



Volume 28, Number 2
Fall 2010

NORTHEAST SUN

The Magazine of the Northeast Sustainable Energy Association

2010 Sustainable Green Pages Directory

- **A Sneak Preview of the 2010 Green Buildings Open House**
- **The Trinitarian Congregational Church Renovation Project**
- **An Analysis of School Heating Fuel Splits with Data Loggers**
- **Smart Grids: The Promise and the Perils**
- **Commercial-Scale Biomass Boilers Market Growing in the Northeast**
- **Empowering Microfinance and Reducing Poverty with Solar Energy in Africa**

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NORTHEAST SUN

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The Northeast Sustainable Energy Association (NESEA) is the Northeast's leading organization of professionals working in sustainable energy, whole systems thinking and clean technologies. NESEA advances the adoption of sustainable energy in the built environment. NESEA accomplishes this through its Building Energy Conference and Trade Show, professional workshops, K-12 resources, an advocacy network, high profile public events such as the Green Buildings Open House, its chapters and members, and its Sustainable Green Pages Directory.

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On the Cover

NESEA member and former builder Michael Nerrie built this passive solar home in Walpole, NH, in 1979 with the help of an early solar incentive program. The sunspace makes a sunny zero degree day in January feel like August. In the summer, the mass of the home's slab floor helps keep the whole house cool. This unique home joins other green buildings in New Hampshire and the Northeast as a stop on NESEA's Green Buildings Open House Tour, Saturday, October 2, 2010. Learn more at nesea.org/greenbuildings.

Photo © Matthew Cavanaugh

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Photography: Wayne Soverini



Moving Forward, Moving Closer



After the world's longest job interview—seven months start to finish—I was thrilled to accept the board's offer of a permanent position as Executive Director of NESEA. The offer came on the heels of the board adopting a new strategic plan for NESEA—a plan that is unfolding as we speak, that is premised upon integration

of our current programs, collaboration with industry partners whose missions complement our own, and openness in how we operate. We've spent the summer getting started, and I'm doing my best to keep the NESEA community apprised of our doings. Watch for my regular blog posts at www.nesea.org, and follow me on Twitter at twitter.com/NESEAed. In short, it's a really exciting and busy time here at NESEA.

I am also thrilled with how this issue of the *Northeast Sun* has unfolded, and with how it knits together nicely to reflect NESEA's diverse, multidisciplinary, whole-systems approach.

- Well timed for “back to school,” Craig Stead's article on dataloggers uses as its subject the Putney Central School, a K-8 school in Putney, Vermont. He presented a workshop on this topic at last year's BuildingEnergy Conference that was so well attended that we are considering offering it again. We hope this article will appeal to educators and full-time energy professionals alike, as over the years many schools have requested leads from NESEA for energy efficiency projects as a result of participating in our K-12 educator training programs.
- Long-time NESEA member Joel Gordes' article on smart grids is also a signature NESEA piece—providing us with an understanding of smart grids that is more complex and more layered than what we read in the popular media. Again, this reinforces the NESEA brand—real information, deeper, more credible, and vetted than what's available elsewhere.
- Doug Sacra and Lee Cizek's article on the retrofit of Trinitarian Congregational Church in Wayland, MA, adheres to NESEA's rigorous case study principles, providing more than a year's worth of data on eleven different energy

conservation measures. The results they share demonstrate that both electrical and natural gas actual usage were even better than the modeled usage, which in itself was better than the MA energy code!

- *Sunpower Afrique: Empowering Microfinance and Reducing Poverty with Solar Energy* underscores the fact that although NESEA's focus is on the ten states in the US Northeast, our impact is global. The author, Kira Costanza, serves as the head of our Pennsylvania Chapter, PSEA, when she is not pioneering new approaches to financing solar power across the globe.
- Sally Pick's article on NESEA's Green Buildings Open House reflects the diversity of host sites you will find on this year's tour, being held on October 2, 2010—from newly constructed homes to super energy efficient multifamily and institutional buildings to retrofits of small office buildings.

This issue also marks our first opportunity to collaborate with Matthew Cavanaugh (www.matthewcavanaugh.com), one of our newest Gold Level sponsors. Matthew is an award-winning photographer with 17 years of professional experience, most recently covering the White House and documenting historic events, including the election and inauguration of President Barack Obama. We are blessed to have his commitment to help us tell our story with pictures as he builds a portfolio of work in the sustainable energy arena. Matthew photographed the stunning home of Michael Nerrie, of Walpole, NH, which appears on the cover of this issue. We look forward to having him create the same quality of breathtaking images for NESEA that he's been creating for years for the likes of the AP, the *Boston Globe* and the *New York Times*.

And last but not least, I'd like to use this opportunity to welcome our two newest staff members to the NESEA tribe—Michelle Rose, who serves double duty as Green Buildings Open House Program Manager and Speaker Coordinator for the BuildingEnergy Conference (yes, we all wear a lot of hats around here!), and Taryn Harriman, our Program Assistant. Their recent arrivals all but make me a veteran within the NESEA staff!

My family and I are planning to relocate from Rhode Island to be closer to NESEA central, so if you have favorite haunts in Western MA, or if you happen to know a good architect/builder/engineer in the area, feel free to send them my way.

— Jennifer J. Marrapese, Executive Director



NESEA's Green Buildings Open House

On October 2, 2010 the Green Buildings Open House tour, in conjunction with the ASES (American Solar Energy Society) National Solar Tour, will be in full swing. Visitors to the host sites will be able to speak with homeowners who have implemented renewable and sustainable energy measures in their homes and learn how these solutions may be applied to their own homes.

We have received some great feedback from the people who are helping NESEA organize the event at over 600 sites across the Northeast. Online registration opened in February this year and, as a result, we added approximately 100 new host sites to the 2010 Green Buildings Open House tour!

This year we worked closely with ASES and with all of our wonderful NESEA chapters to make this event a continuing success. A study by ASES indicated that participation in this program increased the likelihood that attendees would invest in energy efficiency and/or clean energy measures by 24%, from 54% to 78%. Thus, the Green Buildings Open House tour is an excellent means to educate interested parties in the benefits of green and sustainable energy practices and inspire them to make the move towards sustainability.

I would like to thank the hosts and organizers that have already joined this great event and welcome others who may be interested. For more information, please visit our website at www.nesea.org/greenbuildings.

—Michelle Rose, Program Manager

NESEA K-12 Education Department

NESEA K-12 Education Department offers professional development opportunities, curriculum, and resources for teachers and non-formal educators on energy efficiency, energy conservation, and on the science and applications of renewable energy.

The Junior Solar Sprint (JSS) is a model solar electric car program geared toward middle school students. With sponsorship from the United States Army Educational Outreach Program (AEOP), NESEA coordinates this program throughout the Northeast.

Despite the forecast of rain, students flocked in record numbers to the 2010 Northeast Junior Solar Sprint Championship on Sunday, June 13. Of the 130 registrants, 118 top-performing middle school student teams from across the Northeast, comprised of 302 students, showed up under cloudy skies and entered this year's Junior Solar Sprint Northeast Championship. Spirits were high even amid the need to run the races inside on battery packs.

Student teams competed for speed and three design awards—for best craftsmanship, innovation, and technical merit. Additionally, awards were also given to best re-use of materials, for best re-use of recycled and recyclable materials in car construction; the Kid's Choice award

for most impressive car among competing students; the Artistic Merit Award for the most clever and visually appealing solar car; the Team Spirit Award for best demonstration of collaborative effort among team members and team pride, the Sportsmanship award for upholding the "Spirit of the Sprint" and maintaining grace and humility under the pressure of competition; and new this year, the Best Compartment award for most ingenious and creative compartment design.

Throughout this fall, NESEA staff and our JSS Area Coordinators will facilitate free workshops to teachers and non-formal educators on applications in solar energy with hands-on experience in learning how to build a mini solar car. Workshops are designed to help prepare educators in leading middle school students through Junior Solar Sprint, where kids design, build and compete with model solar electric cars. These young engineers deepen their understanding about science, technology, engineering, mathematics (STEM), solar energy and craftsmanship. Teams can enter their cars in local design and race competitions with top winners invited to NESEA's annual championship. For more information on JSS resources and upcoming workshops throughout the Northeast, visit JSS at <http://www.nesea.org/k-12/juniorsolarsprint/>.



Winners of the 2010 Northeast Junior Solar Sprint Championship.



Educator Workshops

A few remaining workshops left in this service contract...Sign up now!

Solar Sails New York: Expansion of Solar and Wind Energy Education for School Power...Naturally, sponsored by the New York State Energy Research and Development Authority (NYSERDA), is a professional development project for K-12 New York State teachers. Attend a workshop and receive a free educational kit! Test out the experiments and give your students the tools they need to understand solar and wind technologies. "A Solar Kit for the Classroom" is suitable for teachers who work with grades 3-12. Solar energy lessons support NYSEDA's School Power...Naturally 15 Solar Kit lessons. Free downloads of lessons available at www.SchoolPowerNaturally.org "Wind Wisdom" is suitable for teachers who work with grades K-6. Hands-on activities support the accompanying curricular units Wind Wisdom for School Power Naturally (K-4 & 5-6). Free downloads of the units are also available at www.nesea.org/k-12/solarsailsnewyork/. For a listing of workshops, go to www.nesea.org/k-12/events/. To request a workshop in your area within NYSEDA's service territory, email agrindrod@nesea.org.



Continuation of CECE Workshops!

NESEA has been awarded \$14,800 in grant funds from the Western Massachusetts Electric Company (WMECO) to support educator training workshops on renewable energy through our **Clean Energy for a Clean Environment Program (CECE)**.

If you are a formal or non-formal educator and you are a WMECO customer, you are eligible to receive free training on the forms and applications of renewable energy, with a focus on



Science Educator Susan Reyes demonstrates how to use a multimeter.

facilitating solar energy projects in the classroom. Learn how solar and wind energy works, how to integrate concepts of renewable energy into your science, engineering, design, and technology programs, and learn about local field trip opportunities and member speakers. CECE curricular units are aligned to the Massachusetts State Frameworks for Kindergarten through 12th grade. Complementary educational kits are available to participants.

CECE is a great way to introduce the concept of renewable energy and its applications to students and we appre-

Clean Energy for a Clean Environment workshops are a great way to introduce the concept of renewable energy and its applications to students.

ciate WMECO's sustained support in continuing to provide funding for this program. If you or your school or organization are interested in participating



in and/or scheduling a workshop, please call NESEA at (413) 774-6051 ext. 21 or email agrindrod@nesea.org.

NESEA receives \$2,500 from the Lydia B. Stokes Foundation

In 2008, NESEA completed a grant award with the Lydia B. Stokes Foundation to research and design a concise suite of strategies to expand the K-12 Education Department activities and services in the region. Now in fiscal year 2011, the Foundation is again supporting the Education Department through a \$2,500 grant to enhance our marketing capabilities. We are grateful for the

foundation's continuing investment in NESEA as a quality energy education provider. ■

Educators at BE11!

NESEA is expanding our signature BuildingEnergy Conference to include an Educators' Summit. The Educators' Summit will provide opportunities for teachers and non-formal educators to:

- Gain hands-on training and curriculum in energy efficiency and renewable energy science and technologies;
- Learn how to incorporate STEM

lessons into the classroom; and

- Bring together educators with professionals in the fields of renewable energy, energy efficiency and green building, engineering, and architecture to help develop a network and speakers bureau as resources for energy education throughout the Northeast region.

As of press time, KidWind and the Boston Society of Architects' Learning By Design are confirmed presenters. ■

—Arianna Alexandra Grindrod,
Program Manager

BuildingEnergy10

Over 4,000 people joined us in Boston at BuildingEnergy10. We sent around a survey afterward, and here's what some attendees had to say about it:

"The NESEA conference impressed me as a community that is facing the future head on with confidence in our ability to address a wide range of real world problems."

"It's like the Super Bowl and Christmas Mass Combined. BE is where I go to get religion and to see the best in sustainable energy!"

"I attend a lot of conferences each year, but nowhere do I see the collective genius that attends and presents at the BuildingEnergy Conference."

"Best practitioners in the Northeast, best mix of idealism and pragmatism."



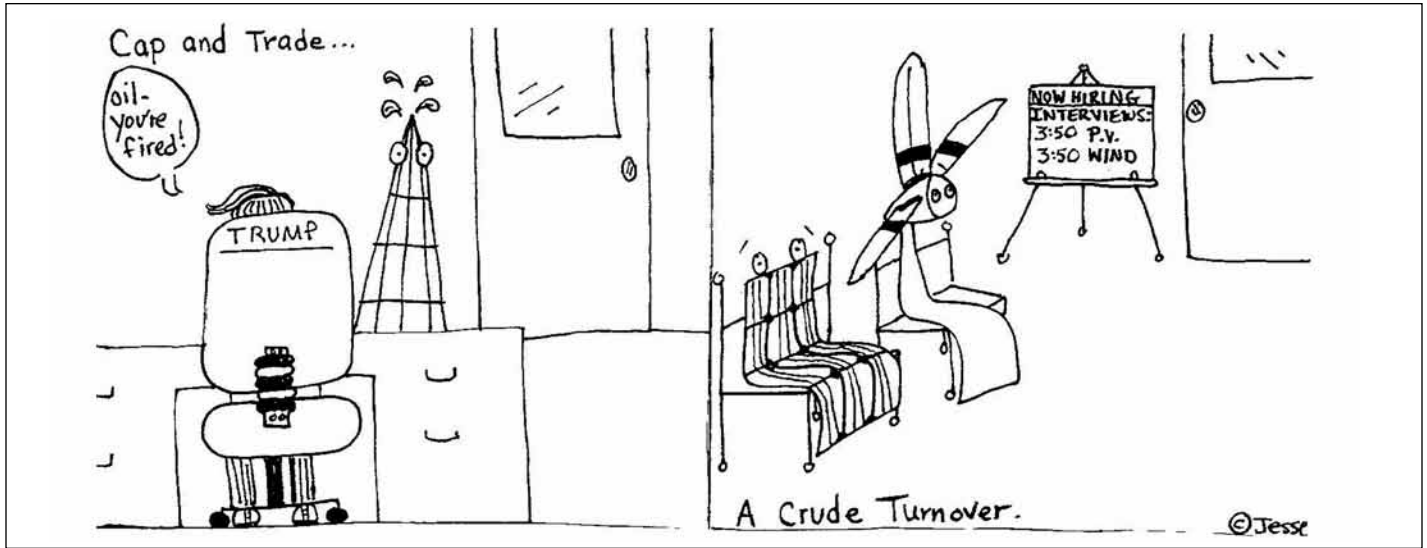
"I like the tape-around-the-eyeglasses, shirt-pocket-pen-protector crowd, geeky-ness of it all. Lots of whiz-bang stuff. And this year the focus was on energy retrofits, something I'm in the middle of doing myself."

