

Sustainability Planning Activities

Within the state of New Hampshire, the Town of Rye has been at the forefront of energy conservation and sustainability initiatives. Since the volunteer committee was formally sanctioned by the Rye Board of Selectmen in the spring of 2007, they have made a considerable impact on the Town's attitude toward conservation and sustainability resulting in a substantial energy use reduction and public awareness to the global issues that impact our local environment.

EPA Portfolio Manager

Energy usage for all buildings has been benchmarked over the past year using EPA's Portfolio Manager and the following table represents the current energy performance for the Town Hall, Library and schools. Rye has also been selected to participate in the *New Hampshire Municipal Energy Assistance Program* and the other town buildings are being inventoried as part of this program. Rye has also submitted a request to the EPA to join their *Community Energy Challenge*.

Building Evaluations

Utilizing grant and Town allocated monies, the Energy Committee has engaged engineering firms to complete energy and sustainability evaluations of most of the Town buildings. The Jordan Institute and Vanderweil Engineers completed Comprehensive Energy Evaluations of the two Town school buildings in December 2008. In June of 2009, anix, LLC completed Performance Evaluations and Sustainability Assessments (PESAs) of the Town Hall, Public Library, DPW Building, and the Recreation Building.

- *Comprehensive Energy Evaluation of the Elementary School*, Jordan Institute, December 2008.
- *Comprehensive Energy Evaluation of the Middle School*, Jordan Institute, December 2008.
- *Performance Evaluation and Sustainability Assessment of the Town Hall*, anix, June 2009.
- *Performance Evaluation and Sustainability Assessment of the Public Library*, anix, June 2009.
- *Performance Evaluation and Sustainability Assessment of the DPW Building*, anix, June 2009.
- *Performance Evaluation and Sustainability Assessment of the Recreation Building*, anix, June 2009.

These evaluations included an assessment of all building energy systems and envelope integrity. Building energy performance simulations were completed using DOE 2.2 and eQUEST 3-63 computer modeling programs. These programs are recognized and accepted by the Department of Energy (DoE) and the US Green Building Committee (USGBC) LEED certification program. The reports provided recommendations to improve the building envelopes and energy systems, some of which have been completed by the Town.

Building Improvements Completed

In the summer of 2009, the School Board addressed the building envelope in both schools with air sealing and insulation. Measured energy usage to date indicates an energy savings in the range of 20% to 28%. The ENERGY STAR rating for Rye Junior High improved to a 75 making the school eligible for ENERGY STAR rating. The current energy consumption for the schools will be reduced by a predicted 50% if all building improvements are completed. The schools are also proceeding with the recommended lighting upgrades through a program with Public Services of New Hampshire (PSNH) and hope to receive grant funding to complete many of the remaining recommended energy efficiency measures.

NH Carbon Challenge

For residential energy use, the Committee is encouraging homeowners to use the *NH Carbon Challenge* (<http://carbonchallenge.sr.unh.edu/>) as a tool to measure their carbon emissions and provide suggestions on ways to

reduce those emissions. In 2008, the Energy Committee developed a school challenge where classrooms in Rye Junior High and Rye Elementary School competed for the highest participation in the NH Carbon Challenge. Sixty-four (64) Rye households participated in the Challenge resulting in reduced carbon dioxide emissions of 621,664 pounds and an aggregate energy bill cost savings of \$70,227. At the time, this was more than any other town in New Hampshire and Rye was the top ranked town in the NH Carbon Challenge.

Community Outreach & Education

For the past three years, the Energy Committee has conducted numerous public outreach and education programs including book discussions, movies, lectures and workshops as well as launching a website, *RYE TURNING GREEN* (www.ryeturninggreen.com). Our events have been open to all surrounding communities, have been well attended and have reached over 500 people.

- **Book Discussions:** Book discussions included Bill McKibben's book *Deep Economy*, a two part discussion on *Apollo's Fire*, written by Representative Jay Inslee and Bracken Hendricks, and Barbara Kingsolver's *Animal, Vegetable, Miracle*.
- **Movies:** The Committee's movie series included *End of Suburbia* and *Escape from Suburbia* which explore what the future holds for us as worldwide oil production peaks and starts to decline. Rye held a food film series including *The Power of Community*, how Cuba survived peak oil and solved the crisis of how to feed their population, the movie *King Corn* about the subsidized corn crops and *Eat at Bill's*, a California produce market that supports local farmers.
- **Lectures:** Rye sponsored a talk by John Carroll, UNH Professor of Environmental Conservation on *Oil before Food? – How to Support Local Food from Local Farms* and co-sponsored Bill McKibben at the South Church in Portsmouth to speak on local economies.
- **Workshops:** In 2008, the Energy Committee conducted a Forum on Weatherization and Fuel Assistance at the Rye Library. Representatives from PSNH, Rockingham Community Action, and our State Representative David Borden presented information on fuel assistance programs and energy consumption reduction measures.
- **Power from the Wind:** In a 2009 seminar, Eric Steltzer from the NH Office of Energy and Planning presented the feasibility of wind energy systems in our area.
- **Weatherization:** Paul Neiman, a BPI certified residential energy auditor, presented a seminar on building science and reviewed the importance of weatherizing your home for a warmer home and lower fuel demand with the audience of over thirty residents.
- **Button-Up New Hampshire:** As part of the *Button-Up New Hampshire* program, the Committee followed the Weatherization seminar with a home weatherization workshop conducted by Anne Stephenson from Clean Air-Cool Planet.
- **Energy Through Art:** Each year the Energy Committee has sponsored an Energy Through Art program which encourages sustainable practices using art as a communication vehicle. *The Wash Day Project* in 2008 encouraged residents to save energy by hanging out their clothes. Over thirty (30) Rye households participated in the project. During the summer, local artists sought out participating households and painted their clotheslines. The project received media coverage from local newspapers, the *Boston Globe* and *ABC World News* with Charlie Gibson. The paintings were exhibited at the Seacoast Science Center for a month following an opening reception on November 14, 2008 with over 100 people in attendance. Many paintings were sold during

the month they were on display and then the exhibit was moved to the Library in January where the unsold paintings were displayed.

