Kevin has owned the rental house at 403 S. Huron for over 5 years. He was always interested in solar power but never really thought it would make economic sense in Southeast Michigan. Then one day he heard of the DTE Energy Solar Current program that was paying $2.40 per installed watt of solar panels and $0.11 per KWH generated for 20 years. Kevin started doing the calculations and realized that the 30% federal tax credit and the ability to use accelerated depreciation made solar power a viable project. The manufacturer of the solar panels also provided a 1 year deferred payment.

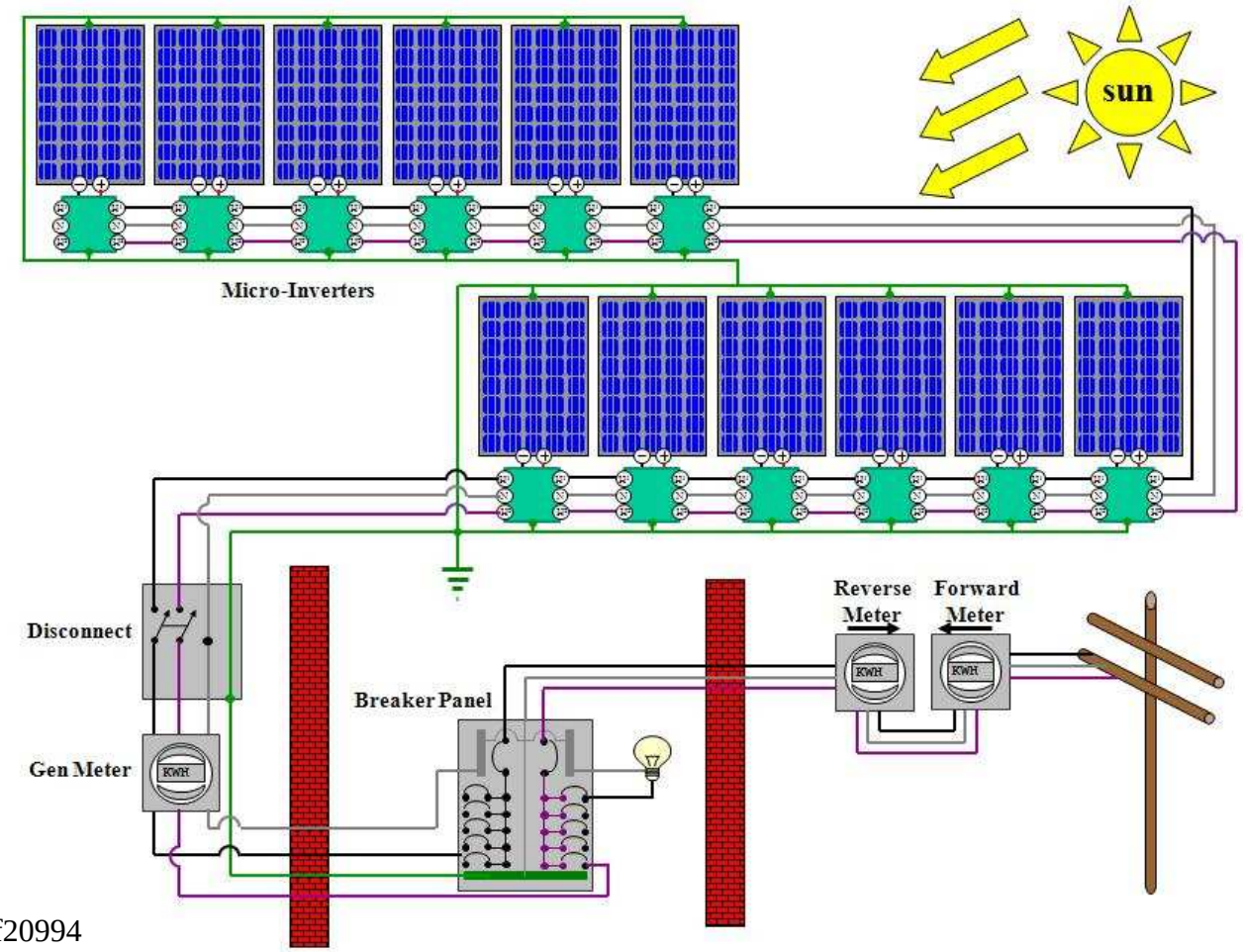
The total system cost was $82,000 but after incentives his out of pocket cost was $24,000 and the estimated ROI is 5 years. The system consists of 55 SunPower solar panels and Enphase micro inverters. The system was installed by Oak Electric and took about two months from start to finish.

