

Toward Net-Zero Energy Fair Summary Report

9:30 am -12:30 pm, Saturday November 5, 2011

Mount Vernon Unitarian Church

1909 Windmill Lane, Alexandria, VA 22307

Representatives of local churches and area homeowners heard practical advice on how to use renewable energy for space heating and cooling at the “Toward Net Zero Energy Fair” on Saturday November 5, hosted by Mount Vernon Unitarian Church (MVUC), which recently converted to geothermal-solar energy. The fair, attended by about 60 people, was an effort to put local churches and homeowners in touch with local vendors and provide information about financial incentives so that they could explore the benefits of using renewable energy.

Participating Businesses and Organizations

- **ADCO Heating and Air:** Geothermal and other high efficiency HVAC systems.
<http://www.adcohvac.com/green.php>
- **Chesapeake Climate Action Network:** <http://www.chesapeakeclimate.org/>
- **Continuum Energy Solutions:** Solar energy, building efficiency upgrades and energy audits.
<http://www.thesolar411.com/>
- **Greater Washington Interfaith Power&Light:** <http://gwipl.org/>
- **New Generation Energy:** Funding green energy projects for non-profits and churches.
<http://newgenerationenergy.org/>
- **Shenandoah Sustainable Technologies:** Comprehensive green energy building solutions.
<http://www.sst-llc.net/>
- **Standard Solar:** Solar panel systems and building energy audits. <http://www.standardsolar.com/>

Welcome and Prayer

The Reverend Kate R. Walker, Mount Vernon Unitarian Church

Reverend Kate Walker welcomed participants to the alternative energy fair and opened with a prayer. She reminded attendees that environmental issues are religious issues, beginning in our own homes and faith communities. She went on to say that environmental issues are moral issues that cut across all faiths. We all share the responsibility to put our religion into action and to care for all of creation.

Mount Vernon Unitarian Church Project: Working Toward Net-Zero

Ken Pilkenton, Energy Fair Lead Organizer

MVUC has been operating without a conventional furnace for more than two and a half months and is close, but not quite at, receiving net-zero energy from the power grid, according to Ken Pilkenton, the fair organizer and head of the committee that took the church to geothermal-solar energy last year. There are four ground-source heat pumps: Two six-ton units for the chapel and two three-ton units for the rest of the building. There are approximately 12,000 feet of horizontally buried, underground piping, and 110 photovoltaic panels, each rated at 235 kWh. The system operates with approximately 30-40 percent less energy demand than conventional systems, and is the largest roof-top solar installation in Fairfax County.

The church leases its geothermal system from Shenandoah Sustainable Technologies (SST) of Harrisonburg, Va., to which it pays a monthly bill similar to its former utility bill. At the end of 20 years, the church can purchase the system, which has a life expectancy of 50 years, for a nominal fee.

Pilkenton recognized long-time church member Al Weinstein – now 95 years old– who ensured that MVUC was correctly sited for solar energy when the church was built. Weinstein spurred the church’s current effort with a \$10,000 challenge donation for solar panel installation.

Local Regulatory Update Mount Vernon Supervisor Gerry Hyland

Supervisor Gerry Hyland, who owns a small farm, expressed his strong interest in solar, wind and geothermal energy. He promised to work with the Fairfax County Board of Supervisors to expedite the application process for renewable energy permits (which now takes about six weeks) and cut or eliminate application costs.

He also is looking into opportunities to generate power using alternative energy, such as creating a green energy corridor utilizing methane, creating solar farms or parks, and using wind energy to power incinerators and other government applications. Hyland said MVUC will be on his bus tour at the next Mt. Vernon Town Hall meeting.

State-Level Legislative Overview for Alternative Energy Projects Delegate Scott Surovell, 44th District of Virginia State Legislature

Del. Scott Surovell, chair of the House Conservation Caucus and whose district includes the church, said Virginia lags behind other states in providing incentives for renewable energy. He said Dominion Power dominates the energy discussion in Richmond and he would be happy to see “a broader clean energy coalition” emerge. In the last session, Surovell passed legislation to require energy auditors to be licensed by the state, and Del. Adam Ebbin passed legislation setting up a low-interest loan fund for homeowners to use for renewable equipment.