"It's 'THE TRADESHOW' for renewables and energy efficiency of New England. . ."

"Good nuts and bolts education from people who really know their stuff."



“Cap and Trade: A crude turnover” BY JESSICA VAN STEENBURG



“I liked the mentor station—it was great to have the opportunity to speak to an expert one-on-one. I spoke to two solar professionals.”

“Grounded, real solutions, information that I can immediately integrate into my projects.”

“The premier site for the emerging technologies, information and developing businesses.”

“The emphasis on measured data and actual field-based experience, combined with an absolute minimum of theoretical, inapplicable academic nonsense.”

“It has helped me define the direction of my career and make contacts with experienced people who can help me.”

“See the best high-performance-building work in the Northeast, learn how it’s being done.”

“There is less focus (at BE) on sell, sell, sell, and more on learn, learn, learn!”

“I attend because of its interdisciplinary approach and its top notch speakers and presenters who offer cutting edge solutions to energy efficiency problems.”

Join me, our dedicated planning committee, our Conference Chair, Bruce Coldham, and Vice Chair, Robert Leaver, for a transformative experience at BuildingEnergy 2011. Our Keynote Speaker will be David Orr, lifelong educator and sustainability expert. **Save the date: March 8–10, 2011, the Seaport World Trade Center Boston.** The tribe gets stronger every time it gathers.



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Zero Net Energy Building Award

Congratulations to Tina Clarke and Doug Stephens, owners, and Bick Corsa, builder, of the Montague Urban Homestead in Turners Falls, MA—the winner of the 2010 NESEA Zero Net Energy Building Award. Their \$10,000 cash prize was awarded at the BuildingEnergy10 Conference in March.

The judges awarded the Montague Urban Homestead first place based largely on the fact that the owners and builder were able to achieve an extremely high degree of energy efficiency at a very modest cost. Completed in 2008, this 1152 square foot home with three bedrooms and one bath cost approximately \$180,000 to construct. From January 1, 2009 through January 1, 2010, it generated 2.5 times as much electricity as it used, sending a net surplus of 2,933 kWh back to the grid.

NESEA is gearing up for this year's Zero Net Energy Building Award, and is hoping to attract entries from each of our 10 states. You in? Entries are due on December 15, 2010. Visit www.nesea.org/inspirationawards/zeroenergy for further information.



Assorted pictures from Tina Clarke and Doug Stephens' Montague Urban Homestead, Turners Falls, MA. Clockwise from top: South-facing exterior with grid-tied 4.94Kw PV system and two 4' x 8' flat plate collectors, entry way with cork floor, 12" double-stud walls with dense-packed cellulose insulation, and kitchen with cork floor and Energy Star® appliances.





GreenHomeNYC

GreenHomeNYC continues to advance the green building cause in New York City through our innovative, free events. In 2010, we have expanded our existing series of monthly forums. Occurring every third Wednesday of the month, we have already covered topics such as The Women of Green, The 2nd Annual Patty Noonan Memorial Energy Policy Forum, and heating buildings with biofuels. Our now twice-a-year green building tours continue to attract new buildings and audiences. Over our last three events we have run a total 39 tours and had 550 attendees.

To build upon the success of our existing programming, GreenHomeNYC is expanding our offerings to include one-on-one building House Calls, where a trained volunteer works directly with building managers and coop boards to educate about and drive the demand for energy efficient improvements. We are also stepping up our research and writing by expanding our online green buildings database to capture all green buildings in New York City. Adam Szlachetka, a GreenHomeNYC volunteer, has begun a recurring green building policy column to keep the public up to date on current affairs.

Our growth has expanded from our programming to our organizational structure as well. We have roughly doubled the size of the organization over the last 18 months and now have a dedicated group of staff volunteers and advisors. We settled into our new office space and have begun an internship program for students from all across the country, which has already welcomed six students into the GreenHomeNYC ranks.

Our signature event for 2010 will be our The New New York: A DIY Green Street Festival that will be co-programmed with the National Solar Tour on Saturday October 2, 2010. Attendees will be given the opportunity to have experiential interactions with green building products and vendors, go on tours, talk with experts and re-imagine what is possible with a street fair in New York City, from an environmental, educational and enjoyment standpoint.

Solar Hot Water Training in Vermont

Learn how to capture the heat this fall by signing up for the Building for Social Responsibility's (BSR) Solar Hot Water Workshop. These workshops are aimed at training building professionals in the art of siting, sizing, in-



The July 7th Solar Hot Water Workshop in Montpelier, VT with Michael Horowitz presenting.

stalling and maintaining SHW systems appropriate for the Northeast climate.

The two day workshop program has been approved by Renewable Energy Vermont (REV) for training credits which are applicable towards the Solar Thermal Partnership program. Partnership is required for businesses wishing to access state incentives in Vermont. Presenter Michael Horowitz of Sustainable Solutions in Marshfield, VT brings over 25 years of solar hot water experience to the classroom, which he tailors for each workshop group. Plumbers, builders, architects and engineers seeking to broaden their client services are encouraged to jump start their solar hot water career with this course.

Builder Andy Leach of Leach Construction in Jericho, VT reported, "As a builder looking to incorporate renewable in our homes I really appreciated the fact that the class touched on all aspects of solar hot water installation, including cost analysis, equipment selection and longevity, liability and design. Additionally, the class discussions on the process of becoming REV solar partner were very informative. I would recommend this class to anyone interested in taking the next step toward utilizing solar energy."

GreenHomeNYC toured The Eltona, a 63-unit green affordable housing building in the Bronx and the first residential building in New York with building-integrated wind turbines.



Bomee Jung



The next workshop series is planned for September 18, 2010 in Manchester, VT and October 21, 2010 in Middlebury, VT. The cost for one day is \$285 and for two days \$450. Discounts are available for early registration, BSR/NESEA members and licensed plumbers. Interested participants are encouraged to contact Hillary Hunter at (802) 825-5957 or visit the web at www.bsr-vt.org.

Maine Solar Energy Association—PV Workshops Gaining Popularity

The Maine Solar Energy Association (MeSEA) has had a busy spring and summer this year. Dr. Richard Komp and John Burke presented a paper in Phoenix, AZ, this past May at the ASES Solar 2010 Conference. Co-authored with associates from Haiti, Peru and Nicaragua, the paper, “Updated PV Encapsulation Method”, focused on our “cottage industry” programs around the world. It was enthusiastically received by the group in attendance and spurred at least three additional projects in Africa and South America. Dr. Komp also presented a paper, co-authored with Faizan Ahmad

of University of Dayton Engineering, on the PV “cottage industry” project in Pakistan.

June was an especially busy month. Dr. Komp was again presenting a seminar at the Mid-West Renewable Energy Fair in Custer, WI, an annual event sponsored by the Mid-Western Renewable Energy Association (MREA). “New Developments in Photovoltaics”, was well received by the audience and dealt with the third world PV projects in Mali, Rwanda, Peru, Nicaragua, Pakistan and India.

After the MREF, Dr. Komp was on his way to Stockton, CA for a PV workshop and meeting with UC Davis professors.

Also in June, a solar battery charger workshop was presented by John Burke, Dr. Komp and associates, at the Young Women’s Leadership Network. Forty-four high school girls from New York City assembled solar battery chargers for use at home during this afternoon workshop at the YWLN School in Manhattan.

John Burke presented a 60W PV module assembly workshop for science and technology teachers at the School

for Cooperative Technology Education, in Manhattan. A successful workshop inspired the teachers to create a program for the students during the upcoming year.

Soni Biehl and Dr. Komp presented PV and solar cooker workshops at Falls Brook Center, in New Brunswick, CN, this past June as well.

July had Dr. Komp and Soni Biehl at Stockton Springs, ME, presenting a PV installation workshop. The group also worked on a solar hot water panel installation at the same location. Soni Biehl held a solar hot water workshop at the Earth Day festival at the University of Maine, Machias campus in April.

We have been busy, and plans for PV workshops, in conjunction with the New York Solar Energy Society (NYSES) and the Minnesota Renewable Energy Society (MRES), are now scheduled for summer and fall 2010. Other solar workshops are in the works with Midwest solar chapters.

Please contact MeSEA for opportunities for cooperative solar workshops. We are excited with this outreach strategy as a means to get the general public interested in solar lifestyle! Please contact www.mainesolar.org.



Dr. Komp, John Burke and workshop participants at Bridgton, ME, PV.

Philadelphia Solar Energy Association

The PSEA held its annual Junior Solar Sprints on Saturday May 22, 2010 in front of Philadelphia’s science museum, the Franklin Institute. About 150 youth participated from about 20 area schools. And, thanks to a new race management system, the day’s races were completed with more efficiency and fun than ever. The following were the teams winning first place awards:

- 1st Place for Speed—“Bloody Baron”, by Jeffery Hu and Ray Zimmerman, Montgomery School;
- 1st Place for Technical Merit and 1st Place for Best Overall Car—“Movie

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Dwell (November 2009)

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Vincent O'Grady

PSEA held its annual Junior Solar Sprints on Saturday May 22, 2010.

Maker”, by Pria Ganesh and Kimberly Hane, Schwenksville Elementary;

- 1st Place for Most Creative Vehicle—“Shell Racer”, by Rebecca Hane and Anna Hansen, Perkiomen Valley Middle School West.

While no special award was given for this particular car, in our personal opinion the best named car was “Carbon Killer.” The name of this car demonstrates the high level of awareness our student participants have regarding the critical role that solar energy has in reducing carbon and other greenhouse gas emissions. The students’ ecological awareness was reinforced this year by our first ever “Sustainability Expo” held simultaneously with the race. Special thanks go to Mike Friedman and his students at Wissahickon Charter School for organizing this exciting new part of our event.

Sunpower Builders of Collegeville, PA built our new sign board for real-time race information and provided us with visors. Meanwhile, traditional sponsors like Whole Foods and Franklin Institute gave generously. We had a big boost in operations from student volunteers of Drexel University. Many more organizations and volunteers made important contributions, but there are too many of them to list here. Finally, special thanks to volunteer race director, Joe Bruno, for another job well done. For more information on PSEA, see www.nesea.org/PSEA.

New Hampshire Sustainable Energy Association

NHSEA worked hard this past New Hampshire legislative session. Contracting with a legislative advocate and with an outpouring of volunteer support, we were able to contribute to real progress for sustainable energy in New Hampshire. The PACE bill (“Property Assessed Clean Energy”) authorizes municipalities to provide upfront capital for local residents’ and businesses’ clean energy projects. Renewable energy investment will also be incentivized by the new net metering statute, which permits up to 1 megawatt of renewable energy to be “net metered” into the electric grid. NHSEA helped convince the New Hampshire legislature to vote down a proposal to use the renewable energy fund for a single project. The project, proposed in SB 334, would have been developed and owned by Public Service of New Hampshire and bypassed Public Utilities Commission process. The legislature did take the positive step of requiring the Public Utilities Commission to issue a request for proposals for larger projects to be funded via the Renewable Energy Fund. At the last minute, the governor and the legislature supported a budget which removed \$3.1 million from the Regional Greenhouse Gas Initiative (RGGI) funds for use in the General Fund. RGGI funds are used for energy efficiency projects throughout the state. NHSEA will continue to urge lawmakers to protect these funds for their intended purposes.

NHSEA, The New England Carbon Challenge, a joint initiative of the University of New Hampshire and Clean Air-Cool Planet, and The University of New Hampshire Cooperative Extension are proud to announce the release of their new comprehensive web tool—the Energy Project Connector (*Myenergyplan.net*). This web tool makes starting



a home energy project much easier. The Connector searches all the federal, state and utility incentives available to New Hampshire residents for a home energy job and then provides a list of all the contractors and energy auditors who can do that work in a given area. This tool compresses hours and hours of web research and investigation into a 15 minute exercise! Contractors and Auditors visit: <http://myenergyplan.net/forBusinesses.jsp> to sign up as a resource.

NHSEA and Squam Lakes Science Center have collaborated on a summer Sustainable Living Series. Visit: www.nhsea.org/event-calendar/index.php for more information. Contact amy.yeakel@nhnature.org to register.

We are excited to participate in GBOH on October 2, 2010. Last year’s tour host contingent increased by 66% over the previous year! Looking ahead, NHSEA’s annual Home Energy Conference is scheduled for November 20, 2010. Save the date!

CIRenew Brokers Discussion of Hot-Button Issues

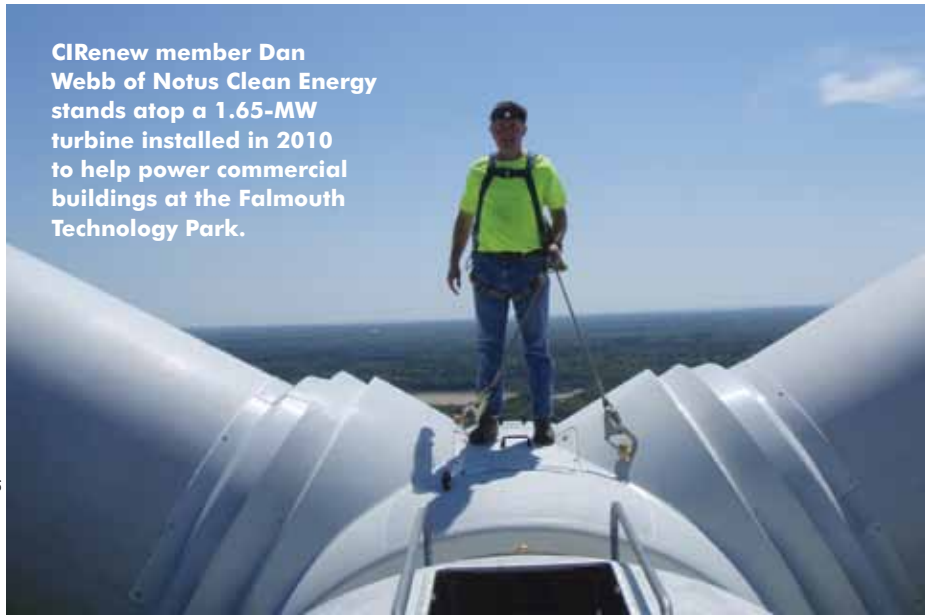
Local communities have been energized by several large wind turbines and numerous solar installations commissioned during 2010 based on the efforts of the Cape & Islands Renewable Energy Collaborative (CIRenew) participants. Meanwhile, public forums organized around the issues of job creation, political representation and wind energy continue to help inform decision making.

At Waquoit Bay Reserve, Brianna Kane from Cape Light Compact and Jerry Hanna from National Grid provided an update on ratepayer-funded efficiency programs for 2010. Discussion focused



CIRenew member Dan Webb of Notus Clean Energy stands atop a 1.65-MW turbine installed in 2010 to help power commercial buildings at the Falmouth Technology Park.

