,165 kW to service housing related buildings on the Reservation.
- Electrical power from the solar facilities will be utilized under National Grid's available net metering programs to offset the energy use of AHA's buildings and tribal members' residences.

Initiative #1 ...cont'd

- Ground mounted installation.
- Tribe set aside 25 acres for solar development.
- 8-10 acres will be used for the Project; remaining balance of acreage for future Tribal solar.



AHA Solar Farm Site





Community Distributed Generation

- Tribal member residences can participate under New York’s Community Distributed Generation (Community DG) program.
- Community DG projects:
 - are located behind a non-residential host utility meter;
 - generate “value stack” credits for electricity production in excess of the host’s usage; and
 - allocate these credits to the project’s members pursuant to the applicable utility tariff.

Initiative #2: AHA Net Zero

- Creation of three (3) net zero buildings:
Two (2) new buildings for Sunrise Acres
Phase III Expansion for Supportive Housing.
 - * 6-Unit Homeless/Veterans Supportive Housing
 - * 12-Unit Senior Supportive Housing
- Renovate one (1) older existing facility:
Akwasasne Boys & Girls Club

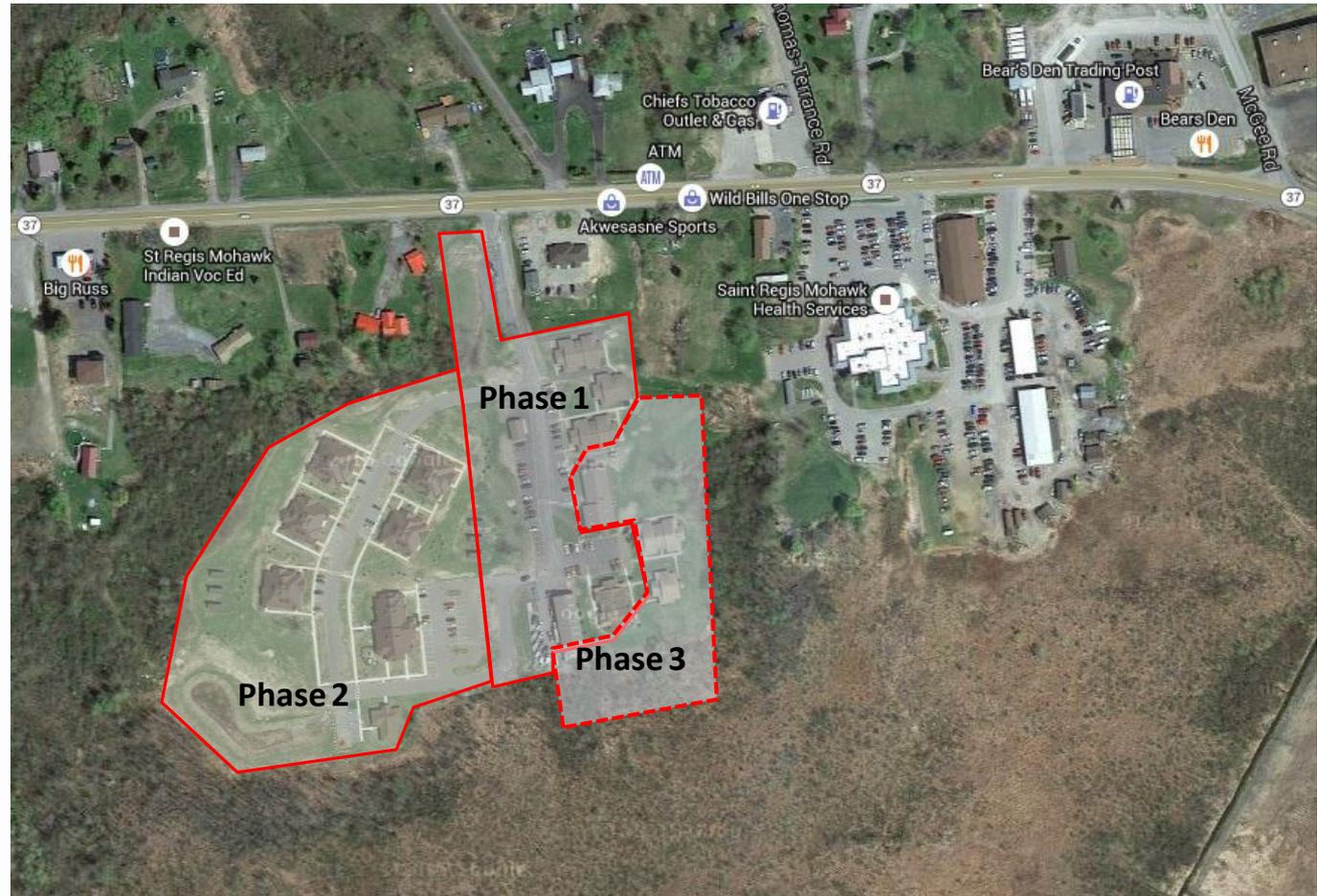


AHA's Sunrise Acres Senior Low-Income Housing

Phase 1 – 1998,
conventional
construction

Phase 2 – 2011
Sustainable
Design, Solar PV

Phase 3 – **2018**
Sustainable
Design, Remote
net-metering



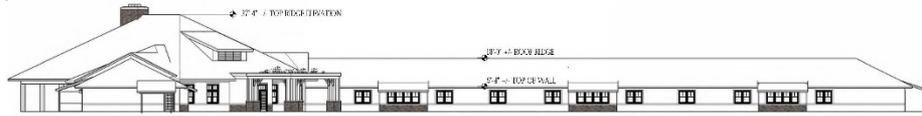
6 Unit Homeless/Veterans Supportive Housing

Sunrise Acres III – Supportive Housing for Homeless Veterans and Seniors with Special Needs



18 units of New Construction Serving Homeless Veterans and Seniors with Special Needs

12 Unit Senior Supportive Housing



North Facing Elevation - Senior Living Building

APPROXIMATE SCALE: 1/8" = 1'-0"



West Facing Elevation - Senior Living Building

APPROXIMATE SCALE: 1/8" = 1'-0"



East Facing Elevation - Senior Living Building

APPROXIMATE SCALE: 1/8" = 1'-0"

SCREENED PORCH ENCLOSURE @
NEAR CORNER TYP.



South Facing Elevation - Senior Living Building

APPROXIMATE SCALE: 1/8" = 1'-0"



Entry / Northwest Facing Elevation - Senior Living Building

APPROXIMATE SCALE: 1/8" = 1'-0"



Community Room / Southeast Facing - Senior Living Building

APPROXIMATE SCALE: 1/8" = 1'-0"



Sunrise Acres III Supportive Housing for Veterans and Seniors with Special Needs
Akwasasne Housing Authority

REVISION TO: 2025
SK-A2

Installation of EEMs & Solar Off Site





Project Objectives

- Decrease reliance on fossil fuels and reduce AHA's, the Tribe's, and Tribal members' environmental footprint;
- Increase AHA's, the Tribe's, and Tribal members' energy self-sufficiency;
- Add diverse, complementary green energy systems and EEMs;
- Significantly lower energy costs for Tribal members and AHA;