Surovell said that despite the current tough climate for passing any legislation that calls for expenditures or tax credits, he hopes to see some of the following issues addressed in the 2012 session: licensing energy auditors for commercial buildings; requiring training for appraisers to include the true value of renewable energy systems in resale values of homes; prohibitions on homeowners’ associations from restricting solar panels; and potential tax credits for homeowners to install renewable energy equipment (possibly offset by reducing the \$45 million coal tax credit).

Surovell also proposed that Dominion Power install solar arrays along roadway right of ways. The power company has already announced a plan to place solar arrays on 40-60 sites in the area, including four churches, to study the long-term effects on the power grid. He urged churches and individuals to contact Dominion Power to be considered for inclusion in the study.

Federal-Level Overview for Alternative Energy Projects

Chris Lohmann, Financial Analyst, U.S. Department of Energy

Lohmann said government analysis shows that the most cost-effective way to abate greenhouse gases is through energy conservation measures, especially in building heating and lighting. According to Lohmann, the most effective ways to save energy are to convert to new lighting and to get a home energy audit. Bottom line: do an energy audit first, and then get geothermal and solar. He said the government is shifting away from offering incentives for homeowners to invest in renewable systems toward encouraging lenders to invest in these systems.

Price forecasts show that energy costs are volatile and going up; oil is a finite resource, and natural gas costs are also going up. The overall prediction is that electricity pricing will remain stable because the two primary generators (coal and natural gas) are flat. New discoveries and new technology developments will enable natural gas costs to remain flat. However, the ways that natural gas is removed from the ground could have huge environmental costs, e.g., ground water pollution.

The most cost-effective way to abate greenhouse gases is to invest in energy efficiency—one almost always gets money back from installing energy efficiency measures, such as commercial building lighting and home lighting. Another place to have a major impact is through existing power plant conversion efforts.

Residential and commercial buildings offer the most impact in terms of the cost of energy saved. Just as homeowners often do not get energy audits or check their furnaces, neither do managers of residential and commercial buildings. This area offers the greatest potential but there is currently the least amount of work going on. This is because financing is a challenge and a barrier. Firms like the one MVUC used, Shenandoah Sustainable Technologies, have expertise and can arrange financing for churches and homes.

Since the scale of public funds available has dropped, private capital is needed to drive advances. This is the roadmap to a self-sustaining private market where \$500 billion worth of upgrades could be done. This is the scale required to tackle the problem and to cover program administration costs, capital, and risk exposure. State and local governments might make loans from public funds. The responsibility of managing the loans now is shifting to financial services firms. Often private credit unions can provide the capital.

Effect of Alternative Energy and Energy-Savings Projects on Home Values

Carol Cooke, Tom Pleimling Realty/Fort Hunt Realty Group at Keller Williams Old Town

Realtor Carol Cooke talked about residential buyers and sellers and some of the trends in energy-efficient features. A recent study published by the National Bureau of Economic Research looked at the return on investment for installing photovoltaic solar panels on houses in the \$500,000 range in California. After

taking installation costs into consideration, deducting state and federal tax subsidies, and factoring in the increase in appraised value of the home, they calculated a 97 percent rate of recovery on the investment.

A study by the National Association of Realtors found that about 46 percent of the home buyers surveyed said that the energy efficiency of their home purchase was very important; when adding in those who said it was somewhat important, that figure increases to more than 90 percent. In a study by the National Association of Home Builders, more than 50 percent of home buyers said they were willing to pay between \$5,000 and \$11,000 more for a home with lower utility bills. Repeat and move-up buyers are especially looking for updated windows, weatherization, efficient heating and cooling systems, water-conserving features, improved indoor air quality, extra insulation, and renewable flooring products.

A study of buyers 55 and older found that they would pay up to five percent more for an environmentally-friendly home if it would save at least \$1,000 a year on utility bills. The top three preferred green features in the over 55-age group are energy-efficient appliances, solar heating and a water filtration system.

It is difficult to find hard data specific to the DC area. However, a four-year study by the Earth Advantage Institute in Portland, Oregon found a consistent trend that third-party certification (such as the Energy Star or LEED certification) resulted in higher sales prices and fewer days on the market—even during a period when overall sales were down.