Notus Clean Energy



on the barriers faced by local contractors seeking to provide weatherization services under these programs, helping trigger follow-on activism, publicity, dialogue and progress.

Cape Cod Community College hosted *Voting Energy 2010*, an event for candidates seeking to represent local communities in the Massachusetts Senate and U.S. House of Representatives. Attendees were treated to a lively discussion of the issues, ranging from what candidates have done at home to what they plan to do once in office to motivate individual and group action, address climate change, and promote energy independence. Co-sponsors included Housing Assistance Corp., the Marine Renewable Energy Center at UMass Dartmouth, and WCAI, the Cape and Islands NPR station.

A public forum, *Wind Turbines, Noise & Health: Fact vs. Fiction*, was held at Upper Cape Cod Technical High School in response to genuine concerns—as well as rumors and unsubstantiated claims—that contributed to the cancellation of municipal wind projects in two towns and have created challenges for both existing and planned installations throughout the region. The forum

featured Dr. Robert McCunney, M.D., an occupational audiologist who serves as staff physician at Massachusetts General Hospital, clinical faculty member at Harvard Medical School, and research scientist at Massachusetts Institute of Technology.

For more information and for upcoming CIRenew meetings, check www.cirenw.org.

UMass Lowell

We have been extremely busy the past six months working on our two major projects—the Village Empowerment Project in Peru and the Department of Energy’s Solar Decathlon. In the former, we once again helped hundreds of villagers by designing and building multiple renewable energy-powered systems, while in the latter, we’ve begun the engineering work for our successful conceptual design.

Several chapter members, led once again by our advisor, Professor John Duffy, travelled to remote Peruvian mountain villages for two weeks in June (our 26th trip!) to serve the people of the mountains and in the process to learn and develop professionally and personally. On this trip, we focused on designing and installing photovoltaic systems on four remote schools that otherwise have no electricity, so that they would qualify for laptops for the children under a “one laptop per child” program of the Peruvian government. It took hours of hiking up steep, rocky trails using burros to transport the



Adam Kurich

Casa Solar Maternidad, passive solar adobe house for mothers next to medical clinic in the Peruvian Andes.



equipment to these villages, but the local people helped us, and were very grateful for our efforts. In addition to the PV installations, team members also installed a solar reverse osmosis system and solar still that provides clean water for a medical clinic, improved a wind-powered irrigation pump, installed a PV-powered pump for a drip irrigation system, and a bio-digester that will produce methane for a small stove. Team members also continued building a student-designed adobe house that is used by a maternity clinic for new mothers and their babies, affectionately known as “casa solar maternidad.” This house uses passive solar heating and straw insulation to keep it comfortable for its occupants. All in all, another highly successful trip!

Our other major project is our work on the 2011 Solar Decathlon. We learned in April that our proposal for Team Massachusetts—a joint team made up of UMass, Lowell students and architecture students from the Massachusetts College of Art and Design—was one of 20 accepted by the US Department of Energy for this international competition. Since then, chapter members have been busy researching and studying several ideas for the home’s solar-powered systems, along with working on its design with our architect partners. We have a tremendous amount of work ahead of us on this project, but are optimistic our home will succeed during the competition. Please visit our website www.4dhome.us to track our progress, and wish us luck!

From the Biggest Little, We Bring You—NESEA RI

At the beginning of 2009, a few Active Northeast Sustainable Energy Association members got together to build a tighter Rhode Island green professional community. We wanted to meet regularly with other like-minded



Members of NESEA Rhode Island.

Rhodies to share ideas, network and develop new friendships. And we wanted to create an online opportunity for our NESEA RI community to interact. Out of these efforts, NESEA RI was born.

NESEA RI does one and only one thing. It brings together professionals on the first Tuesday of each month. At each meeting we profile the work of a RI sustainable professional so we can get a better picture of the exciting work that is being done in this state. These meetings also provide professionals the opportunity to network with colleagues, identify opportunities and develop strategies for overcoming roadblocks. All meetings are free to all who are interested in attending.

We now have nearly 130 Rhode Islanders signed up on our interactive web site: <http://nesea.ning.com>, a place we hope all Rhode Island green professionals will join and find value.

We have had a number of meetings already.

- A panel discussion on the state of RI’s green economy with Bob Chew from Alteris, Julian Dash, the director of the RI Renewable Energy Fund, Karina Lutz of People’s Power and Light and Fred Unger of Heartwood Group. Over 120 people attended that first event, including Mayor Cicilline.
- A presentation by building commissioning expert Steve Turner of CTG Energetics.

- A presentation by long time green development and green building leader Dan Paquette.
- A presentation on the Brown University Urban Environmental laboratory by Harold Ward and Kurt Teichert.
- A presentation by Chris Rein from ESS who is leading the Cape Wind permitting effort.

More information about each month’s event can be found at <http://nesea.ning.com>.

You can also sign up for the e-mail notices by contacting me at jo@greenmachinepr.com.

Remember, if it’s the first Tuesday of the month, it’s time for NESEA RI.

News from the Solar Energy Association of Connecticut

Activities for mid-Summer and early fall, 2010:

Special Discussion Meetings

The first one was held on Saturday, July 17. This meeting was devoted to a discussion of two new topics of interest. More such meetings will be planned and announced.

A Field Trip

In late August, if the schedule works out.

Seminars

We have planned two seminars for September and October—one on a detailed discussion of an energy efficient solar house presented by its owner, and another on the “Passivhaus” concept. We will plan a third one for late fall.

The dates for these activities will be finalized during the summer and early fall and announced on our website www.SolarEnergyOfCT.org.

We invite all interested people to attend our activities, and participate in our discussions. ■

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Jeff Simmons

A New Green Spin on an Old New England Tradition

BY DOUG SACRA AND LEE CHIZEK

In 2005, the congregation at the Trinitarian Congregational Church in Wayland, Massachusetts voted to upgrade their church facility that had been built in 1928 and expanded in the 1950's. Sunday school classes were overcrowded and run in a dark, musty basement that often flooded in the spring. The boiler needed replacing and the concrete block walls had no insulation. There was little daylight and no fresh air unless one opened a window.

Maple Hill Architects completed the programming process with 18 ministry teams and prepared three design options with a range of scope and cost. Due to the limitations of the existing basement and the risk of flooding and associated moisture-mold issues, the client ultimately selected the option that demolished the 9,700 square foot 1950 first floor and basement building addition, and replaced it with a new 28,000 square foot addition, all above grade. The new addition includes a two-story lobby, classrooms, conference rooms, a fellowship hall, a multi-purpose room (gym) and a commercial kitchen. This was combined with accessibility upgrades and HVAC renovations to the 1928 sanctuary building.

The congregation wanted a traditional New England building with sloped roofs, making it difficult to meet the town's 35-foot building height limit. The solution was to build much of the second floor into dormers. This reduced the volume of the second floor, thereby decreasing mechanical loads. A small mechanical mezzanine space was tucked in above the second floor.

Green Features/Energy Efficiency

Doug Sacra led a client group in a preliminary green goal setting meeting. The highest ranked goals were:

- Energy efficiency
- Excellent daylighting and fresh air to all occupied spaces
- Minimal ongoing maintenance/high level of durability

The building was modeled under NSTAR's Advanced Buildings Program. Eleven energy conservation measures beyond MA energy code were adopted, resulting in modeled natural gas use of 51% below code and electrical use of 30% below code. Both electrical and natural gas actual usage is under the modeled energy usage. Utility rebates of \$64,000 were applied for by the design team.

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SHARP®



The educational wing of the Trinitarian Congregational Church.

Many large churches build stand-alone gyms. At TCC the gym was designed to be combined with the fellowship hall and sanctuary assembly spaces physically or digitally when needed, providing seating capacity of 280 to 780. This provided a major reduction in the building footprint and in on-going energy and maintenance costs.

Most parts of a typical religious facility are occupied only 10 to 30 hours per week. The significant percentage of unoccupied hours led us to prioritize a highly insulated building shell. Enhancements included 8 inch wood stud walls with R-28 cellulose insulation and R-43 spray foam roof insulation. The result is that during winter, it takes days for the interior temperature to drift down from 68 to 60 degrees Fahrenheit after heating has been turned off.

The cost- and energy-efficient mechanical system starts with right-sizing. Cooling capacity was reduced to provide for typical use rather than once-in-a-lifetime filled-to-capacity loads. By using a smaller AC system which runs a higher percentage of the time, dehumidification is enhanced, increasing comfort even at higher temperatures. MHA coordinated approval of down-sized occupancy and usage assumptions by the client so that the church released the mechanical engineers from liability that would typically encourage them to over-size systems to

Project Statistics	
Existing church facility	17,000 square feet
Demolished building area	9,700 square feet
New construction area	27,700 square feet
Renovation area	7,300 square feet
Total new church building area	35,000 square feet
Site area	119,535 square feet
Construction duration	18 months
Substantial completion	January 27, 2009
Construction cost	\$7,200,000
Construction cost/square foot	\$206

handle any event at any time with maximum occupancy.

The primary HVAC system is an all air ducted system that allows for quick and efficient heating and cooling of spaces that are used intermittently. Twelve smaller air handlers were used so that distinct areas of the building can be ramped up efficiently without the need to heat or cool unused areas. The mechanical engineer recommended these residential-style air handling units because they are available at higher efficiency ratings than larger commercial units. The larger units for the sanctuary, fellowship hall and gym have controls to reduce fresh air from outside louvers, based on the CO₂ levels in the space. Occupancy sensors turn off both lights and HVAC units when spaces are

unoccupied. Ductwork is sized to take advantage of 100% fresh air when the system is in economizer mode. By providing a well-insulated shell, perimeter heating could be eliminated.

All air handlers are housed inside, allowing for less expensive units that will last longer and be easier to maintain. The church has already reduced their annual maintenance costs simply by having simpler residential-style HVAC equipment that the on-site facility manager can maintain instead of hiring an outside firm.

A second system provides low-level hydronic heat with radiators at the main entry areas and stairways to keep the building up to set-back temperature when unoccupied without running the air handling units.



Fellowship hall, the Trinitarian Congregational Church.

Bill King

TABLE 1
The Trinitarian Congregational Church Energy Use

Energy Use	Existing	New
Building Size (SF)	17,000	35,000
Electrical (kWh/SF/year)	2.83	2.49
Natural Gas (kBtu/SF/year)	53.5	21.8
Total Energy Use (kBtu/SF/year)	63	30.3
Total Energy Use (kBtu/m ² /year)	587.8	282

Air tightness

The air barrier system consists of the face of the exterior plywood sheathing with caulked joints. Rubberized asphalt tape or sheets were used around windows and doors, wrapping the fascia up onto the roof, etc. Shortly after the completion of the building framing phase, we selected a corner room on the second floor and sealed it off from the rest of the building to perform a blower door test. This allowed us to understand the typical air leakage issues with this construction system. Then the contractor applied the lessons learned in this area

to air sealing the remainder of the facility. Due to the 35,000 square foot size and staggered project schedule, the entire facility was not tested with a blower door.

Daylighting

Natural light is inspirational; MHA took full advantage of providing it as a key design feature. Nearly every occupied space can function on daylight alone on most days (with 30 to 50 foot candles minimum). The classroom wing is laid out with long sides facing south and north so most daylighting is from

windows. Overhangs shade south-facing windows during summer months, yet allow for free solar heating in the winter.

Skylights have been used in the lobby, fellowship hall, gym, second floor large group meeting rooms and kitchen, since they are larger spaces or have no south-facing walls. Skylights in rooms where glare must be minimized, such as the gym, have light-diffusing glazing; the fellowship hall has a ceiling that was engineered to diffuse light from the skylights off the light wells or sloping soffits, providing even illumination while also eliminating glare. The daylight harvesting system dims and then turns off lights in response to natural light levels.

Total Energy Use

Despite more than doubling the facility size and adding of fresh air and air conditioning throughout the building, the natural gas use decreased by 59% per square foot and 16% in absolute terms. Electrical usage decreased 12% per square foot. Overall energy usage decreased 52% per square foot and 1% in absolute terms. See Energy Use Chart for details.

Exterior Building Materials

Although the exterior of the building has a traditional aesthetic—clapboard, shingles, white trim boards, windows with divided lites—the materials are all modern alternatives that dramatically reduce ongoing maintenance and increase longevity: cement board siding and shingles, PVC trim and aluminum-clad windows. The exterior wall system utilizes rain-screen technology with clapboard or shingles installed over an air space that allows air movement up the height of the wall, to dry out the back of the siding.

Inside the building, durable materials were also used: rubber flooring in the corridors, porcelain ceramic tile in the lobby, and fiberglass ceiling tiles. Use of these finishes eliminates much traditional maintenance such as waxing and

stripping floors, and replacing water-stained ceiling tiles.

Site Design

The existing parking lot of 116 spaces was reduced to 88 by sharing with the adjacent municipal lot which is least used at the times the church is busiest. The new parking lot is paved with a porous asphalt mix, the first in the Wayland area. Despite an increase in building foot print, the change to porous paving reduced the impervious area of the site from 60% to 32%. The asphalt is placed on top of 12 inches of washed crushed stone that acts as a giant water storage and filtration system. This assembly allowed for the elimination of catch basins and underground water detention systems, which would have required raising grades up to three feet to clear the water table. Using porous pavement saved over \$100,000.



Sketch-up model showing proposed photovoltaic system arrays.

Natural light is inspirational; MHA took full advantage of providing it as a key design feature. Nearly every occupied space can function on daylight alone on most days. Overhangs shade south-facing windows during summer months, yet allow for free solar heating in the winter.

See www.youtube.com/watch?v=08MdQ4CT6iw for a video demonstration of how well the porous parking lot performs absorbing water. The parking does require cleaning with a vacuum truck several times per year to prevent the pavement from clogging with sand or crushed leaves. More information on porous pavement is available at the University of New Hampshire Stormwater Center website: www.unh.edu/erg/cstev/.

The landscape architect utilized a palette of native, hardy and drought

Green Features of the Trinitarian Congregational Church

Energy Efficiency

- Energy recovery ventilation exhausts all bathrooms
- High-efficiency T8 and T5 lighting
- Multi-level switching at light fixtures in all rooms
- Light fixtures near windows switched separately
- Full direct digital control (DDC) system to control all of HVAC equipment
- Condensing boilers
- White flat roofs to reduce cooling and heat island effect

Indoor Air Quality

- Operable windows in every major program space
- Low VOC finishes throughout: paints, adhesives, vinyl-backed carpet

Recycling

Recycled 721 tons (over 90%) of construction and demolition waste. Recycled content materials: concrete with fly ash, rubber tires in gym flooring shock pad, cellulose insulation, fiberglass ceiling tile, gypsum wall board, steel beams and metal studs.

