

Written testimony in support of S.B. 1 AN ACT CONCERNING CONNECTICUT'S ENERGY FUTURE by Richard Hurtubise, Business Development Director, Enthone, 350 Frontage Road, West Haven CT submitted to the Connecticut General Assembly Energy and Technology Committee, March 15, 2011.

As a concerned resident and employee of Connecticut I have taken the initiative to both promote and use photovoltaic solar energy. Last September I installed a solar energy system that offsets 100% of the electric consumption at my home at 18 Mallard Lane in Clinton, Connecticut. The system was installed by Pioneer Valley Photovoltaics Cooperative of New Britain, CT. This personal choice was made for a variety of reasons, not the least of which was to find viable sustainable sources of clean energy for our future. Fossil fuels will not be an enduring long term solution for future generations and will continue to damage our precious environment. It is necessary to address this rapidly increasing air pollution and greenhouse warming problem that is faced locally as well as world wide.

Connecticut is positioned at latitudes suitable to make the use of photovoltaic energy generation possible. Even with the high snow fall this winter including periods of snow coverage on my roof, electrical energy was successfully generated throughout these winter months (it should be noted that roof snow load both melted and shed much faster from solar panels). See the attached graph directly plotting the energy generation by month from this system.

The economic drivers for the adoption of photovoltaic solar energy are not the only motives for its use. Considerable emphasis should be directed to the value of reducing carbon dioxide and other greenhouse gases generated by most conventional systems. In the six months of operation we have already reduced atmospheric carbon dioxide by 2 tons. Further we installed a power outlet in the carport for a charging station for a plug-in hybrid car. This will additionally reduce carbon dioxide load through zero emissions during the daily commute from Clinton to West Haven. The photovoltaic approach represents a sound strategy for future power generation and environmental compatibility.

This single photovoltaic installation has brought jobs to Connecticut. Pioneer Valley PhotoVoltaics Cooperative, who installed this high performance system, is a Connecticut employer. In the preparation for this solar installation the roofing on our home (which was 20 years old) was changed by installing a recyclable, energy efficient roof provided by another Connecticut employer, Standing Seam roof of West Haven Connecticut. This further reduced the need for petroleum based tar shingles that end up as toxins in land fills. It should also be noted that solar panels now shade the south facing roof reducing the thermal rise in the attic and thereby reducing the cooling demand in the summer.

As a Business Development Director of the Connecticut based employer Enthone I work with our research team to develop new interconnection technology including photovoltaic applications. Our personnel travel in and out of Connecticut hundreds of times a year through our airport facilities brings further economic stimulus to Connecticut. Photovoltaic and electronic development is good for Connecticut.

Regarding the publically debated issue of solar energy viability, the following points should be made. Photovoltaic can be used effectively as both a form of central power generation as well as local residential generation. Local generation avoids the losses incurred across the electrical distribution system by having energy used at its source of generation. As a net-metering customer of CL&P I also push power back to the grid during times of highest demand. This approach will compliment the existing power generating systems during peak demand periods and as solar systems become more abundant it will help avoid brown-outs during summer months. The use of solar power is clearly a viable option for the future. Decentralization of power generation avoids the need for more transmission lines and Fossil fuel burning plants. Even the less air polluting nuclear power system can and will fail as seen in the past at "Three Mile Island", Chernobyl and now in Japan. While all technologies should and must be used in the present, none have the sustainability of solar and wind. The earth receives over 1000 watts per meter of solar radiation annually (solar constant is 1366). We can convert about 15-20 % of that energy today. As with all emerging technologies we will see constant improvement in these figures. The system installed in October at my home in Clinton, CT operates at just under 20% efficiency. During a recent business visit to SunPower in San Jose they announced a system that could operate at 23-24% efficiency. My employer Enthone in West Haven and Orange, CT is working to further increase that efficiency with advanced interconnection technology while working to reduce the cost of manufacture. We are also exploring with NREL (National Renewable Energy Labs) Golden Colorado a license for new antireflection technology that that reduces 10% of the cost to manufacture PV (photovoltaic) solar cells. The PV industry mandate is to increase power efficiency and simultaneously reduce cost. These forces will push photovoltaic power generation to grid parity sooner than later.