The Enphase micro inverters have the added capability of being able to monitor each individual solar panel and report that information wirelessly to a computer. You can see all the panels at this location at::

http://enlighten.enphaseenergy.com/public/systems/nPpf20994

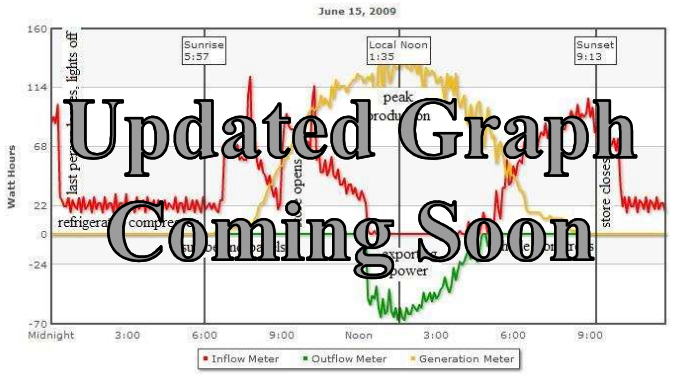
How Solar Power is Captured

The rental house at 403 S. Huron has three units: apartments A, B, and C. Each apartment has it's own solar installation with apartment A having 6 panels, B having 9 panels, and C having 40 panels. All three are wired the same way, similar to the diagram below. The panels are mounted at a mixture of angles, 45 degrees on the house and 10 degrees on the carport. Sunlight penetrates the photovoltaic panels, which converts a portion of that light into direct current (DC). Under each solar panel is a micro inverter, which converts this direct current into power that matches the electricity supplied from the utility grid, 60 cycles per second and 110 volts. The micro inverters are all wired in parallel which adds the current together, keeping the same 110 voltage. The power is then routed through a switch that is used to disconnect the system during maintenance, and then through a utility meter to measure the amount of generated power. From there the power enters the building and is connected to the breaker panel and distributed to the outlets in the house. Each system is in the *net-metering* program and can push excess power back into the utility grid and get full credit for that power, which allows the power to be brought back in at night for free.



Pictured above are the solar panels on the roof of the carport behind the building. The carport was sepcifically designed to hold these panels. The carport is tilted 10 degrees, while a steeper angle would improve the annual solar power production, the shallower angle make the carport usable. The micro inverters also improves the performance of this system because it does see some shading and with micro inverters, shaded module will not effect other panels in the system. There are 13 panels on the roof of the building, and being a 12/12 pitch, those panels are at a 45 degree angle.

Graphs showing the power coming into the store (red), exported out (green), and generated from the sun (yellow) can be seen at **SolarYpsi.org**, then clicking on the 403 Huron Rental link. The website also has photos of the installation and details about the project.



Updated Graph Coming Soon

Real time graphs will be coming soon. SolarYpsi still needs to work with the utility company to get access to the data in the meters. Then they will install a laptop and collect this data and push it to the website for real time monitoring.

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Printed at Standard Printing Ypsilanti, Michigan

403 S. Huron Rental

Solar Power

The owner of the rental house at 403 S. Huron discovered that with the current federal, utility, and manufacture's credits available for renewable power, that he could install 13KW of solar panels on the roof of the house and carport and have the system pay for itself in under 5 years. From a pure economic point of view solar power made sense to install.

403 South Huron
Ypsilanti, Michigan 48198
Kevin Krzyzanski
<kevinmkr@provide.net>