Structural Systems

Unique combination of wood stud framing, wood I-joists, wood glue-laminated beams, with few steel columns and beams used, resulting in reduced embodied energy and lower construction costs.

Lessons Learned

Gutters

PVC gutters longer than 20 feet require joints that often fail due to expansion and contraction. Select a continuous system or one that has a long track record in water-tightness.

Lighting Controls

The sophisticated Leviton lighting control systems in fellowship hall can save energy by dimming and turning off lights in response to daylight levels. However, due to the complexity of the system hardware, there are often problems in simply turning the lights all the way off at the switches. The actual issue is difficult to recreate when a technician arrives. The simpler the efficiency upgrade, the more likely it is to save energy in the long term.



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Design and Construction Team

Owner	Trinitarian Congregational Church, Wayland, MA
Architect	Maple Hill Architects, LLC
Project Management	Project Management & Cost
Civil Engineer	Samiotes Consultants, Inc.
Landscape Architect	Matthew Cunningham Landscape Design
MPFP Engineers	Norian Siani Engineering, Inc.
Electrical Engineers	Thompson Engineering
Structural Engineers	Simpson Gumpertz & Heger, Inc.
Energy modeling	Andelman & Lelek Engineering, Inc.
Daylight Modeling:	Parsons Brinckerhoff
Commissioning Agent	Sebesta Blomberg & Associates
General Contractor	Kaplan Corporation

tolerant trees, shrubs and perennials. The lawn was seeded with Pearl's Premium grass seed, a slow-growing, deep-rooted mix that does not need watering; less frequent required mowing reduces energy use. The existing irrigation system was largely destroyed as part of the new site work. Selecting drought-tolerant plants allowed us to eliminate a new irrigation system.

Water Efficiency

The new facility has waterless urinals, 0.9 /1.6 gallons per flush dual flush toilets for non-handicap accessible stalls, 1.28 gallons per flush ultra low flow toilets for handicap accessible stalls, and sensor-controlled 0.5 gallons per minute faucets in the typical lavatory. These improvements, plus the elimination of site irrigation, have reduced the water usage from an average pre-construction rate of 445 gallons per day to 117 gallons per day this past year, a 74% decrease.

Renewable Energy

MHA prepared plans for a 50 kW photovoltaic (PV) system on south-facing church roofs to create 50% of the building's electricity, as well as a financial plan and a sample contract to provide for power purchase agree-

ment (PPA) funding by investors. This would reduce electrical costs, all at no up-front cost to the client. The project team coordinated space in the boiler room for the inverters and ran conduits through less accessible ceilings in preparation for future PV panel installations. At the time this system was being planned, some members of the congregation did not feel comfortable combining the aesthetics of modern photovoltaic system panels with the roof of their historic sanctuary. However, our planning and PV-system ready construction will permit such an installation with minimal cost in the future.

If you would like to see this project in person, it will be included in the NESEA Green Buildings Open House on Saturday, October 2, 2010. ■

Doug Sacra, AIA, LEED AP, is the President of Maple Hill Architects in Wayland, MA. MHA is a full-service architectural firm concentrating on sustainable design projects in education, religious and residential facilities. MHA is currently developing several net-zero energy LEED Gold homes in Wayland, MA. See www.maplehillarchitects.com. Doug is a NESEA member. Lee Chizek, RA, is a freelance architect with a talent for quality control. He is available to manage your project and may be reached through MHA.

Analysis of School Heating Fuel Splits with Data Loggers

BY CRAIG F. STEAD PE, CEM

In this project, the objective was to determine the fuel use of three individual boilers supplied from a single underground fuel tank. Three zones were provided heat by the boilers.

Data loggers are devices about the size of a pack of cards that can record when motors are running. The data logger is mounted on the motor (photo, right), and records when the motor turns on and off from the motor magnetic field. This information is archived in the data logger memory for future download to and analysis by a computer.

Data loggers were deployed to determine the fuel splits for three heating zones in a local school.

Putney Central School, K–8 grades, is located in Putney, Vermont. The school has three wings constructed in 1955–64, 1974 and 1996, heated by three hot water boilers. Each wing is a separate heating zone identified as zones A, B, and C. Data loggers were deployed on each boiler oil burner to determine daily operating time. Fuel splits were cal-

culated by multiplying the burner operating time by the burner nozzle through put and the heating value of fuel oil. This fuel split was then converted to Btu/square foot-year to determine the relative heating efficiency and fuel consumption in each of the three zones.

The fuel split was further converted to Btu/Sf-year-heating degree day (HDD). This calculation showed the relative efficiency of heating adjusted for HDD. If the number found by this calculation is less than 5, then the building heating efficiency and envelope thermal efficiency are good. If the number is greater than 5 there is room for improvement. Further investigation is needed to determine the contributing factors to higher numbers.

An energy audit was performed on the Putney Central School in 2008. The building energy performance was computer modeled using Trane Trace 700 software. The zone energy splits between the computer model and those determined by data loggers were compared. The computer model used with the associated assumptions was found to inaccurately predict building performance. The computer model varied from the data logger energy use by 7% to 42%.

Data Logger Deployment

Motor run time data loggers were deployed on boilers serving heating zones A, B, and C at Putney Central School on April 1, 2009. Data loggers were removed on May 7, 2009.

Boiler A serves the gym and a front wing built in 1957 and 1964. Boiler B serves a middle school built 1974 and Boiler C serves a wing built 1994. Boiler



Putney Central School, Putney, Vermont.



Motor data logger on oil burner motor.

A has a 1 minute purge cycle at the end of firing which was subtracted from each burner cycle time.

Data Analysis

Analysis of the data was done for the coldest day during the period, April 13. The day had a high temperature of 39.3° F. and a low temperature of 31.0° F.

The use of oil for April 13, 2009 is given in Table 1.

Extrapolated over the year with annual oil consumption of 14,500 gallons, the fuel oil split and heat loading by school zone is given in Table 2 (page 26).

Note: Square Feet is the area of the heated space served by the boiler; Sf is square foot; Yr is year; HDD is yearly

TABLE 1
Fuel Splits Between Heating Zones, April 13, 2009

Zone	Gallons	%
A	45.3	65.5
B	12.9	18.7
C	10.9	15.8
Total	69.1	100.0

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heating degree days. For Putney, HDD is based upon 7,200 annual heating degree days. Btu/Sf/Yr/HDD less than 5 indicates an efficient heating system. Btu/Sf/Yr/HDD greater than 5 indicates improvements can be made to the heating and building envelope system.

Data Interpretation

Boiler B in the middle school had the highest heat load per square foot of floor area at 16.7 Btu/Sf-Yr-HDD. The area served has a high outside wall area for the floor space and contains an entry corridor with a large glass area. The boiler and overall heating efficiency appear low.

Boiler A serving the gym and front wing had the next highest heat load per square foot of floor area at 6.9 Btu/Sf-Yr-HDD. The boiler was oversized for the heat load and replacement should be considered. Insulation, ventilation and air handling unit upgrades should be accomplished before the boiler is replaced.

Boiler C serving the new wing had a heat load at 3.6 Btu/Sf-Yr-HDD that reflects better insulation, thermal pane windows and a heat recovery ventilation system. This boiler appears to be over-size. Consideration should be given to using Boiler C to provide the heat for the Boiler B area and removing Boiler B. Verification of Boiler C run times during the coldest part of the year should be done before heating system modification.

Data Comparison to Computer Model

The School was modeled using Trane Trace 700 software. A comparison of actual building performance with the model is given in Table 3 with annual fuel splits in %. Variance compares the data logger actual performance with the modeled performance.

As can be seen from Table 3, the modeled building performance by zone varies from actual performance by 7% to 42%. Thus, the model as used in this example is an inaccurate tool in predicting build-

TABLE 2
Heat Loading by School Zone

Zone	%	Annual Gallons	Zone Square Feet	Btu/Sf-Yr	Btu/Sf-Yr-HDD
A	65.5	9,500	26,219	50,000	6.9
B	18.7	2,710	3,120	119,900	16.7
C	15.8	2,290	12,212	25,900	3.6
Total	100.0	14,500	41,551		

TABLE 3
Comparison of Modeled School Performance to Actual Performance

Zone	Modeled Fuel Split %	Data Logger Fuel Split %	Variance % Over (Under)
A	52.5	65.5	24.8
B	20.1	18.7	(7.0)
C	27.4	15.8	(42.4)

ing performance. Energy conservation measures based upon the model would not reflect current and future building performance.

Conclusion

Data loggers were deployed to determine the fuel splits for three heating zones in a local school. Results were converted to a measure of building heating efficiency of Btu/SF-Yr-HDD. The zones varied from 3.6-16.7 Btu/SF-Yr-HDD.

A number of less than 5 BTU/SF-Yr-HDD indicates a relatively efficient heating system and thermal envelope. A number of greater than 5 Btu/SF-Yr-HDD indicates improvements can be

made in the heating system and building thermal efficiency. The low number found at the school of 3.6 Btu/Sf-Yr-HDD was in a new wing constructed in 1994 with efficient insulation package, thermal pane windows, and heat recovery ventilation. The high number of 16.7 Btu/Sf-Yr-HDD was found for a school wing with large amounts of glass, an entrance door with poor weather stripping, an inefficient boiler, and minimal insulation package.

Data loggers provide a simple and accurate method to determine actual building performance. They can be used to obtain building performance baseline data. From this baseline data energy conservation measures (ECMs) can be proposed with real building information. Reductions in energy use from installation of ECMs can then be measured and verified through subsequent data logger deployment. ■

Data loggers provide a simple and accurate method to determine actual building performance. They can be used to obtain building performance baseline data.

Craig Stead has been working in the energy field for over 30 years. His company, Stead Consultants, focuses on energy efficiency and conservation for schools, wastewater plants, and other commercial structures. He is a NESEA member.

Smart Grids The

BY JOEL GORDES

Although most of us are involved as professionals in energy and/or building science in one way or another, there are few who have a complete grasp of the entire field. Occasionally, important new developments may be lost in the static of increased activity in these disciplines.

Two years ago, the term “Smart Grid” was hardly known outside a small circle of people who have actually been working on it for quite some time. Only with it being featured in some popular, widely distributed print and digital publications has it gained recognition by a much broader audience and more recently in NESEA’s BE09 and BE10 conference sessions. Its importance to NESEA members is still difficult to gauge, but, suffice it to say, it may be immense and so cannot be ignored. If the touted capabilities come even to partial fruition it will have immense impacts for the implementation of energy efficiency for zero net energy building, renewable energy and other allied aspects of what we think of as the “built environment.”

As with any new technologies, a lot of promises have been made on how the Smart Grid will revolutionize the way we think about electricity. Some of these claims may be overhyped, lack a thorough understanding of the technological challenges involved, and may even mask some of the negative effects such new technology introduction often brings.

In reality, the Smart Grid has not just appeared out of nowhere. Like most other technologies, it comes as an evolution from what has come before—going all the way back to Thomas Edison.

When Edison energized the first grid from his famous Pearl Street station in lower Manhattan in 1882, it was, in many respects, what might be considered a forerunner of what today we call a “microgrid,” which is a forerunner of the Smart Grid. A microgrid by one definition is:

...an aggregate of small loads and distributed energy resources which operate as a single system that provides both power and heat.¹

In Edison’s case, it was developed primarily in order to market his prize product, the electric light bulb. It was powered with direct current (DC), which had a limited range of operability measured in blocks rather than miles. Earliest generations often partly conformed to this model, but the need to lower the cost of power led to abandonment of this small DC grid concept in order to obtain economies of scale needed to lower cost then only available through larger, centralized power transmitted over an AC system. In actuality, it was largely this

technical factor of large size and attendant cost reductions that led to the regulated monopolies rather than the commonly thought redundancy of wires. As a result of those economic factors, the electric grid has grown and:

The electrical power grid, a massively complex machine, the largest on earth, was recently acclaimed by the National Academy of Engineering as ‘the most significant engineering achievement of the 20th century.’²

Today, industry has come full circle. The technologies that in the past have driven the electric industry by economies of scale dependent upon size are giving way to the lesser known economies of scope. Based on these economies of scope, “mass production in factories with quality control was able to bring price decreases to make up for loss of economies of scale found in larger units...” This also became possible through higher efficiency, once only afforded by large steam plants, now in relatively small generators that could be economically located for on-site

TABLE 1
Distributed Generation Characteristics

Attribute	Constructed Generation (central plants)	Manufactured (distributed)
Construction	Custom Built	"Cookie Cutter" Uniformity
Size	Large	Small, Modular
Efficiency	Low Efficiency	Relatively High Efficiency
Construction Time	Long Lead Times	Short Lead Times
T&D Losses	Significant Losses	Minor Losses
Vulnerability of T&D	Vulnerable	Less Vulnerable
Fuels	Fossil/Nuclear	Fossil/Renewable
Financial Risk per Project	Large	Low
Optimal Fuel Environment	Low Fuel Cost Environment	High Fuel Environment

Promise and the Perils

use. Dr. Carl Weinberg, former head of R&D at Pacific Gas and Electric, whose group coined the term “distributed generation,” (DG) provided the basic attributes of this change from “constructed energy” to “manufactured energy.” The basic characteristics of each can be summarized in the table on the opposite page.³

Contrary to popular preconception, DG is not synonymous with renewable energy, as it does include fossil fuels, but even some prominent renewables cannot be classified as DG. For instance, most wind energy farms are located in remote locations, distant from electric loads, and thus do not conform to one of the

If the touted capabilities [of Smart Grids] come even to partial fruition it will have immense impacts for the implementation of energy efficiency for zero net energy building, renewable energy and other allied aspects of what we think of as the “built environment.”

Environmental concerns provide powerful drivers for those sources that use renewable energy, as do other short-term arguments which are economic-based, such as reliability, power quality and energy security, which are also in the forefront. Distributed generation is the building block for the reemergence of “microgrids.” Here again, DG is a term that has been frequently misused but a composite definition derived from six credible sources describes it as:

Distributed Generation⁴ employs modular electric generation and/or storage located near the point of use either on the demand or supply side. DG includes fuel-diverse fossil and renewable energy generation and can either be grid-connected or operate independently. Distributed resources typically range from under a kilowatt up to 50 MW. In conjunction with traditional grid power, DG is capable of high reliability (99.9999%) and high power quality required by a digital society.⁵

major defining aspects of distributed generation; namely, being located near the point of end use.