- Provide a model for low-income Tribal energy projects;
- Create jobs and mentoring opportunities for Tribal members.

Expected Outcomes

- Produce approximately 20,831,320 kWh of clean energy over the life of the solar facilities under Initiative 1
- Produce 207,040 kWh of clean energy under Initiative 2
- Use effective EEMs along with other solar systems to create three (3) net zero buildings
- Provide 5% of the total Tribal residential community energy load

Expected Outcomes...cont'd

- Provide economic benefits including savings of well over \$4,417,501 from the electricity generated over the life of the system
- Provide additional savings through the installation of the EEMs
- Provide training of up to 11 tribal members, creating 17 jobs during the installation and over the life of the project
- Create environmental benefits including reduction in green house gas emissions, reducing propane use and electricity from fossil fuel

Expected Outcomes...cont'd

- Create a replicable model for housing communities and tribal members to work towards energy self-sufficiency and affordable energy
- Further the Tribe and AHA's commitment to environmental stewardship
- Advance AHA and Tribe's goal to become energy self sufficient



Completed Tasks

- Prepared Invitation to Indian-owned economic enterprises to submit statement of intent to respond to bid announcement.
- Request for proposals for solar contractor and investor.
- Solicitation of bids for Sunrise Acres III
- Selection of contractors and investor.
- Prepared an initial draft of the design-build agreements.

Completed Tasks...cont'd

- Prepared in initial draft of the power purchase agreement.
- Received 100% environmental clearance



Power Purchase Agreement

- Will provide for energy payments to be reduced to only a very nominal amount after investor reimbursed.
- The Power Purchase Agreement allows AHA to ensure the investor's exit and full AHA ownership of the facilities.

Plans for Next Quarter

The AHA plans to have the following activities conducted during the fourth quarter of 2017.

- Enter contract for Sunrise Acres III including EEMs.
- Small purchase procurement of Boys and Girls Club EEMs.
- Enter into contract with the selected qualified solar contractor and investor.
- Installer to prepare detailed site layouts and drawings of solar facilities for AHA and the Tribe's approvals.

Plans for Next Quarter...cont'd

- AHA as an instrumentality and subdivision of the Tribe to negotiate and finalize the design-build agreement between the Solar LLC and the Installer.
- The AHA and/or the solar LLC applies for permits for construction of the solar facilities.
- Installer applies for interconnection approval on behalf of the Solar LLC and works with local utility to address any interconnection issues.

Thank You



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