

Journey to energy independence

Zero-energy buildings produce own energy

By Jeff Knutson

If you've ever turned off a light when it is not needed or closed a window or door to reduce heating or air conditioning costs, you are on the journey to energy efficiency. Another way toward achieving energy efficiency is to build a structure that produces most of the energy it uses in a year, called a zero-energy building. Almost any new or existing building can be made into a zero-energy building. Although it is easier and more economically feasible to start from scratch, remodeling is also an option.

A net zero-energy building, which produces 100 percent of the energy it needs in one year, takes the concept a step further. A net zero energy and zero carbon building produces 120 percent of the energy it needs in one year and does not have any carbon dioxide output. The extra 20 percent covers the embodied energy in the building materials and the energy needed to build or remodel the building and transportation energy to get materials to the building.

The first place to start is to drop the load. For every dollar you spend on making a building more energy efficient you will save \$5 on your solar or wind system. It is fairly easy in the state of Wisconsin to invest in a solar or wind system. The state's three solar laws and a renewable energy reward program also make it economically feasible. Add to that the 30 percent tax credit from the federal government and you have a great business plan. The investment will never depreciate and you will get a reduced energy bill or even checks from the power company.

For a specific example of a net zero energy and zero carbon building, look no further than the offices of A-A Exteriors, located on Highway 10 just east of Waupaca. The building is all electric so it does not have any carbon dioxide output, and it produces 120 percent of the energy that it needs in a year from the 50 solar panels on the roof. Sixty-five percent of the solar system was paid for by the government. State laws require that no one has to pay real estate taxes on an alternative energy system and that no one can build in our solar window. The third law requires power companies to purchase and pay retail for alternative energy. We are on time of use so we sell our energy at peak for \$.2073 and buy it back at night for \$.0549. When the year is over we have no energy bills and receive about \$500 from the power company. This building is usually open from 8 am to 4 pm weekdays for a free tour.

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Jeff Knutson, president of A-A [Exteriors.com](http://www.a-aexteriors.com), is an energy expert who specializes in helping people reduce their energy consumption and also helps commercial and residential clients with construction of zero energy buildings. For more information on preventing energy loss, visit him at N2575 Orchard Way, Waupaca, or visit www.a-aexteriors.com.