Nor is DG synonymous with “decentralization,” although DG is one important building block of it. The regular, centralized grid can make use of distributed generators that are tied tightly to it but do not have the full resiliency offered by decentralization. Amory and L. Hunter Lovins, two of the earliest pioneers in this area, specify the following attributes of decentralization, which provide that extra layer of resiliency to the system. Decentralization:

- Consists of many small units of supply and distribution with redundancy to back each other up;
- Involves units that are geographically dispersed but close to demand centers;
- Connotes interconnection with many units and not dependency on just a few critical links and nodes;
- Allows continued operation if in isolated modes, so failures tend to be less widespread;

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- Provides storage as a buffer so that failures tend to be gradual rather than abrupt;
- Involves short links at the distribution level;
- Employs qualities conducive to user-controllability, comprehensibility, and user independence.

One real-world example of decentralization (or lack thereof) involves the installation of dual brake lines in automobiles to provide redundancy. While this redundancy appears to add an extra measure of resiliency, because the lines are often run in close proximity to each other for much of the length of the auto, they are not truly "decentralized" and still more vulnerable than they might have been if they were more physically separated.

Enter The Smart Grid—Giving Distributed Generation a Brain

The "Smart Grid", or portions of what comprised it, were first envisioned in automated meter reading. Since that time, a tremendous body of information has come out pertaining to the plethora of technologies that can be developed to further refine it. It combines aspects of distributed generation but overlays it with interactive communications and provides a tightly knit communications system with digital control technology.

The Energy Independence and Security Act (EISA) of 2007 defines the smart grid as:⁶

A modernization of the nation's electricity transmission and distribution system to maintain a reliable and secure electricity infrastructure that can meet future demand growth.

Possibly a more descriptive definition by the National Electrical Manufacturers Association (NEMA) is more appropriate:

The goal is to use advanced, information-based technologies to increase power grid efficiency, reliability, and flexibility, and reduce the rate at which additional electric utility infrastructure needs to be built.

Some of the major goals for a smart grid include:⁷

- Improved reliability, security and efficiency through digital control;
- Optimization of grid operation including ease of interconnection and real time transactive pricing to promote demand response;
- Provision for Storage Technology including plug-in hybrid and electric vehicles.

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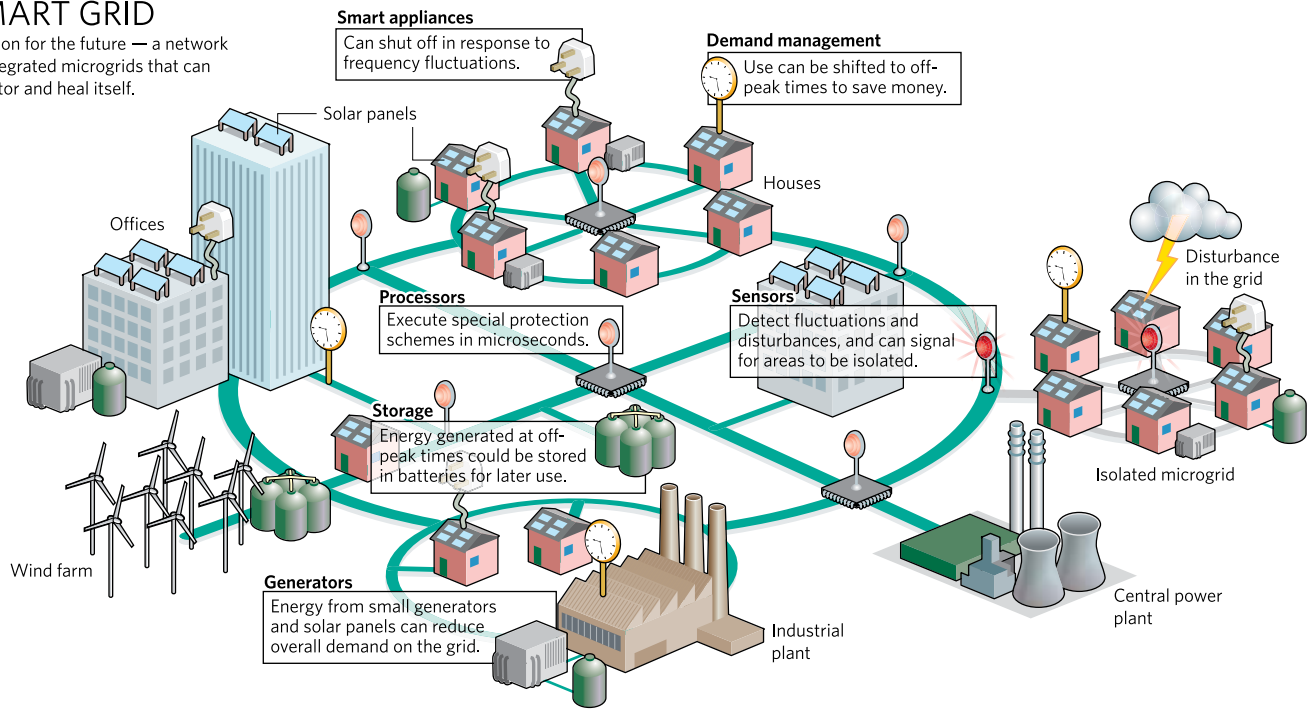
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FIGURE 1
Smart Grid Diagram

SMART GRID

A vision for the future — a network of integrated microgrids that can monitor and heal itself.



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- Standards and security provisions for inter-operability of all devices connected to the smart grid.
 - More important, the industry began to articulate what the emergence of a smart grid might mean for the consumer and came to the conclusion that it should offer these services:⁸
 - Enable active participation by consumers.
 - Accommodate all generation and storage options.
 - Enable new products and services.
 - Provide high power quality required in the digital economy.
 - Optimize asset utilization and operating efficiency.
 - Anticipate needs in response to system services in a self correcting manner.
 - Be resilient against physical and cyber attacks or natural disasters.
- Some observers believe that the most valuable feature of the new grid will be the ability to lower transaction cost con-

cerning power.⁹ This allows consumers with a Home Area Network (HAN) to reduce the usage of power to their appliances during high cost peak periods and resume operations when the price has dropped. It also allows a consumer who might have an on-site renewable energy system or a plug-in hybrid electric vehicle to provide power to the grid during peak periods and receive a bill credit for acting as a peaking generator. In this one example of Smart Grid operation, it produces a win-win situation that benefits all players, be they producers, consumers or those who do both at different times. The power providers also win in that they may not have to build dedicated peaking generation, which may only be used a few hundred hours per year, and may produce a disproportionately high price as well as emit greater levels of toxic air emissions and CO₂.

The diagram above depicts one conception of how the architecture of a Smart Grid might look and what types

of “transactions” can be taken on it.¹⁰

One other factor that differentiates a Smart Grid from a microgrid or DG facility is that it has a sophisticated digital communications and control system embedded in all of its components, right down to the appliance level. The very attributes that provide it this “transactive” advantage can, under certain circumstances, also open up a new dimension of vulnerabilities not possible in the main electric grid or mere microgrids. This has presented challenges to Smart Grid planners and particularly those tasked with ensuring security aspects. While microgrids in general can enhance resiliency of power, when the Smart Grid makes use of widely commercial software architecture it has the capacity to greatly enlarge the number of new entry points to the grid to would-be intruders. Unless safeguards can be built into the system, this could work to the detriment of cybersecurity. One suggestion includes development of software so when a

utility computer makes a decision, it assumes that some portion of the meters are compromised and employs firmware that can be upgraded and easily reset to a “normal” state. Another, while not yet available, would involve the ability to quarantine meters.¹¹ Some of these options may need advanced encryption as an additional safeguard.¹²

Without these protections and others, we could be exposing ourselves to massive intrusions into the critical infrastructure that controls the operations of our electric grid with unintended consequences. Cybersecurity expert John Bumgarner says that the electric industry is engineering vulnerabilities into the grid instead of engineering them out. He suggests that the current deployments of smart grid technology are making us more vulnerable to cyber attacks than ever before. Bumgarner’s warnings should be heeded

because without security controls smart grid architecture could be impacted with a few malicious keystrokes. ■

Joel Gordes has worked in passive and active solar R&D, design and sales. He is a long-time NESEA member and serves on NESEA’s BE Planning Committee and the Editorial Committee for this magazine.

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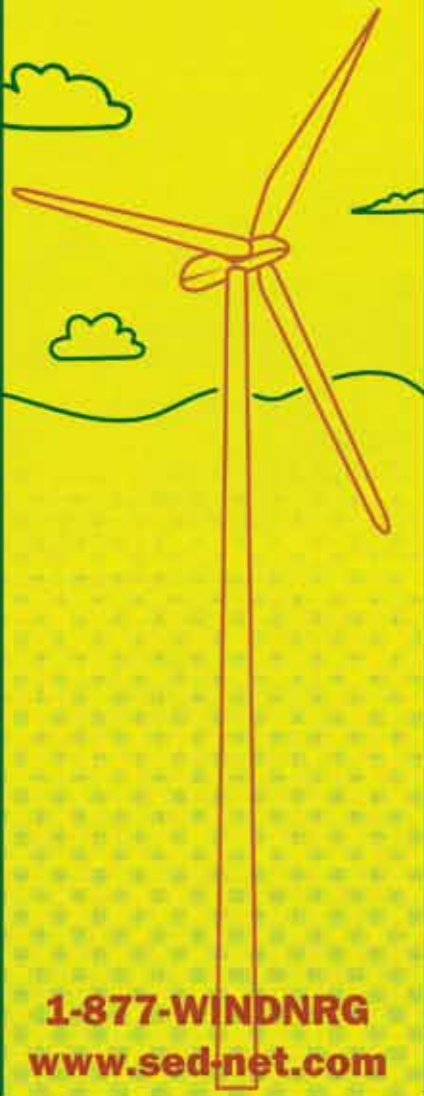
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The Wild Center

Commercial-Scale Biomass Boilers Market Growing in the Northeast

BY DAVID DUNGATE

Approximately 38% of the total energy consumed in the US Northeast is used to heat and cool buildings. Most of this heat is currently supplied by gas, oil, and propane. However, renewables are playing an increasing role for heating buildings. According to the US Department of Energy, currently less than 5% of the thermal energy in the region is provided by renewables and more than 90% of that renewable energy comes from biomass (wood) heating.

Interest in switching from fossil fuel heat to wood heat is largely the result of the following factors:

- Volatility of fossil fuel prices vs. relatively stable prices for biomass
- Desire to reduce dependence on imported oil and support local energy independence
- Desire to reduce greenhouse gas emissions
- Availability of new user-friendly, high-efficiency boiler designs

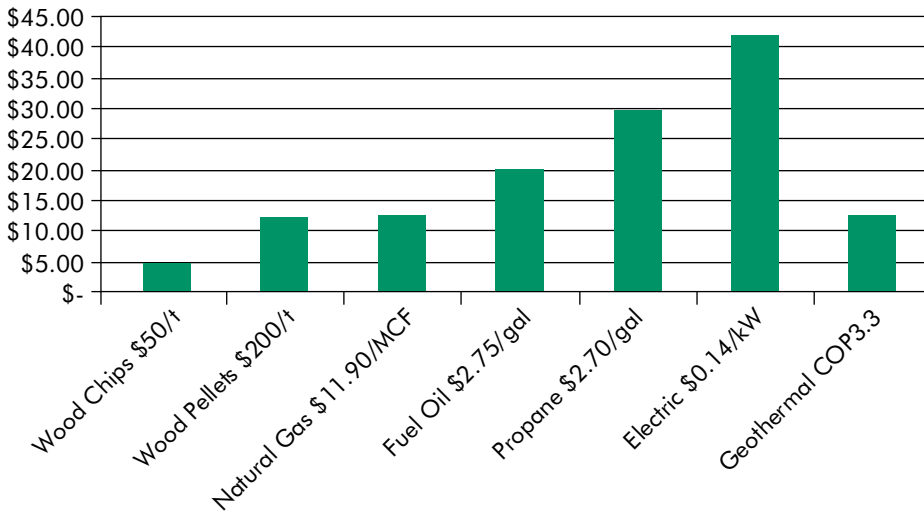
Until recently, most of the wood heating systems have been residential stove units and large scale boilers at industrial

Heating Oil

As a region, the Northeast is highly reliant on heating oil. The region consumes 80.3% of all the heating oil in the US. In fact, each year the Northeast consumes about 5.5 billion gallons per year of heating oil. At a price of \$2.75 per gallon, this equals about \$15 billion per year that is spent on heating oil, of which 78% of this money leaves the region.

Source: US DOE.

FIGURE 1
Equalized Fuel Cost for Various Heating Systems in \$/MMBtu



sites. In the last 20 years, European companies have developed and refined new boiler designs specifically targeted at the small commercial, institutional, and multi-family residential buildings at the scale of 0.25-3 million Btu. Until recently, this market was relatively ignored by the U.S. wood boiler industry. However, in the last few years, several US-based suppliers and manufacturers have begun introducing new commercial-scale, wood chip and wood pellet boilers to the market. Initially these advanced, high-efficiency boiler models have been imported from Europe, but some units are also now being manufactured in the US. Most of these European type boiler designs have thermal efficiencies of greater than 80% and are designed with control features to make them as user-friendly as conventional fossil-fuel boilers.

Since virtually no state or federal incentive programs have targeted commercial biomass heating, the early adopters of this technology have been commercial customers who are paying high fossil fuel costs (mostly oil or propane) and are in communities where there is ready access to forest resources (see Figure 1).

High efficiency and low emissions are linked results of advanced wood boiler designs. With gasification-type boilers,

the fuel is first heated with limited air to release the volatile components in the wood (tars, creosote and carbon monoxide) and then secondary air is added in a controlled dose to completely burn the released gases. Much of the particulate emissions from the burning of less sophisticated wood heating systems comes because the combustion is not

fully optimized. With complete combustion, the main emissions that are left are inorganic salts comprised of calcium and magnesium, which are much less noxious than unburned organic pollutants. As a result, there is no black smoke from modern biomass boilers and virtually the only time that emissions are seen is on cold days when moisture vapor in the exhaust can be seen as it condenses. The US EPA is in the process of finalizing new rules for commercial-scale wood boilers which will push the industry to further reduce emissions and eliminate poorly performing wood boilers from the marketplace. These new rules are scheduled to be finalized in December 2010.

When wood is harvested from sustainably managed forests, the net greenhouse gas emissions from biomass thermal are favorable. Although carbon dioxide emissions are released when wood is burned, it is equivalent to the carbon emissions that would be released if the wood was left to decay in the forest or released during a forest fire. When fossil fuels are burned, carbon dioxide is re-released from long-term geologic storage.



1.7 million Btu per hour boiler supplied by ACT Bioenergy.

The Wild Center

When wood heat from a sustainably managed forest replaces fossil fuel carbon, the release of the geologic carbon is avoided by accessing carbon that is already cycling within the atmosphere.