One indication of the growing importance of energy efficiency in residential real estate is the increasing number of energy-efficient features that a realtor can check off when listing a home for sale. In the local Multiple Listing Service in the DC metropolitan area, under “Heating System,” a realtor can check off Energy Star heating system, geothermal, heat pump, active or passive solar, solar on the grid, solar off grid, and solar rough-in.

Homeowners considering putting their homes on the market can do a number of things to make their homes more attractive to energy-conscious buyers. They include doing an energy audit before the house goes on the market; having a home inspection done before listing the house for sale and addressing any energy-related issues that come up; and having a year’s worth of utility bills available for potential buyers. Cooke said the single most common energy-related recommendation she sees from home inspections conducted on existing homes in this area is the need for more insulation in the attic.

Cooke identified resources for the home buyer. The Green Resource Council of the National Association of Realtors has “a terrific 10-page “Family Guide to Going Green,” she said. The Department of Energy also has a two-page “Home Buyer’s Energy Efficiency Checklist,” which outlines areas and systems for home buyers to focus on to determine the energy efficiency of the homes that they are considering buying.

There are several programs that buyers should be aware of if they are seeking energy-efficient properties. An energy-efficient mortgage may be available to help finance both the purchase of the home and the cost of energy-efficient remodeling projects.

Recently a bipartisan group on Capitol Hill introduced legislation that would require the three big mortgage agencies—Fannie Mae, Freddie Mac and the FHA—to take energy costs into account for every loan they insure, guarantee or buy. It is titled the SAVE Act (Sensible Accounting to Value Energy) and

would require them to instruct appraisers to adjust property values up when accurate data on energy efficiency on a home are available. That could increase the amounts that lenders are willing to lend on a home and could increase the ability of home buyers to purchase energy-efficient homes.

At the end of September 2011, the Appraisal Institute, the largest professional association of real estate appraisers, introduced a new form that specifically documents a home's green features—from passive solar and geothermal for HVAC, to solar tubes for lighting, to reclaimed water and rain barrels for water systems. According to the Appraisal Institute, it is the first form of its kind intended for appraisers' use.

According to Cooke, we may not be quite there yet, but we are building the critical mass necessary to put these issues in front of every home buyer, seller, appraiser, lender and realtor. She cited the "Net-Zero Energy Fair" as raising awareness and helping move us in that direction.

Panel discussion/Q&A: Alternative Energy Projects for Places of Worship
Joelle Novey, Executive Director, Greater Washington Interfaith Power & Light (GW IPL)
Les Fettig, Shenandoah Sustainable Technologies (SST)
Yasmin Termeh, New Generation Energy

Shenandoah Sustainable Technologies, which installed the MVUC system, is a fully-integrated technology company and does residential retrofit and new custom homes. It provides geothermal energy to cut energy load by 50–70 percent, then can add wind and solar.

Fettig stated that SST is particularly interested in faith communities and has worked with three local churches to date to install geothermal power. The key is obtaining financing. SST has created a "Caring for Creation Fund," which addresses receiving tax credits and obtaining a three-year term promissory note.

Novey talked about the need for all of us to do environmental work, the negative impacts of mountain top removal to gain energy and the toxic slurries they produce, as well as coal power that is often burned in plants located in communities of color. She went on to note that coal-fired power plants are the greatest source of global warming in the U.S. It is a matter of what our values are and our religious commitment.

Novey said GW IPL supports the "green sheep" in area congregations, or those people who are interested in energy conservation and renewables. GW IPL encourages churches to get energy audits and connects churches interested in installing solar energy or investing in clean energy projects.

New Generation Energy is a Boston-based organization that helps nonprofits, such as places of worship, find funding for green energy projects. It offers a web-based funding platform for nonprofits, enabling businesses and individuals to support specific green projects, such as energy efficiency. It recommends that churches, which are not eligible for tax incentives due to their nonprofit status, partner with a vendor (as MVUC did with SST) or form a separate organization to reduce the initial cost of geothermal-solar installations.