Sustainable Foods Programs

The Energy Committee has found that food brings people together and is an effective vehicle for educating the public about many aspects of energy conservation and reducing our carbon footprint. We have a number of local initiatives that have become permanent fixtures in the community and illustrate our continuing commitment to reducing energy usage.

- **Rye Eats Local** promotes energy savings and healthier food through eating locally. The Rye Eats Local newsletter currently reaches 165 households. The purpose of the newsletter is to make people aware of sources for local foods, offer recipes with the ingredients sourced to local farmers, and advertise classes, lectures and workshops on eating local.
- **The Rye Farmer's Market** was started in 2009 from seeds sewn during our food film series discussions. The Farmers' Market was held every Wednesday, from June through October, in the center of Rye and three markets are being held indoors during the winter. Vendors offer fresh fruits, vegetables, eggs, baked goods and seafood and include a number of small co-ops formed by local residents. There is an egg co-op of about eight residents who raise chickens in their backyards. Each are taking turns staffing the egg booth at the market and on the first run, had collected about 40 dozen eggs to sell.
- **The Baker's Cooperative** is made up of about seven residents, who combine their own special baked goods for sale each week, and eventually there will be a vegetable co-op for casual gardeners who want to know what to do with their bumper crops. The goal of the market is to provide residents with one-stop shopping for their local foods and the emphasis is on goods grown and made in Rye.
- **Food Preparation:** To continue our focus on local foods the Energy Committee offered the course, *Menu for the Future* in 2009. Rye residents reflected upon their role in the global food market and the ecological concerns we face today. This winter Rye is offering a second course from the Granite Earth Institute titled *Voluntary Simplicity* which will focus on how we might live more simply and develop sustainable communities.
- **Town Garden:** In collaboration with the Rye Conservation Commission, the Energy Committee is pursuing establishment of a Town garden. We are investigating possible sites and are consulting with The US Department of Agriculture, the UNH Co-operative Extension, local Master Gardeners, and local organic farmers. Currently, negotiations are underway to purchase a historically significant property in town to be used for the town garden.

No Idling Programs

A subcommittee of the Energy Committee has been conducting a *No Idling* campaign in town. To date, schools and local businesses have endorsed the plan and added no idling signs and encouraged cooperation. The committee is working to extend these efforts throughout the community and eventually developing a no-idling ordinance.

Waste Reduction and Recycling

As an extension to the *NH Carbon Challenge*, a composting program was initiated at both town schools. In 2009, the Rye Middle School developed a school garden and very successfully incorporated the concepts of local foods, healthy foods, composting, and gardening into the school curriculum.

A subcommittee of the energy committee is working to expand the successful recycling rates of the town by evaluating and educating the community on *Pay-as-you-Throw* and other waste reduction programs. The committee is working within the schools to increase the recycling efforts throughout the community.

Public Utility Partnerships

The Rye Public Library partnered with Public Service of New Hampshire (PSNH) last year to replace all lighting with energy efficient lighting under PSNH's *Smart Start Program*. The school lighting will be upgraded under this program and the Rye Town Hall is also being evaluated by PSNH.

New England Grassroots Environment Fund

The Energy Committee received a \$1,500 grant in July 2008 from the *New England Grassroots Environment Fund* (NEGRF) to support many of the Town's ongoing initiatives. In 2009 Rye was awarded an additional \$1,250 from NEGRF to support the Town's active programs.

Community Impact of Proposed Project

Replacing one of the existing steam boiler units with a CHP system and installing a new control system will provide several benefits to the community including:

- **Reduced Energy Costs:** Money saved on energy bills can be utilized to implement the other building performance and sustainability initiatives.
- **Occupant Comfort:** The new controls system will replace the outdated manual dial thermostats that individually control the classrooms – this will provide a more uniform and consistent heating and cooling delivery. Also, the CHP unit will improve the response time for heat in the building since it will maintain a constant secondary heat source.
- **Public Awareness:** The Town will measure the performance and energy reductions for the CHP system and use the information to educate the public on the most current renewable energy technologies.

PROJECT SUMMARY

Project Intent & Implementation

Constructed in 1957, the Rye Elementary School has endured two additions completed in 1965 and 1996. With the additions, the school provides 50,467 square-feet of space. In conjunction with the Comprehensive Energy Evaluation for the Middle School, the Elementary School was also evaluated. Similar to the Middle School, results of the evaluation provided several recommendations to improve the energy efficiency of the building. Several of the recommended improvements have been implemented to date.

The building evaluation completed by the Jordan Institute provided several recommended building improvements for the Elementary School. The most notable recommendations include new HVAC controls systems and replacing the older of the two inefficient boiler units with a Combined Heat and Power (CHP) unit. After