Much of the biomass used for heating is a by-product of other wood manufacturing processes. If this wood was not burned for fuel, much would end-up in landfills where it can degrade anaerobically and release methane which is a 25 times more potent greenhouse gas than carbon dioxide. When wood is cut for fuel, it is typically the lowest value wood, which cannot be used for plywood, dimension lumber, or pulp. It generally comes from the residues from another manufacturing process or from clean urban wood wastes or tree trimmings. Providing a market for these low value species creates revenue that helps cover the costs of forest management, such as removing invasive species and diseased trees, forest fire protection, replanting, and ensuring good forest diversity. A market for low value wood means resources to better manage the whole forest for recreation, wildlife, and commercial benefits.

Using solid fuel for biomass is one of the most efficient ways to use the energy in wood. The energy consumed to produce the wood chip and wood pellet fuel is about 1%–3% of the total energy available in the final fuel compared with fossil fuel refining which 10%–15% and creating liquid fuel such as corn ethanol from biomass consumes even more energy. Since solid fuel can readily be used for space heating, it makes sense to save liquid and gaseous fossil fuels for uses such as transportation, where solid wood fuel is not readily substitutable.

Many small commercial-scale combustion systems have been optimized to burn wood pellets dry. Pellets are made from compressed sawdust. The advantages of the pellets include: minimal moisture content, resulting in an ability to burn hotter and cleaner than wet wood chips which helps increase efficiency and reduce emissions. The pellets also have a rela-



The Wild Center

Wild Center solar thermal array.

tively high density compared with wood chips. At the same moisture content, pellets are about 2.5 times denser than wood chips which improves transportation efficiencies and reduces the space required for storage. Also, with the drier fuel, it is possible to have a more compact combustion chamber which is easier to modulate and typically costs less than a system designed to burn green (> 30% moisture content) wood chips. Some of the new small scale commercial systems will also burn chips < 30% moisture which have many of the same advantages for pellets, but are lower cost than pellets. With various options and configurations available, customers can optimize a system to best meet their needs.

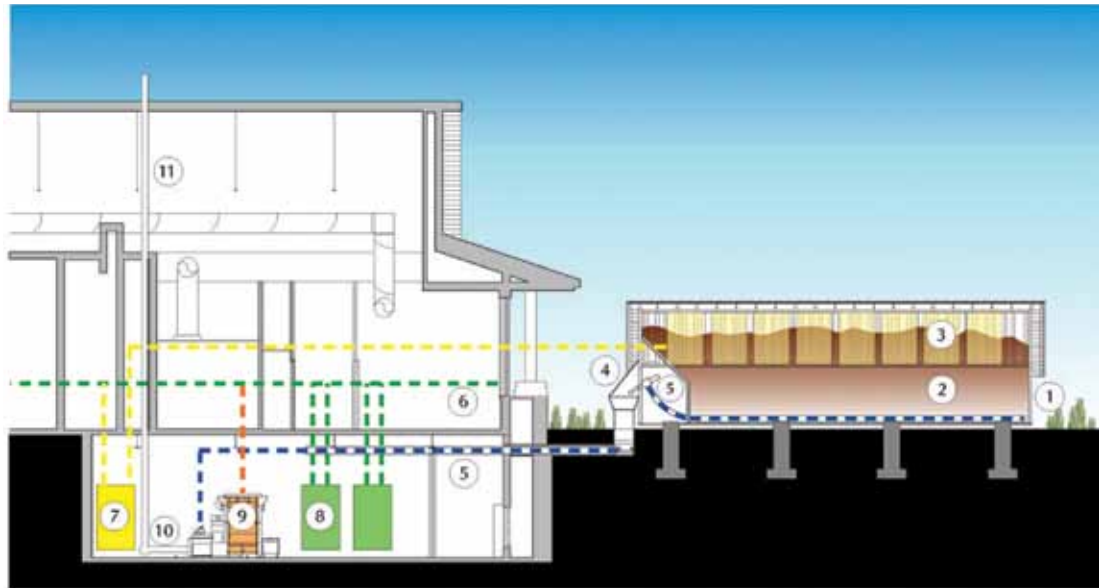
The Wild Center—The Natural History Museum of the Adirondacks—recently installed a 1.7 MMBtu per hour wood pellet boiler manufactured by ACT Bioenergy of Schenectady, New York as part of their ongoing commitment to showcase renewable energy technologies. The Wild Center facility includes 54,000 square feet of exhibit and meet-

ing space and is a LEED Silver certified building. A unique feature of the project integrates the pellet boiler with 300,000 Btu per day capacity of solar thermal panels. The goal is that in the summer, the solar panels will provide most of the hot water required for the commercial kitchen and when there is a space heating need the pellet boiler will provide the heat supplemental solar support when available.

The pellet boiler will replace the propane used by two propane boilers with a total of capacity 3.5 MMBtu/h that were originally installed at the Center and will remain in place as redundancy. Because there are very few days when the peak design capacity of 3.5 MMBtu/h is used, it is expected that the 1.7 MMBtu/h wood pellet boiler will be able to replace 80% to 90% of the propane consumption. By having a smaller-sized wood boiler, the capital costs of the system are decreased and the boiler will operate in the zone of peak efficiency most of the year. Modern wood boilers can typically operate in a zone of peak efficiency between 30% to 100%

FIGURE 1
Wild Center Boiler System

1. Re-used storage container
2. 30 tons of wood pellets
3. Solar thermal panels
4. Pellet distribution display
5. Wood pellet delivery auger
6. Existing museum heating loop
7. Solar thermal storage tank
8. Existing propane fired boilers
9. New wood pellet boiler system
10. Emissions testing equipment
11. Chimney



CS Arch

of their design capacity. Therefore, the 1.7 MMBtu/h boiler will efficiently operate when boiler loads are 500,000 Btu per year or greater. This means the boiler can start earlier and operate longer in the heating season than a larger boiler that has a higher minimum output.

The gasification-type boiler design manufactured by ACT Bioenergy has controls that constantly monitor building heat demands and modulate the boiler operation to meet those demands. ACT is the first in the Northeast to manufacture a high-efficiency boiler based on advanced European boiler designs. The boiler's control system allows it to be operated independently or to work with the building automation system (BAS). These controls allow the boiler's target output temperature to be adjusted based on the measured outdoor air temperature and to determine the sequencing of the various boilers when there is a demand for heat.

The ACT Bioenergy pellet boiler uses pellets manufactured in Massena, New York by Curran Renewable Energy. The wood pellets are the first to be certified by the Forest Stewardship Council

**A vision to achieve
25% renewable-based
heating in the region
by 2025 has been
developed.**

(FSC) which ensures that the mill and the forests where the company sources its wood are well-managed to ensure long-term productivity and to conserve biodiversity.

The pellet storage container is one of the most interesting features of the project. Conceived and designed by CS Architecture of Albany, the container is constructed from a recycled 40 foot long ocean shipping container which is rotated 45 degrees and balanced on its edge. The container now has a "V" bottom for pellets to flow downward into a collection auger that sits at the bottom of the "V". Three hatches were installed on the top of the container for filling the container with pellets. A flexible auger transports the pellets about 30 yards from the container to the boiler which is housed in the basement of the facility. A small

"intermediate" storage bin inside the boiler has an infrared sensor which measures the depth of the pellets in the bin and calls for pellets from the main storage when required (see pictures of boiler system and solar thermal array).

The container roof now also makes a perfect angle for mounting the solar thermal panels. The New York Solar Energy Industries Association (NYSEIA) awarded the project the "Best Building Integrated/Innovative" category in the 2010 6KC Awards which recognizes the best solar projects in New York State.

System Economics

In the 2009-10 heating season, the Center paid an institutional rate of \$1.70 per gallon for propane. Replacing this propane with wood pellets at \$185 per ton reduces the fuel costs by approximately 38% and reduces carbon dioxide emissions by more than 300 tons per year. The project costs were supported with a \$300,000 grant from the New York State Energy Research and Development Authority (NYSERDA) which has supported the project as a demonstration project of clean energy technology.

The expected simple payback for the project is five to seven years without any state incentives.

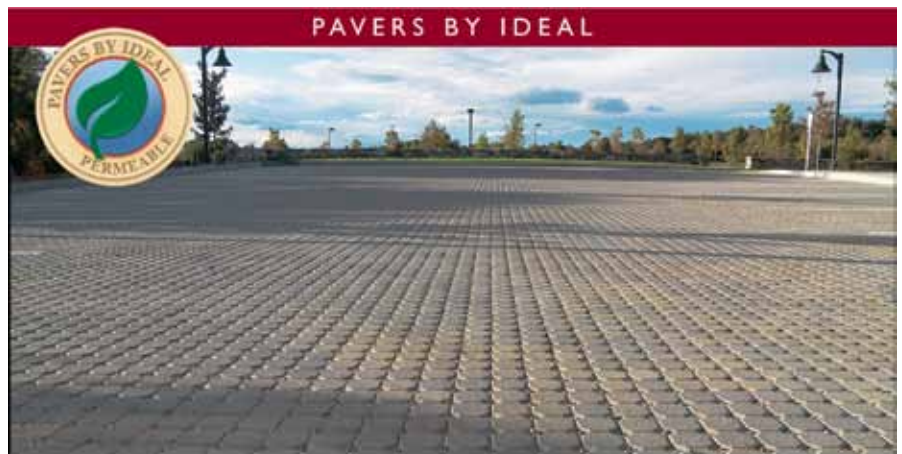
Emissions Monitoring

As part of the NYSERDA support for the project, Clarkson University’s Center for Air Resources Science and Engineering was engaged to test the boiler emissions. The results of the testing was that the pellet boiler emissions were more than five times lower per unit of heat output than the EPA’s residential “White Tag” program for the best performing residential wood boilers. As a result, there are no visible smoke emissions from the stack. Infrequently a white plume is visible when the air is cold enough for moisture in the exhaust to condense.

The Wild Center’s high rate of visitation means the new project will be explained to a large audience that will be able to see the heating technology up close. Visitors will be able to see the pellets on their journey from the storage vessel to the boiler. The interpretation of the system will be added to the museum’s New Path exhibit, which showcases elements of green design and how these features benefit the health of the human and natural world.

The Northeast, with its cold climate and historic dependence on expensive fossil fuels for heating, coupled with the availability of new high-efficiency, user-friendly biomass boiler designs, make the region an area primed for significant growth for biomass heating in the next few years. A vision to achieve 25% renewable-based heating by 2025 has been developed and additional information on biomass heating in the Northeast is available at www.biomass thermal.org and www.nebioheat.org. ■

David Dungate is president of ACT Bioenergy, llc and Director of the New York Biomass Energy Alliance. He is a NESEA member.




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EMPOWERING MICROFINANCE AND REDUCING POVERTY WITH SOLAR ENERGY

BY KIRA COSTANZA

Financial empowerment presents unique challenges for the working poor in the developing world. The opportunity to start or expand a small business would often not be possible without microfinance institutions (MFI). Now boasting billions of dollars invested worldwide, MFI provide tiny loans to the poorest of the poor, enabling them to pull themselves out of poverty. While microfinance is one of the most effective strategies to combat poverty, its impact is significantly constrained due to a lack of reliable electricity.

SunPower Afrique, a 501(c)3 organization founded by a Pennsylvania Sustainable Energy Association (PSEA) board member, is working to connect MFI and their small business clients to solar electricity in Togo, West Africa. Currently 4 million people in Togo, about two thirds of the country's population, live without access to electricity. Production and distribution of electricity (nearly all of which is imported hydropower) are unable to meet demand, resulting in frequent rolling blackouts, interrupted service and large areas of the country where no grid exists. Togo is in a unique position to make use of its greatest and most underutilized resource—the sun—to combat its energy crisis. This summer, SunPower Afrique successfully completed a 5kW PV installation with MFI partner *FECECAV*. *FECECAV* serves over 14,000 people without access to financial services through a network of 13 branches in the Plateau Region of Togo. Nine of these 13 offices operate in rural areas devoid



Joyous at the arrival of SunPower Afrique's cargo from the Port of Lomé, the team transports modules from the shipping container to the roof.

Kira Costanza

of any power source, except in instances where generators can be afforded. All *FECECAV* offices, and all of their clients, lack consistent power even when fortunate enough to be connected to the national electric company.

SunPower Afrique's recent installation on the roof of *FECECAV*'s headquarters will provide reliable, clean power to run computers, lights, fans and other office equipment, as well as serve as a demonstration project for the community to

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EMPOWERING MICROFINANCE

The SunPower Afrique team and trainees, with Executive Director Kira Costanza, Project Engineer Ron Celentano and the completed solar system at FECECAV.



Kira Costanza

embrace solar energy. SunPower Afrique designed an innovative grid-tied PV system with battery backup which has the capacity to provide uninterrupted power at all times. The system can also provide off-grid power for up to two days.

Modules, inverters and all other major components were shipped to Togo from the US, but local materials were sourced as much as possible, including a racking system built from locally grown teak.

SunPower Afrique also sponsored a two-week training program for 11 enthusiastic technicians to design, install and maintain solar systems. Trainees learned everything from Ohms Law to how to square an array to running conduit and wiring. French being the official language in Togo, training required translating as well as adjustments to curriculum and teaching strategies.

To reinforce and participate in the spirit of microfinance, as well as to provide accountability and sustainability, FECECAV will repay 50% of the cost of the solar equipment used in the installation through a low-interest, long-term loan provided by SunPower Afrique.

In the first quarter of 2011, SunPower Afrique looks forward to expanding its programs, carrying out three additional off-grid installations on rural MFI branches and launching a "Solar Loan Program" with FECECAV, which will offer microcredit loans to existing clients who wish to install solar panels



Kira Costanza

Apprentices study basic electrical theory and solar system design. SunPower Afrique's 2.5week long training included classroom exercises as well as hands-on training.

to increase the capacity of their small businesses. This "Solar Loan Program," as well as FECECAV's repayments and continued fundraising efforts, will help to maintain SunPower Afrique's sustainable business model designed to scale operations significantly over the next five to 10 years. ■

Kira Costanza is the Director of External Relations at SunPower Builders, her family's 38-year-old, solar and green design-build firm outside of Philadelphia. In addition to her work at SunPower Builders, Kira is the founder and Executive Director of SunPower Afrique, a 501(c)3 non-profit organization working to connect Microfinance Institutions (MFI) and small businesses to solar PV systems in Togo, West Africa. This project stems from Kira's work on the ground with an MFI in 2008 as a fellow for Kiva Microfunds. She is a NESEA member.

Green Buildings Open House

FEATURED SITES

BY SALLY PICK



Converting an Historic Home into a Showcase Energy-Efficient Office

James Petersen looked at this old Portsmouth, New Hampshire home in disrepair (built circa 1800) and saw an opportunity to preserve its historic character and make it sustainable through energy efficiency. He envisioned locating his offices of Petersen Engineering here and making it a showcase for the sustainable building engineering systems that they design.