According to Termeh, New Generation Energy is seeking organizations to serve as green role models. They are planning future awareness-raising events.

Chesapeake Climate Action Network (CCAN), a grassroots organization in the Washington metropolitan area, was represented by Virginia lead organizer Keith Thirion. He said the group's top priority in Virginia is moving Dominion Power to invest in offshore wind power, which would create 10,000 jobs and power hundreds of thousands of homes with clean, renewable energy.

Panel discussion/Q&A: "Alternative Energy Projects for Homes"

Les Fettig, Shenandoah Sustainable Technologies

George Rennolds, Residential Sales Manager, ADCO Heating and Air

Robert Orange, Marketing Associate, Standard Solar Energy Solutions

Kent Baake, President, Continuum Energy Solutions

Margaret Ruhe, Realtor with Long & Foster, Old Town Alexandria

Rennolds described the services provided by ADCO Heating and Air, which is a full service heating/air conditioning business and has provided geothermal since the 1980s. They also provide tankless hot water, radiant floors and can work in combination with conventional systems. They can retrofit almost any home, enabling savings of up to 70 percent on energy costs.

Citing trends in realty, Ruhe said green energy is becoming more popular and being installed more in condo complexes. These condos then offer tax credits as a differentiating feature for selling their units. She mentioned work that is being done to develop new energy technologies.

According to Orange, it's all about the future, not being so greedy that we destroy wildlife. By reducing consumption, we can help protect our shared environment.

Baake noted that he can usually get 20-30 percent in energy savings for homes that have an energy audit through installation of low-cost energy efficiency measures, such as caulking and insulation. He noted that the fixes resulting from an energy audit will save money on energy bills as well as improve home comfort and safety (since he often finds gas leaks). He said the price of solar electric systems has dropped 30 percent recently, making this a good time to buy.

In response to a question about why one should invest in renewable technologies now, when they are changing so fast and could quickly become obsolete, Baake advised homeowners to install the most efficient technology available when it is time to replace a system. He advised choosing energy efficiency first, then moving to solar.

"This is no time to wait," he said. "Share information with others to spread the word. Take little steps to start, and think seven generations into the future."

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Mount Vernon Unitarian Church
1909 Windmill Lane, Alexandria, VA 22307
AGENDA

- 9:30 **Coffee and Refreshments; Browsing Information Tables**
- 9:45 **Welcome** --The Rev. Kate R. Walker, Mount Vernon Unitarian Church
- 9:50 **Program Overview and Introduction of Participants** -- Ken Pilkenton, Energy Fair Lead Organizer
- 9:55 **Mount Vernon Unitarian Church Project: "Working Toward Net-Zero"** -- Ken Pilkenton
- 10:05 **"State-Level Legislative Overview for Alternative Energy Projects"**
-- Delegate Scott Surovell, 44th District of Virginia State Legislature
- 10:20 **"Federal-Level Overview for Alternative Energy Projects"**
-- Chris Lohmann, Financial Analyst, U.S. Department of Energy
- 10:35 **"Effect of Alternative Energy and Energy-Savings Projects on Home Values"**
-- Carol Cooke, Tom Pleimling Realty/Fort Hunt Realty Group at Keller Williams Old Town
- 10:45 **Break**
- 10:55 **Panel discussion/Q&A: "Alternative Energy Projects for Places of Worship"**
Joelle Novey, Executive Director, Greater Washington Interfaith Power & Light
Les Fetting, Shenandoah Sustainable Technologies
Robert Orange, Marketing Associate, Standard Solar
Yasmin Termeh, New Generation Energy
- 11:30 **Break**
- 11:35 **Panel discussion/Q&A: "Alternative Energy Projects for Homes"**
Les Fetting, Shenandoah Sustainable Technologies
George Rennolds, Residential Sales Manager, ADCO Heating and Air
Robert Orange, Marketing Associate, Standard Solar
Kent Baake, President, Continuum Energy Solutions
Margaret Ruhe, Realtor, Long & Foster, Old Town Alexandria
- 12:15 **Formal Close** -- Ken Pilkenton, Energy Fair Lead Organizer
- 12:15 - 1:00 **More Browsing Information Tables**