Michigan Sustainable Homes & Businesses Tour
Part of the ASES National Solar Tour
October 10, 2009
10 am - 4 pm
The solar tour is **free** and **self-guided**. Visit as many sites as you would like from 10am to 4pm, in any order that you would like. Enjoy the good energy, and have fun!

Greater Lansing Area Tour

Regional Coordinator:
GLREA: Samantha Keeney (**Samantha.keeney@glrea.org** or 800-434-9788)

Ballentine Home
7051 W. Eaton Hwy, Lansing

Roof overhangs control the amount of sun that enters the home.

This 1728 square foot clerestory home has 160 square feet of south-facing windows that provide 20 percent of the home's heating. The roof overhangs control the amount of sun that enters the home so it will not get hot in the summer. Thermal mass inside the house holds and releases the sun's heat. The timber frame structure is exposed inside acting as mass to hold the sun's heat. Its massive oak beams contain 30,000 pounds of oak. Other mass is 1/2 inch brick facing on the fire place and drywall.

Passive cooling techniques, including landscaping are also used. The house is kept cool in the summer by the careful placement of vines and trees along the Western side. Deciduous trees shade the driveway in the summer, preventing it from absorbing and giving off heat. When these trees lose their leaves in the fall the driveway is allowed to collect heat, which helps melt snow in the winter.

Other energy efficient features include the use of a tankless hot water heater, low-E argon gas windows, insulated doors, and a heat recovery ventilation system which both provides fresh air and recovers 80% of the heat that is exhausted. The home also uses recycled fixtures, low emissivity (healthy home) finishes, and ENERGY STAR lighting and appliances.

2009 Sustainable features.
We installed water barrels to collect rain for use in the garden. Drip irrigation was installed since it is more efficient than watering by hose. We use native plants in the wild part of the landscape. We planted food in a Square-foot Garden system. We planted perennial Blueberries, blackberries and Strawberries and Rhubarb around the property.

Maintaining Swales to slow down water draining across property . Make it a Rain Garden.
Retaining wall made from native boulders, consistent with rock stepping stones. Source nearby 5 miles.

Directions:

From I-96:
Take I-96 to exit 90 at Grand River. Turn East, or toward Lansing, onto Grand River. Turn right on Ingersol (first street on right). Take Ingersol over the railroad tracks to Eaton Hwy. which only goes right. House is the third driveway past Delta River Dr. and the fourth house. Park on the road and walk down a steep driveway.

From Saginaw:
Take Creyts North to Willow. Go through the stoplight onto Webster, which angles off northwest. Take Webster across river to Delta River Dr. Turn left and go to Eaton Hwy. Turn left onto Eaton Hwy. House is the third driveway past Delta River Dr. and fourth house. Park on the road and walk down a steep driveway.

Eisensmith Home
5847 Bois Isle Dr., Haslett

New this year is the installation of a wind generator. This home stays cool in the summer and warm in the winter, thanks to proper insulation and harnessing the sun's energy in many ways. A geothermal cooling system powered by solar electric panels provide “free” air conditioning to the home, also utilizing a geothermal heat pump to provide “free” heat in the winter. Features include a solar water heating system, radiant floor heating, solar air heating for the garage, PolarWall Insulated Vinyl Siding, Solatube skylights throughout the home, compact fluorescent lighting and much more. A high efficiency natural gas furnace with an ENERGY STAR thermostat is used to provide heat as well. An AstroFoil Radiant Barrier in the attic reflects up to 97% of the sun’s radiant heat from being absorbed. LED Flood lights on the home use 1/16 of the energy of normal light bulbs. The homeowners also save energy with special ceramic paint on the interior walls which provide heat insulation, energy efficient appliances, lighting, window quilts and more.

Directions:
From 69: Merge onto E Saginaw St / I-69 BL W via Exit 94 toward E Lansing. After approximately 3 miles, turn sharp left onto E Lake Lansing Rd. Go 1 mile and turn right onto Bois Isle Dr. House is a tan ranch with brown trim on the right hand side of the road.

From 96: Take Exit 110 toward Okemos / Mason. Turn left onto Okemos Rd. Go 5 miles and turn right onto Haslett Rd. Turn left onto Bois Isle Dr. After 500 yards the road will split - bear right. House is a tan ranch with brown trim on the left hand side of the road.