The largest phase of the project was rebuilding the enclosure, which has to be done all at one time. This involves installing six inches of extruded polystyrene rigid foam board (“blue/pink board”) beneath a new roof and adding three inches of foam board on the outside of the walls beneath the new siding. As they insulate the outside of the building envelope, replace windows, build out the roof overhang, and replace the sill, their builders, Bruss Construction, have “been meticulous about air sealing,” says Petersen.

Petersen anticipated that working with the Portsmouth Historic District Commission would result in delays and obstructive regulations. Instead, he was pleasantly surprised at how receptive they were to the proposal to install continuous insulation on the roof and outside walls, essentially fattening the entire structure while “retaining the 200 year old architecture.” The commission gave the project an unprecedented unanimous approval.

Surprisingly, the offices have been occupied since the start of the project, with minimal disruption. In the end, according to Petersen Engineering’s blog documenting the building’s progress, “The projected peak heat loss reduction is 85%,” with that level of performance, they will have achieved their dual goals of a deep energy retrofit while maintaining the historic integrity of the building. When asked about how the building will be heated and cooled, Petersen remarked that they are “not going to do much of it.”

Engineer: Petersen Engineering
Builder: Bruss Construction
Owner: Petersen Engineering

LEFT: Builders fatten the outside walls with a continuous layer of three inches of extruded polystyrene rigid foam board. RIGHT: The complete project.

Green Building Highlights

- Continuous extruded polystyrene insulation on roof (6 inches, R-value 30) and outside walls (3 inches, R-value 15) which adds significant energy efficiency but does not change the historic appearance of the building.
- Meticulous sealing of air leaks.
- Projected peak heat loss reduction 85%.
- Mechanical ventilation with a heat or energy recovery ventilator.
- LED fixtures on the building’s exterior.
- Small shade trees in front southeast and southwest corners.



PV panels at 257 Lafayette Center.



The parking area at 257 Lafayette Center acts as a collection basin for a the native plant rain garden (in the foreground) that puts the water to good use.

Retrofitting a Former School Building into a Mixed Use 34,000-Square-Foot Green Space

257 Lafayette Center, a massive three-story former school building, was built in Buffalo, New York in 1928. By the time the building was purchased in 2008 by 257 Lafayette LLC, it had been empty for three years. Graffiti adorned the walls, and the building was partially boarded up, according to Karl Frizlen, one of the owners and the project architect. Over the last several years, the site has been converted into apartment lofts on the second and third floors, and professional office incubator and daycare space on the ground floor, bringing new vibrant energy into the community.

Because historic tax credits financed the development, Frizlen explained that “any changes had to be approved by SHPO (the New York State Historic Preservation Office).” 257 Lafayette Center is now an historic landmark.

Frizlen also sought to design an energy efficient building and, at times, had to find creative solutions that married SHPO’s requirements with efficiency measures. The windows offer an example. SHPO did not allow replacement windows. Instead, they gave the owners permission to install outside storm windows, which improve their U value by 100 percent; the “middle rail of the storms had to match exactly the middle rail of the windows,” noted Frizlen. SHPO did not allow Frizlen

to cover the original plaster walls, so they could not insulate them. Fortunately, the 18-inch thick brick walls act as a large thermal mass, taking a day or two to react to outside temperature changes. The builders, Johnson & Sons, air sealed the building, especially in the attic, and blew in cellulose insulation into the attic, for an R-value of 60. Otherwise, the building did not require much air sealing because, as a designated bomb shelter, it was tightly sealed. Even with SHPO’s restrictions, the building’s overall energy performance is still 28 percent above current building code requirements, qualifying it as an Energy Star rated building.

The New York State Energy Research and Development Authority (NYSERDA) provided incentives for energy efficiency measures. They did not allow compact florescent bulbs in the apartments for fear that tenants would exchange them with incandescent bulbs; instead, apartments are lit with tube, pin type fluorescent fixtures that are not easily replaced with less efficient lighting. The building also includes Energy Star appliances, radiant floor heating, heat recovery ventilation, instantaneous hot water, and a 30 kW photovoltaic system that provides approximately 33 percent of the building’s electrical needs.

Frizlen added other environmental features and measures, trying to follow Leadership in Energy and Environmental Design (LEED) guidelines but did not seek LEED certification because the LEED process was not able to keep up with the pace of the restoration. They re-used all

doors and windows and much of the original hardware and had little waste from the demolition process. They took what waste they could to recycling centers and public sales. Wood was re-used in the building, and the daycare center took much of the old school furniture. A local solar company installed the PV. Rainwater runoff from the parking lot drains into a rain garden, planted with native wetland species.

Architect/Designer: Karl Frizlen

Builder: Johnson & Sons

Owners: 257 Lafayette, LLC, co-owned by Karl Frizlen, Architect, and Paul Johnson, General Contractor

Green Building Highlights

- Annual overall energy consumption is 28% better than code, qualifying it as Energy Star rated.
- 30kW photovoltaics installed in 2009, providing about 33% of building’s electrical demand.
- Windows retrofitted with Kaufman storm windows.
- All original doors and windows re-used.
- Attic insulated with loose fill cellulose to R-60.
- Radiant floor heating.
- Energy Star rated appliances.
- Rainwater from parking lot collected in native plant rain garden.

Building an Eco-Village in Western Massachusetts

In 2000, Charles Lappen met Bill Cole, and they shared their visions of an intentional community. That vision is coming to life in the form of Katywil eco-village, in the small, hilly, western Massachusetts town of Colrain, where Lappen now lives. Cole founded Katywil, naming it after his grandparents, Kate and Will, and Lappen's home is the first built here.

Graduate students from the Conway School of Landscape Design in Conway, Massachusetts, developed a master plan for the village, incorporating ecological characteristics such as wetlands, rare species, and soil types with planned features such as good sun exposure for photovoltaics, a variety of gardens, hiking trails, and a community building. The houses are clustered on 12 acres, leaving the remaining 100 acres as open space.

Katywil fits Lappen's long-held commitment to energy efficiency, as the homes in this community have "a lower impact on the environment than a standard house,"

he explains. Lappen's house follows Katywil's standard house plan. Emphasizing simplified living, "each house will be 1,350 square feet, roughly half the size of the average new house now built in the Northeast," according to Katywil's website. The typical three-bedroom Katywil house, built to detailed specifications on a ¾ acres lot, costs \$400,000. The modest square footage leads to low energy costs. In his first year living in this home, Lappen paid \$900 in electricity, including energy used to heat with an air source heat pump. He bought a cord of wood for \$175, to supplement the heat pump with the soapstone wood stove, but did not use the entire cord.

Cole feels that it has "been a real gift to work with [Dole Brothers, Inc.]," a company that is experienced in energy efficient building. To ensure a tight building envelope, they performed a blower door test when the house consisted only of cladding, windows and doors and no insulation. Typically, builders, including Dole Brothers, perform this test for air leaks farther into the building process, after insulation and walls have been installed. By testing at an earlier building stage, the builders were

able to more easily identify and seal air leaks in the structure; they now caulk houses as they build the frame, according to Cole. The house was built with double-walled construction, allowing for dense packed cellulose, or as Lappen joked, "blue jeans and romance novels," to insulate to R-45. Dense packed cellulose is, in fact,

CONTINUED ON NEXT PAGE

Green Building Highlights

- Double-walled construction, allowing for dense packed cellulose with an R-value of 45.
- Ceilings with R-value of 55.
- Earth sheltered on north side.
- Air source heat pump with 2 Mitsubishi mini-splits.
- Solar hot water system.
- Tubing installed to allow for future radiant floor heat from solar thermal panels.
- 2-foot roof overhangs to shade summer sun.
- Root cellar.
- Plans for community PV and micro hydropower.



Doug Mason



Doug Mason



Charles Lappen

LEFT: The interior of this home feels light and spacious, with vaulted windows letting in additional light. BELOW: Insulation and radiant flooring installed to allow for future hookup to the solar hot water system. Katywil eco-village in Colrain, Massachusetts. This 1,350 square foot house is the first home built at Katywil eco-village to the community's standard high efficiency specs.

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made from recycled cotton and paper fibers. The roof, also insulated with cellulose, has an R-value of 55. Solar thermal panels provide Lappen with hot water; an electric hot water tank supplements the solar system, when needed. An earth-sheltered design tucks the north side of the house into the hill, protecting it from cold north winter winds. The siding is made from durable cement siding called HardiePlank, which looks much like wood clapboards but provides long-term durability, holds paint for many years and will not rot.

Inside the house, window wells are covered or narrower at the window frame and tapering out at an angle, to let in more light from the thick walls. A two-foot over-hang of the eaves shades out hot summer sun, keeping the interior cool even on the hottest days. Lappen brought in Lux Lighting Design of Belmont, Massachusetts, to design low energy lighting. All lights are low voltage and high intensity, and most are on dimmers. For example, his living room has LED cove lighting, with lights aimed at the ceiling, making it glow. Austin Design planned for Katywil homes to be low-maintenance and to allow its residents to age there, with wheel-chair accessible ramped entrances, wide doorways, no thresholds, and a first floor roll-in shower.

The Katywil community is in the planning stages of generating its own energy, a stated goal, by installing photovoltaics on the roof of a community garage and small in-stream micro hydropower turbines in a stream on site. Both of these power sources will be distributed to the houses at Katywil and grid-tied. The power will also charge batteries to be stored in the garage, providing back-up power should the grid go down. Each homeowner is asked to produce a "frugal plan" to show how they would run their home on 1.5 to 2 kW a day, in the case of a power outage, to allow each household to have enough power for basics such as water pumps and intermittent computer usage.

Community Founder: Bill Cole

Homeowner: Charles Lappen

Builder: Dole Brothers, Inc.

Architect: Bill Austin of Austin Design, Inc.

Book Review

Losing Our Cool: Uncomfortable Truths About Our Air-Conditioned World (and Finding New Ways to Get Through the Summer)

By Stan Cox

New Press, 2010
272 pages, \$24.95 (Hardcover)

Reviewed by Lucia Green-Weiskel

It's not an obvious choice to read a book about air conditioning. Yet, without getting much attention, climate control is central to our life. Air conditioning influences economic development, community building, medicine, art, culture and even politics. It has allowed people to populate—in increasingly greater numbers—the traditionally uninhabitable parts of the earth's surface. And some say it will likewise allow us to live in a future where climate change has made even the habitable parts of Planet Earth unlivable.

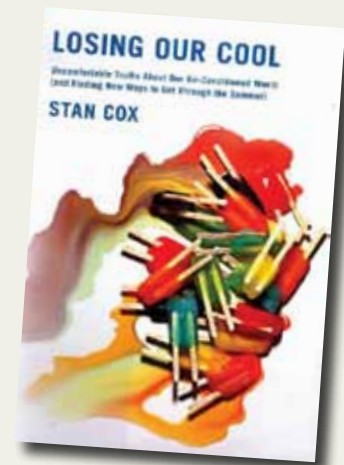
Cox explores trends that are central to the aspiration of the American way of life: From McMansions and the increasing size of the average home, ubiquitous central air, sprawling suburbs, a growing commuter culture and mega-malls (and an 87,000 square foot indoor, air-conditioned flea market in Florida), to southern migrations, both for people and industry, and even to wars in tropical countries. The thread linking these together is our ability to control indoor climates and the creeping progression of air conditioning from a luxury to a necessity.

But these trends gave birth to other phenomena more worrisome: the “heat island” and “heat canyon”

effects, water shortages, indoor pollution, a decline in outdoor activity and spontaneous and planned community events, childhood and adult obesity and the rise of ghost cities in the summer as people stay indoors huddled in front of their air conditioners while temperatures spike outside. Cox points out that home air conditioning reduces the chances that people will end up in a place where they are likely to encounter a neighbor or a stranger, thus eliminating many of the interactions that facilitate the development of community.

But this book cannot be summarized as a one-sided diatribe against the evils of air conditioning. The author emphasizes that climate control is also responsible for many of the improvements in our lifestyles: the declines in diseases and infant mortality, the improvement of micro surgery and the production of certain drugs as well as allowing us to maintain a business dress code year round. Indeed, climate control has made much of the economic productivity in places like Phoenix, Houston, and Atlanta possible. “I wrote this book to reopen the debate over whether our indoor environments should be refrigerated,” the author claims in the book's preface.

Regarding our energy consumption habits, air conditioning is a new angle on an old story: Americans consume more than our proportionate share of energy and it's unsustainable. But what about developing countries—many of them with tropical climates? This book so successfully addresses the unsustainable energy trends related to air conditioning in the US, we can only wonder what will happen when affluence and its associated demands spread in the developing world. (A chapter on India illustrates this well.) Cox does not solve this conundrum but he does articulate the



problem well and then proceeds to drop it and all its heft into your lap. The final chapter offers some solutions for home owners and policy makers—both technology- and non-technology-based, which provide some tangible suggestions about where we go from here (and how to find new ways to get through the summer, as the subtitle suggests).

Losing Our Cool is a nerdy beach read, packed with facts, observations and quotes ready to be taken from the page to your next cocktail party. Cox is thorough and persistent. He does his homework so you don't have to do yours. We learn not only of the larger trends but also about more efficient methods to keep buildings at comfortable temperatures. ■

Lucia Green-Weiskel works on climate change policy at the Innovation Center for Energy and Transportation, a non-governmental policy center based in Beijing, China. She is also Editor of this magazine.

Book Review

Climate Wars: The Fight for Survival as the World Overheats

By Gwynne Dyer

Oneworld
Publications, 2010
288 pages

\$24.95 (Hardcover)

Reviewed by Joel Gordes

As a book, this provides me with what psychologists sometimes refer to as approach avoidance conflict. While I am pleased that the book was written, I'm not sure that Gwynne Dyer was exactly the right person to have written it, as scientific subjects in general, and climate change in particular, are not areas in which, by his own admission, he enjoys any degree of expertise. Still, in spite of that, as someone who does have some expertise in international affairs, he is able to translate some of the science into a number of scenarios that might occur where the effects of climate change could add to the likeliness of conflict.

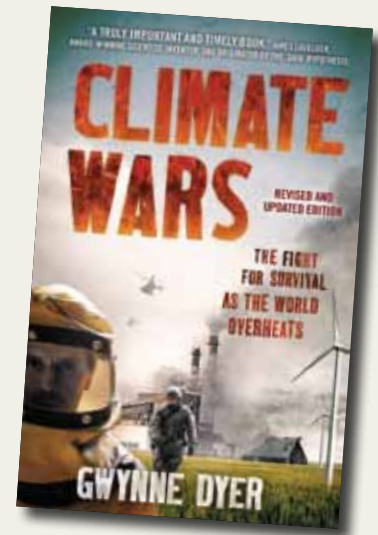
In examining the book, I was also struck by the very few reference sources listed in the rear from which he drew his background and expertise. I believe he missed an opportunity to interview a number of other knowledgeable people who could have added greater substance to his arguments.

