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More Solar, Please!

By Judi Colla

Chair, Energy Committee of Sustainable Hanover

Over 200 homes in Hanover have installed solar panels to help meet their electrical needs. Sustainable Hanover wants more.

The Town of Hanover has set a goal of having the entire town operating on 100% renewable electricity by 2030. In alignment with that objective, Sustainable Hanover supports proposed amendments to the Hanover Zoning Ordinance that would make it easier to install solar energy systems.

At the Hanover Planning Board's December meeting, Rob Houseman, Director of Planning and Zoning, introduced proposed changes to Sections 718 and 504 and a new section 505.21 of the zoning ordinance that would permit as "accessory uses" ground-mounted systems in the side and rear setbacks of residential properties property boundaries. Under the current zoning rules, solar arrays must be 50 feet from the property boundaries. Under the proposed changes, the structures could be as close as 10

feet from the side and rear property line if they were no more than 18 feet high.

In January, Yolanda Baumgartner, Co-chair of Sustainable Hanover, testified in support of these proposed changes. She pointed out that by permitting as accessory uses ground mounted systems in the side and rear setbacks, we would be treating them similarly to how we currently treat patios, pools, garages and sheds. She showed that the proposed modifications would significantly increase the land available for solar systems. While the proposed changes would apply to all districts, the impact will be greatest in our rural districts where the potential for ground mounted solar is greatest. For a three acre lot, the area available for solar systems would expand by a hefty 51% for an almost square lot up to a massive 182% for a long rectangular lot. She also conveyed the sense of several local installers that an 18-foot height limitation would accommodate most solar systems in Hanover.

The Planning Board voted unanimously to move the proposed amendment forward to a public meeting on March 1st at 7:30 PM in Room 212 of RWB Community Center at 48 Lebanon Street and via Zoom (<https://www.hanovernh.org/planning-board/events/56686>).

Exact wording of the proposed modification can be found on the Town of Hanover website at:

<https://www.hanovernh.org/planning-board/pages/2022-proposed-zoning-amendments>

Please bring your thoughts and questions on this subject to the March 1st meeting and plan on voting in support of this amendment at our Town meeting on May 10th!



New LED bulbs in CCDC Sanctuary

Church of Christ at Dartmouth College Implements Comprehensive Energy Savings Project

By Barbara Callaway, Sustainable Hanover & Steve Shadford, Board of Deacons

In an effort to reduce energy usage, the Church of Christ at Dartmouth College (CCDC) has recently completed lighting updates and a solar panel installation. The church is lucky to have as a member, Steve Shadford, who has helped guide the church in these efforts as it moves to a heavier reliance on renewable energy. Steve, a mechanical engineer, worked for Dartmouth from 2008-2017 implementing the College's energy plan.

As a member of CCDC's Stewardship Committee, Steve was interested in improving lighting efficiency—a simple, but effective way to reduce energy use. Three strategies were

used, producing significant savings. Fixtures in high-use areas were replaced with new LED lights with built-in occupancy and dimming controls. Fixtures in general-use areas were retrofitted with new LED lamps and matching ballasts, and last, but not least, screw-in incandescent lamps were replaced with LEDs.

Seeking to minimize the church's capital outlay for the project, Steve consulted with Andrew Hatch of Resilient Buildings Group who works with Liberty Utilities' commercial customers in the Upper Valley to promote energy efficiency projects. Andrew provided suggestions and information about the NHSaves incentive program and an available 0% interest, 5 yr. loan to pay for the upgrades. As a result, the church did not have to provide any up-front capital for the lighting upgrade project and is paying off the loan through its monthly energy savings, requiring little impact on the church budget.

Once the improvements were made, the church got immediate energy savings. In the 22 months since its lighting upgrade, the church has reduced its overall electrical energy use by about 40%. CCDC has reduced its annual energy use from 46,000 kWh to around 26,000 kWh/yr. which translates to \$3,000/yr. (@\$.015/kwh.). In addition, the church has reduced its annual carbon emissions by about 6.6 tons!



Classroom

This was just the beginning! CCDC's Green Team favored rooftop solar to cover the church's electrical use, but delayed the solar project until the lighting upgrades were complete. As a result, 40% fewer solar panels were required to cover the electrical needs of the church because of the decrease in electricity usage. This resulted in an initial cost reduction of about \$50,000 for the recently-installed rooftop solar system which was activated in November.

The third phase in the church's energy program is a study by Maclay Architects from Waitsfield, VT, to look not just at energy, but to develop more flexible and efficient space utilization for the whole church. Then new low or no carbon energy heating/cooling systems which are suitable for the new space utilization will be considered. The intention is to move to net zero carbon emissions over a period of time in a planned and phased manner.