Click here for a Mapquest map of the area. GPS Coordinates are 42 45' 5" (42.751389)-84 25' 8" (-84.418889)

GLREA
257 S. Bridge St, Dimondale

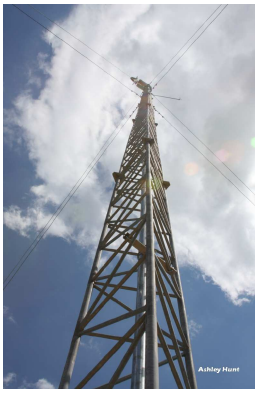
Notice this site will only be open from 10:00am - 1:00pm

The offices of the Great Lakes Renewable Energy Association are housed in a historic 19th century building that was given a 21st century retrofit. Renovated to be highly energy efficient, the building has lost little of its historic feel. An 1800 watt grid - intertied PV system is situated on the roof, and is able to provide more than enough power to run the building. A dual mode solar air system was installed, supplying the office with heat and hot water. The upstairs of the building is currently set up to show the installation of a radiant floor heating system.

Directions:
From the East:
Take I 96 to the M-99 (Martin Luther King/Michigan Rd) exit. Turn left and take this to Dimondale Hwy and turn right. Follow Dimondale Hwy as it curves left and turns into Bridge Street. Continue on past the caution light and across the bridge to the corner. The GLREA Headquarters is on the left. From the West: Take I- 96 to the Lansing Road South exit. Go to the first stop light and turn left onto Canal. Go to the 4-way stop and turn left on Windsor Hwy. Go to the next 4-way stop and park in any available area. The GLREA building is on the left corner. There is on-street parking on both Jefferson and Bridge St.

Click here for a Mapquest map of the area.

Haley Farm
10801 Robbins Rd, Springport, MI



This is a Aerostar 10k turbine generating 240 volts and is grid tied. This system is inverter's and extremely simple.
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Features are
10 kW instantaneous power production
Two Blade Teetering Rotor. The two blade teetering rotor virtually eliminates the large gyroscopic forces inherent in 3 blade rotors. This results in extremely smooth running, low turbine weight and substantially lower cost for both the turbine and tower. Tapered, twisted blades with efficient low Reynolds Number airfoils provide optimum efficiency at low wind speeds.
Aerodynamic Rotor Control. Safety was the foremost consideration when designing the Aerostar. Designers of large wind turbines learned early on that the only safe and reliable way of controlling a wind turbine is by using some method of aerodynamic braking. Changing the pitch of the rotor blades or blade tips is the most commonly accepted way of stopping or slowing the rotor in high winds. All brakes, whether electrical, mechanical, air or hydraulic are subject to failure and may not stop the rotor in high winds allowing it to accelerate to high speeds and subject the turbine and tower to potential destruction. Aerostar uses a patent pending fully automatic and failsafe aerodynamic rotor control. Take the advice of large turbine experts, and consider the safety of your family and neighbors. Don’t even think about installing a turbine unless it has aerodynamic over speed control.
Induction Generator - No Inverter. The turbine uses an induction generator. There is no complex, expensive and trouble prone inverter. The generator connects directly to a standard 60 amp circuit breaker. The system is simple, reliable, efficient and cost effective. The constant speed generator causes the rotor to turn at the same speed no matter what the wind speed. This means the turbine is extremely quiet, even in high winds.
Generator Control Optimized for Low Winds. The control system uses a microprocessor to vary generator excitation in order to increase efficiency at low wind speeds. The patent pending design reduces generator losses at low wind speeds, dramatically increasing power production at average wind speeds.
Full Data Collection. Unlike other small turbines on the market, all Aerostar turbines include full data collection at no extra cost. A large color touch screen display shows average power produced, power used, power exported to the utility, average wind speeds and wind gusts , which are stored for each day for a full year.
This unit is installed on a 120' lattice type tower and is of tilt design., The turbine can be lowered to the ground level for any maintenance reason at any time.
We will be at the site 10:00 to 4:00 on Saturday for the tour. Stop by and see the future of personal energy production.