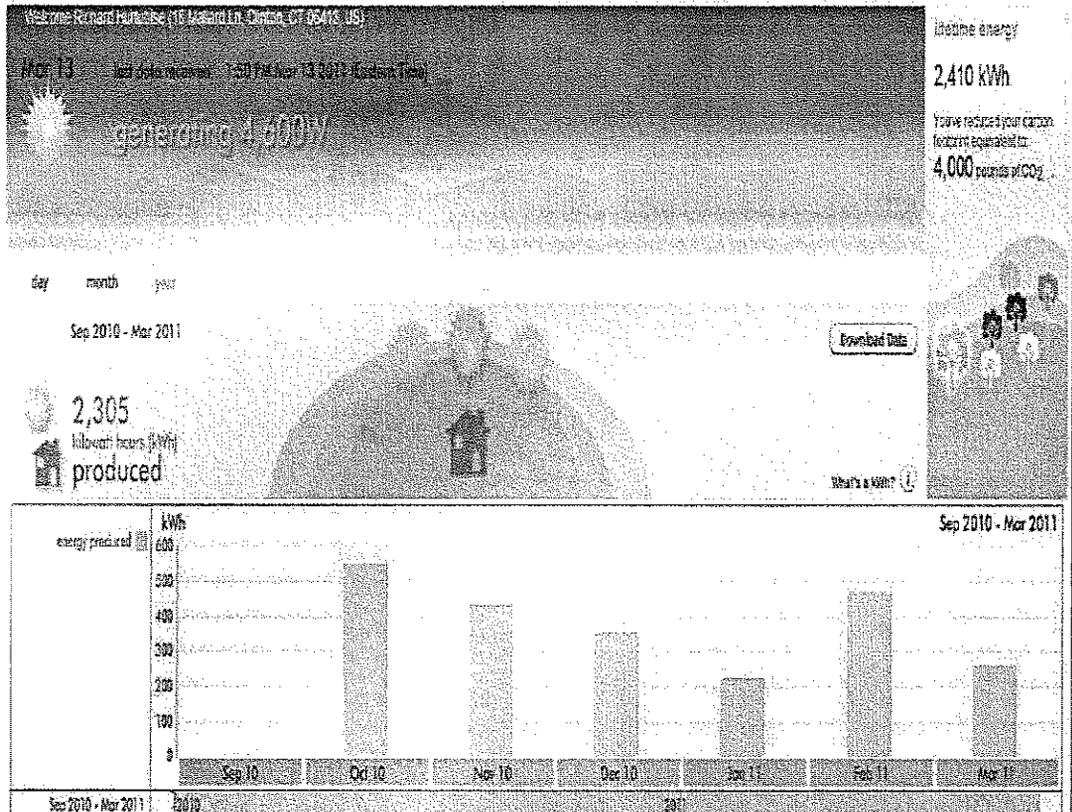
We face a turning point for energy as gas prices will tempt the \$5.00 mark this summer. Petroleum related disasters will continue to mar our planet as these large scale operations will continue fail us from time to time as we have seen with the recent BP, Gulf of Mexico disaster or the EXXON Valdes spill in Alaska. We must preserve our precious petroleum resources for energy efficient plastics, medicines and the multitude of critical needs it meets for the future. The need is to avoid burning this precious resource and conserve it for future development.

Connecticut can and must begin to take advantage of clean renewable energy now. This is a central issue for our society, our way of life and for our children. Alternative energy systems need an investment by the public to enable the completion of the development of this stable, clean, and sustainable energy solution called Solar Power or Photovoltaic.

I thank you for the opportunity to submit this testimony and apologize that I was not able to appear in person due to prior commitments.

The final page of my testimony shows a "SunPower Monitoring" graph which displays the output of my system for the last 5 months and 14 days of operation. It also provides a snapshot of the watts being generated at 1:50 in the afternoon, this past Sunday, March 13, 2011.

Through March 13, 2011



This is the final page of written testimony in support of S. B. 1 AN ACT CONCERNING CONNECTICUT'S ENERGY FUTURE by Richard Hurtubise, Business Development Director, Enthone, 350 Frontage Road, West Haven CT delivered to the Connecticut General Assembly Energy and Technology Committee, March 15, 2011.