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## Making it Personal: Reducing Carbon on the Home Front in Ireland

For one Pfizer Global Manufacturing colleague, ‘taking the job home’ has taken on a whole new meaning. Responsible for Pfizer’s energy program at the Loughbeg site in Ireland, Neil McCarthy has applied his expertise to reducing his family’s dependence on the local power grid in the process.



*Neil McCarthy's wind turbines and power shed at his home in Ireland*

Two years ago, when Neil McCarthy, Pfizer Ireland Pharmaceuticals Utilities Supervisor in Loughbeg set out to generate his own hot water and electricity, he opted for renewable energy in the forms of solar and wind. Neil installed a 1,000-watt capacity solar photovoltaic array and two small wind turbines with total capacity of 2,000 watts. In addition, he installed a 43 ft.2 (4 m2) solar vacuum system for heating water.

### Embarking on Renewable Energy: Steps to Consider

McCarthy emphasizes that more than energy supply, one must also consider energy conservation. McCarthy was determined to get off the power grid. “In order for me to find a reasonably priced renewable energy system that would generate approximately 20 kilowatt hours (kWh) per day, I had to shed some load,” he said. Although his daily usage amounted to approximately 15 kWh, he cautions that renewable energy systems providers usually overstate the performance of such systems. “I found that they produce about one third of what they claim because their claims are based on ‘ideal conditions,’ which rarely occur.”

“The main focus for us was to drive the energy usage of the house to less than 6 kWh per day,” says McCarthy. In addition they have installed a dual system: a 24vdc to 220v inverter feeding the house and a second unit connected to a grid via a



grid inverter that synchronizes with the main grid. "The Irish government recently sanctioned payment for export of electricity so it is good to be able to export any excess and get paid for it," he adds.

### **Load Reduction and Energy Conservation**

Here are some of the other actions taken by McCarthy in his quest for sustainable living:

- Installed low-energy lighting, which reduced load from 2,500 watts to less than 400 watts
- Replaced the television with a low-energy LCD model and reduced power consumption from 500 watts to 150 watts
- Replaced refrigerator/freezer and washing machine with A-rated (Energy Star) appliances
- Reduced power draw from heaters in dishwasher and washing machines by replumbing them for solar hot water system
- Replaced 8,000-watt electric shower with 700-watt pumped shower from the solar hot water system
- Replaced all sockets with low-energy sockets
- Reduced starting current on the inverter by fitting a soft starter on the well pump
- Installed a "last-out" energy switch to kill all loads except necessary appliances such as the refrigerator/freezer
- Doubled insulation rating to R-50 in the roof and used R-20 in the walls
- Added storm windows to reduce winter heat loss
- Installed Turbine with a tilt down tower for ease of maintenance

### **Can Anyone Install a Renewable System?**

McCarthy had the know-how to do much of the work himself, getting outside help when he didn't. While the plumbing requirements for solar hot water are not as complicated, generating one's own power requires advanced electrical skills and an understanding of local building codes. McCarthy strongly recommends researching local building codes and ordinances relative to wind power. Height and noise restrictions may impact the use of wind energy. There are numerous online resources (see sidebar), as well as local providers who offer a range of renewable energy services from consultation to installation.

### **Renewable Energy: Cost vs. Payback?**

For some, the decision to "go renewable" is a choice based on personal values. "It's a lifestyle change for my wife and me, but the satisfaction of generating your own energy just can't be measured," says McCarthy.

Although many people subscribe to the "renewable is the right thing to do" philosophy, the cost of installing a completely renewable energy system can be a significant obstacle. McCarthy suggests researching energy credits and other government incentives to help fund such a project, but warns that while there are numerous government programs to explore, they vary from region to region and can take time to adequately research.

McCarthy subscribes to the philosophy of practicing what he preaches. Having a strong desire to protect the environment, he has shown others that it is entirely possible to follow green principles at home.

#### **Renewable Energy Resources**

Sustainable Energy Ireland  
<http://www.sei.ie>

Solar businesses in Ireland  
<http://energy.sourceguides.com>

U.S. Dept. of Energy, Energy Efficiency and Renewable Energy  
<http://www.eere.energy.gov/>

Living green  
<http://www.lowimpactliving.com>

Directory of renewable energy incentives for U.S. locations  
<http://www.dsireusa.org/>

Renewable energy portal with more than 9,000 links to renewable energy resources  
<http://discoversolarenergy.com>