The architectural study will include the building envelope, HVAC, electrical, structural, life-safety and renewable energy systems. By taking a deeper, holistic view and developing a flexible-use, plan, CCDC is hoping to end up with an easier-to-use, and much more efficient building - powered, heated and cooled by renewable energy.



Solar Panels on CCDC roof



Linda Gray (Norwich Energy Committee), Judy Payne (Norwich Congregational Church), Yolanda Baumgartner (Sustainable Hanover)

Volunteers Build Window Inserts (Part 2)

By Dennis Robison, Sustainable Hanover

In the Fall, 2021 issue of the Sustainable Hanover Committee *Newsletter* Yolanda Baumgartner wrote an article about the Window Dressers project that was taking place in November at the Norwich Congregational Church. Volunteers came together to construct window inserts for those in the Norwich/Hanover area to reduce energy loss from windows during the winter months. This article is a report of how the project worked out.

This was my second time volunteering for Window Dressers – Thetford, VT was my first experience. There are many things to admire about these projects but one that always impresses me is that Window Dressers projects are well organized and structured. I arrived at the construction site at 8:30 am with a dozen other volunteers who probably didn't have any idea what they were going to be doing, let alone how to do it! After less than 45 minutes of instruction on how to build a window frame, the work began. Thanks to prior volunteers, stations for construction had been set up. Beginning at the first station, the window frames, individually measured and ready for assembly, were put together, then moved to the next station where

the plastic cover was attached, then on to successive stations until the finished product was placed along the wall under the name of the person for whom they were being made. Breaks were encouraged. Thanks to King Arthur Flour contributions as well as those of other volunteers, they were a delight and a chance to socialize.

After four and one half days, the Norwich/Hanover team had constructed around 200 frames for 28 households ready to be picked up. Following Window Dressers directions (each window carefully labeled), the new owners then placed their inserts in the windows and the energy savings began.



Window frames ready for the next step

Some local testimonials:

“Our inserts are working great - especially in the upstairs bathroom when we take our showers in these cold temperatures”. -Cathy

“Normally when the outside temperatures drop below 20 degrees at night, our windows form a thin layer of frost around the bottom of the glass. Now with the window inserts that is not happening at all! When walking by the windows with the inserts on chilly days/ nights, I no longer feel a slight "breeze". This is a huge improvement. I'm so thankful”. -Abby

“We have noticed it is easier to keep the house warmer now during these colder weather days after installing the inserts. They were easy



Putting frames together

to install and all were sized correctly. It was a job well done! We thank you.” -Hanover customer

“My inserts all fit perfectly and I'm feeling secure that less precious warm air escapes. I will volunteer again another year to pay back the generosity shown me”. -Sandy

All households are eligible for the Window Dressers projects (see windowdressers.org/ for details). Financial help is available for those who need it. The cost varies, of course, depending on the size of the window. For some who are planning on having their windows replaced in the future, this is a great interim step. There are plans underway for another project in Norwich/Hanover tentatively scheduled October 13-20, 2022 at the Church of Christ at Dartmouth College.

For more information, contact Dennis Robison (robisode@yahoo.com) or Yolanda Baumgartner (sustainablehanovernh@gmail.com).

Clean Energy New Hampshire

By Dennis Robison, Sustainable Hanover

Joshua Singer, Program Coordinator of Clear energy New Hampshire, attended the February meeting of the Sustainable Hanover Committee to discuss Electric Vehicle (EV) charging station planning.

New Hampshire will be getting \$2.2 million of Federal funding for EV stations. Proposals are due September 30, 2022. Submissions will probably follow the same guidelines as the VW settlement EV charging projects. Peter Kulbacki (Hanover Public Works) and Julia Griffin (Hanover Town Manager) discussed efforts to develop regional proposals – Lebanon, Hanover NH and possibly Hartford VT. Research is currently underway to determine what is needed. There is also consideration being given to a third party approach. Other issues include handling of charging times, costs, and in-town vs rural (near interstate highway) locations. Much is just not known at this time about expectations, deadlines, etc.

However, Singer suggested that proposals that cross state lines are highly problematic. CENH will be reaching out to the NH Department of Transportation to help in planning and writing proposals. Singer also noted that CENH was supporting the latest version of HB 549, restoration of energy efficiency funding, cut by the Public Utilities Commission. They will be advocating an increase in funding in the future.



Julia Griffin Honored

In May, 2017, Hanover voted to transition to 100% renewable energy for electricity by 2030. Five years later, the Town became a founding member of the Community Power Coalition of New Hampshire. Julia Griffin, Hanover's Town Manager, has been and remains an energetic force behind these two events, working tirelessly to reduce the Town and the region's dependency on fossil fuels for electric energy. In recognition of her efforts, Clean Energy New Hampshire (CENH) awarded her *Clean Energy Champion of 2021* and appointed her to the CENH Board of Directors. Congratulations, Julia!