Directions:
On M-50 heading south of Eaton Rapids, go past the M-99 split staying on M-50 for approx 2 miles to Brown Rd. Turn right (south) go past the curves to Prine Rd. Turn right (west) and go 1 mile to roads end at Robbins Rd. Turn left (south) and go 1/4 mile to the Haley Farm on right.

Click here for a Google map.

Johnson Home
5214 Cornell Road Okemos MI

This house has many efficiency and renewable energy upgrades. It has been designed as a passive solar home with energy efficient windows facing South. The solar thermal panels produce hot water and heat the house via a drain-back system. The house has been super insulated and features insulated shades inside on the windows. CFL lighting is prevalent throughout along with Energy Star appliances and other electrical management methods. The result is a house whose all energy costs are under $1200 per year.

Directions: Grand River East to the stop light at Cornell Road. Turn left(North)on Cornell and travel 3 miles. My drive is immediately after the Tihart Road sign. Take Haslett Road East to Cornell Road. Turn right(South)until you pass Tihart Road. The drive is to the left on top of the hill.

MSU Agricultural & Livestock Pavilion
Pavilion Drive, MSU Campus, East Lansing

This is a new 10 kW photovoltaic grid-intertied system. There is a display cabinet in the main lobby which explains the system and has a data collection display unit. To view the panels, follow the white fence around to the back.

Directions:
From I-96:
Go north on US 27 to the Jolly Rd exit. Turn left to the stop light and turn left. Follow this to Farm Lane and turn left. Take the North entrance into the Pavilion. From Mt. Hope: Go east to Farm Lane and turn right. Take the first entrance into the Pavilion.

Click here for Mapquest area map

MSU Surplus Store and Recycling Center
223 Surplus & Recycling Center

Please note this location will only be staffed from 10:00am -12:00pm

LEED registered building with 40KW array, roof mounted with display in the lobby. Surplus store sells items no longer needed by the MSU community and the recycling center bales material for market. Other sustainable features of the building include the motion sensors for lighting control, rain water collection system for flushing toliets, use of recyclable materials including green glass in counter tops and conference room table top, permeable pavement, etc.

Directions:
Harrison Road to Service Road, east on Service Road to just east of the T.B. Simon Power Plant, south on Recycling road and east on Greenway road to the new building.

The READ Project
1641 Mt. Vernon East Lansing MI

The READ Project (Resource Efficient & Affordable Demonstration) was constructed in 1995 as a single-family home that blends passive solar, super-insulation, ecological landscaping, recycled materials, comfort, aesthetics, and indoor air quality. The home was constructed on an existing “in-fill” lot in a walkable neighborhood using structural insulated panels for all of the walls (including the basement) and the roof. This 5-bedroom home features carpet made from recycled plastic, hardwood floors, high efficiency and sealed combustion appliances, recycled windows, doors, and a sink (from Habitat’s ReStore), and many other features.

Directions:
1641 Mt. Vernon is located 1 block South of Burcham and 1.5 blocks East of Hagadorn in East Lansing

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Self Reliant Energy
10192 Sargent Rd. Fowlerville MI

Home and Business. Homestead has underfloor radiant heating system supported with electric boiler and solar thermal. Domestic water is heated with electricity supported with solar thermal and DC heating element with PV for power outages. Home also has Biomass Burning Stove. Business office is entirely controlled by DC electric created by small wind and PV. solar air heating supplements the wood burning stove for space heat. Additional wind and solar soon to be attached to 4,000 watt grid tie inverter.

Directions:
I-96 west to exit 129 Fowlerville Rd. Fowlerville Rd, South to Sargent Rd. Sargent Rd East to 10192 Sargent Rd. Right hand side of street.

Urban Options
405 Grove St., East Lansing

Urban and Northern Options provide practical energy efficiency and environmental sustainability solutions for residents and businesses in Michigan. We fulfill our mission by providing information, educational programs, demonstrations, and energy efficiency programs and services that encourage practical actions people can take to improve the energy efficiency and environmental sustainability of their homes, businesses and communities.

Directions:
Urban Options is located at the corner of Grove St. and Linden St. in downtown East Lansing. Convenient parking is located in the city parking garage on Grove St. across from the 7-11 in downtown East Lansing. No parking on Grove.

Click here for Mapquest area map