What he has provided is a fairly easy read for anyone who wants to further examine the relationship of climate change in promoting conflict which falls under the more general category of environmental security. Greg Foster, West Point

graduate and professor at the National Defense University, defines it as "... the intellectual, operational, and policy space where environmental considerations and security concerns converge."

It is Dyer's imagination in creating the eight scenarios that is the highlight of the book and his most redeeming factors. They paint some very vivid pictures of what an increasingly hotter world might mean in terms of water supplies, food supply, mass human migration, superstorms, and the spread of disease, all of which can be precursors to outright warfare. He does this in an imaginative, almost novelistic, form. He mixes real people from the present with almost-believable characters he invents to provide either what has already happened or what will happen over the next 165 years as our global temperatures march upward to as much as 9 Celsius degrees higher.

Dyer's real value may be his ability to shock the sensibilities, and that might be precisely what is needed today as the climate issue has become so bogged down that it has all but fallen off the national agenda. With climate change, we will need a lot more than the existing "true believers" to convince our elected officials to set targets and timetables to meet the long-term goals. Indeed, the climate change issue has not ranked particularly high in importance compared to issues such as the economy and the many forms of security (national, employment, economic). In many ways, anything attached to environmental issues is looked upon as being mostly discretionary and something that we can only afford when we have a strong economy. Missing is the concept that to truly have a strong economy and, hence, strong national security, you must have a strong environment as a cornerstone.



Finally, Dyer does not have much promising to say about people changing light bulbs or putting up solar panels as a way to stave off these threats. Like environmental sage Lester Brown in his book, Plan B: Mobilizing to Save Civilization, he sees nothing short of massive efforts. He even encompasses geoengineering through such schemes as dumping iron filings into the oceans to promote algae blooms that would suck up more CO₂ or firing sulfate aerosols into the upper atmosphere to reflect incoming light from the sun. Both are desperate measures that could do more harm than good.

So, get it and read it at your own risk but don't blame me for any resulting nightmares. ■

Joel Gordes has worked in passive and active solar R&D, design and sales. He is a long-time NESEA member and serves on NESEA's BE Planning Committee and the Editorial Committee for this magazine.

Together We Can Accomplish So Much!

Special thanks go out to all NESEA members, both new and renewing. The following is a list of all new members who joined between July 2009 and June 2010 at levels above our basic membership. We would also like to extend our sincere gratitude to our Lifetime Members for their unyielding support.

July 2009–June 2010

New Members

Robbin Adams
Caleb Aho
Jeffrey Allsopp
Joe Arruda
Nils Behn
Bruce Bennett
Kobe Biederman
Bruce Biewald
Anne Bijur
Andy Black
James Bone
Gregory Bowden
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Tim Cahill
Will Calhoun
Paul Callahan
Marc Caluwe
Joseph Camilo
Maria Chao
Gary Clark
Clayton Cole
Steve Condon
David Coomer
David Cooper
Dwayne Cormier
Robert Couch
Matt Crawford
Patrick Cullen
Lisa Cunningham
Matt Currier
James Curry
David Dahle
Jim Damicis
Anthony D'Amore
Julie DeMello
June DePasquale
Jamie Devol
Adam Dolan
Lise Dondy
Ken Driscoll
Jerry Drummond
Scott Dunn
Joshua Eisenberg
Luke Falk
Peter Feinmann
Pete Fine



NESEA members gathered for the 2008 Annual Meeting at the Woods Hole Research Center in Falmouth, Massachusetts.

Tracy Fitz
Glenn Fitzpatrick
Kim Frase
Paul Freeman
Mark Froling
Joerg Gaebler
James Gamble
Mark Garvey
Roger Gaydou
Travis Genatossio
Jeffrey Gephart
Alan Gibson
Michael Gray, AIA
Cynthia Greene
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Don Gringas
Susan Gurry
Steven Guzda
Jonathan Halle
Sonia Hamel
Joe Haskett
Ted Hellier
Mary Ellen Hickey
Kent Hicks
Chris Higgins
Christine Hogan
Natalie Howlett
Frank Iadarola
Bill Jackson
Christopher Johnston
Colette Kabasakalian
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Dawn Martin
Ian Mazmanian
Jim McDerby
Bob McEachern
Amy McMahon
Stephanie & Jim Meehleder
Dan Mercer
Jon Mitton
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Charlie Niebling
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Karen Peck
Joe Pellegrino
Teresa Petit de Mange
Dennis Phayre
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Larry Rice
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Chuck Russo
Bart Sapeta
Clayton Schuller
Michael Schunk
David Smith
Melissa Soucy
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Carter Wall
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Sustainable Green Pages

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The Sustainable Green Pages consists of two parts: a listing of 52 green energy **specialties by state** and an **alphabetical listing** of all companies listed in the directory. If you already know the name of the company you want to find, go directly to the alphabetical listing for contact information. Alternatively, for example, to locate a solar panel installer in New Jersey whose name you do not know, look up the list of company names under the specialty "Photovoltaics." They will be organized by state. You can then get more information about the individual companies in the alphabetical listing. This information is also available on NESEA's website www.NESEA.org where information is updated daily.

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- Building Design/Construction
- College/University
- Communications
- Consultant
- Consumer Information
- Domestic Water Heating
- Electric & Hybrid Electric Vehicles
- Energy Audit Services
- Energy Conservation
- Energy Monitoring
- Energy Storage
- Environmental Education
- Finance/CPA
- Fuel Cells
- Geothermal
- Green Electricity
- Home Inspections
- Human Powered Vehicles
- Hydroelectric
- Indoor Air Quality
- Insulation
- Insurance
- I.T.
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- Lighting Supply
- Marketing
- Manufacturing
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- Other Transportation Technologies/Services
- Pavement
- Photovoltaics
- Printing
- Public Policy
- Public Relations
- Publishing
- Radiant Heating
- Real Estate
- Retail
- Remodeling
- Research
- Roofing
- Social Services
- Solar Hot Water
- Space Heating/Cooling
- Waste Water/Solid Waste
- Wind
- Windows

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Advanced Composting Systems
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Weston Solutions, Inc.

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Foard Panel
Green Energy Options
Green Woodlands
GreenSource Energy Solutions, LLC
KW Management, Inc.
Plymouth Area Renewable Energy Initiative
Public Service Company of NH

NY

ACT Bioenergy
Adirondack Alternate Energy
Northeast Solair
NYSERDA

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Alteris Renewables
Gem Plumbing and Heating
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William Maclay Architects & Planners

BIOMASS

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The Sandri Companies
Vanasse Hangen Brustlin, Inc.

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Bio Heat USA
Froling Energy
NC Electronics, Inc.
New England Wood Pellet, LLC
Optimal Energy Solutions, LLC

NY

ACT Bioenergy

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Architecture Involution, LLC
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Bonview Corporation
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Bourke Builders
Bruner/Cott
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Byggmeister, Inc.
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D & D Electrical/Solar Installation
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Dietz & Company Architects, Inc.
Dunn Construction Co.
Eco+Plan Architecture, LLC
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ERS—Energy Resource Solutions
EvB Design
Feinmann, Inc.
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Flynn High Performance, LLC
Fortress Green Building Supply
Gougeon & Locke
Hill Builders
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Ives Architects
Jamie Devol, Architect
John Fülöp Associates, Architects & Planners
Kate Mitchell, Attorney-at-Law
Kent Hicks Construction Co.
Kraus-Fitch Architects, Inc.
Kuhn Riddle Architects, Inc.
KVS Design
Maple Hurst Builders, Inc.
Margo Jones, Architects

Mazmanian Design Company, Inc.
 Nashawtuc Architects, Inc.
 Noble Home, LLC
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 and Engineering
 Penguin ICF, LLC
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 S&H Construction
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 Maine Passive House
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 Stewart Brecher Architects
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 Phinney Design Group
 Stephen Tilly, Architect

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Atlantic Heating &
Air Conditioning, Inc.
Cellu-Spray
ECS, Inc.
ERS-Energy Resource Solutions
FLIR Systems

NH
George Malette

NY
Chuck Russo Heating & A/C, LLC
Novus Engineering, PC

VT
Ra Solar Company

INSULATION

CT
E.R.G.T., Inc.
Energy Independence Now, LLC
Green Star Insulation

MA
A+E Architects
AirSealing America, LLC
Andersen Home Builders, Inc.
Cellu-Spray
Lockwood Construction Company,
Inc.

National Fiber
Next Step Living
Paul Huijing, Inc., Construction
and Engineering
Penguin ICF, LLC
Resolution Energy
Sustainable Retrofits

ME
Gendron Construction Services

NH
Brooks Post & Beam, Inc.
Building Energy Technologies, LLC
Energy Saver Enablers, LLC
Preferred Building Systems

NY
Adirondack Alternate Energy

RI
Branch River Plastics, Inc.
Icynene Spray Foam Insulation

VT
Window Quilt

INSURANCE

MA
FieldEddy Insurance
Malcolm & Parsons Insurance
Agency, Inc.

NY
Cronk Agency, Inc.

**LANDSCAPE DESIGN/
CONSTRUCTION**

MA
Austin Design, Inc.
Royer Architects
Salmon Falls Ecological Design
Sasaki Associates, Inc.
Vanasse Hangen Brustlin, Inc.

NY
Anthony J. Musso, Architect
In Site: Architecture
Stephen Tilly, Architect

VT
Cushman Design Group, Inc.

LEGAL

MA
Kate Mitchell, Attorney-at-Law
McCauley Lyman, LLC

NY
The Knoer Group, PLLC

LIBRARY

NH
Dartmouth College
Keene State College
University of New Hampshire

VT
Green Mountain College
Sterling College

LIGHTING DESIGN

MA
D & D Electrical/Solar Installation
ERS—Energy Resource Solutions
Hill Energy Services, LLC
Hunter Panels—Sun Optics
Kuhn Riddle Architects, Inc.
M.L. Schmitt, Inc.
Olga Kahn

Practical Solar, Inc.
SolarOne Solutions, Inc.

NH
Gate City Electric
Reno Engineering and Light Design

NY
Anthony J. Musso, Architect
Novus Engineering, PC

PA
Lutron

VT
Cushman Design Group, Inc.

LIGHTING SUPPLY

MA
Fred Davis Corporation

PA
Lutron

MANUFACTURING

MA
Matkim Industries, Inc.

MARKETING

CA
OnGrid Solar

MA
Clear Communications
Recycled Paper Printing

NY
Verdentify

RI
Green Machine PR
New Commons

**OTHER RENEWABLE
ENERGY GENERATION**

CT
Engineered Alternatives

MA
Cape Green Energy—
Cape Cod Stove Co.
Dennis K. Burke, Inc.
Mass Energy Consumers Alliance
of New England
National Grid
NSTAR
Solect, Inc.

NH
NC Electronics, Inc.
R.L. Benton—Builder
Trumbull-Nelson Construction
Co., Inc.

NY
City Solar

PA
SRECTrade

RI
Earthwise Energy Technologies
Stephen Greenleaf Architect

Alphabetical List

VT

groSolar
Robert L. Spencer, AICP—
Environmental Planning
Consultant

OTHER TRANSPORTATION TECHNOLOGIES/SERVICES

MA

Cape & Islands Self-Reliance Corp.
Dennis K. Burke, Inc.
Special Services

PHOTOVOLTAICS

CANADA

Matrix Energy, Inc.

CA

OnGrid Solar

CT

Aegis Electrical Systems, LLC
Alteris Renewables
Burrington's Solar Edge
Consulting Engineering Services
Energy Independence Now, LLC
New Leaf Photovoltaics, LLC
Sun Electric, LLC
Sunlight Solar Energy, Inc.
Technipower, LLC

MA

"A" Alternate Energy Center
A+E Architects
Absolute Green Energy Corporation
Aldon Electric
Allain & Son, Inc.
Alteris Renewables
AMERICAN CAPITAL ENERGY
Architecture Involution, LLC
Arrowstreet, Inc.
Atlantic Heating &
Air Conditioning, Inc.
Blue Selenium Solar, Inc.
Bonview Corporation
BPVS, Berkshire Photovoltaic Services
Cape & Islands Self-Reliance Corp.
Cotuit Bay Design, LLC
Cotuit Solar
D & D Electrical/Solar Installation
E2 Solar, Inc.
Energy Farm, LLC
GreenBridge Energy Consortium, LLC
Grenergy Solar Store, LLC
Higgins Energy Alternatives
IES Commercial, Inc.
M.L. Schmitt, Inc.
Mark Allen Electric & Solar
Mass Renewables
New England Breeze, LLC
Nexamp, Inc.
NorthEast Solar Design Associates
PowerDash
Precision Decisions, LLC
S&H Construction
Second Generation Energy
Solar Installation, LLC
Solar Store, Greenfield
SolarOne Solutions, Inc.
Solect, Inc.

Solectria Renewables
SouthPoint, LLC
SunDrum Solar
Sunrise Energy
Transformations, Inc.
Turn Key Builders, Inc.
Wagner Solar, Inc.
Walden Street Web Services
Zapotec Energy, Inc.

ME

Alteris Renewables
Heliotropic Technologies
Solaris, LLC
Solarmarine, LLC

MI

Jac-Rack

NH

Adros Energy
Alteris Renewables
DNL Energy, LLC
Frase Electric, LLC
Green Energy Options
GreenSource Energy Solutions, LLC
Nashua Energy Options, LLC
NC Electronics, Inc.
Seacoast Energy Alternatives Inc.
(SEA Solar Store)
Solar Components Corporation
Solar Hydronics & PV
Solar Source—A Division of
Home-Efficiency Resources, LLC
Solterra Renewable Energy, LLC
Southern Exposure Trading Co.
TNT Electrical Contractor, LLC

NJ

ABSOLUTELY ENERGIZED
Solar Electric, Inc.
Alteris Renewables
Amberjack Solar Energy
Bergen County Solar
New Age Solar, LLC
Nogginhaus
SunRay Solar, Inc.

NY

A—Best Energy Power
Alteris Renewables
City Solar
ETM Solar Works
Go Solar, Inc.
Halco Renewable Energy
ISI Solar
New York Wind & Sun, LLC
Renovus Energy, Inc.
Solar & Wind FX, Inc.
Upstate Solar, LLC

PA

Alteris Renewables
Heat Shed, Inc.
Solair Energy, Inc.
Solar Electric Power Systems, Inc.
SRECTrade
SunPower Builders

RI

Alteris Renewables
Gem Plumbing and Heating
Heartwood Group, Inc.

VT

AllEarth Renewables
Alteris Renewables
DC Energy Innovations
groSolar
Integrated Solar
Robert A. Caneco Architect, R.A.

PUBLIC POLICY

CT

Enviro Energy Connections
PAH Associates

MA

Center for Ecological Technology
(CET)
Hamel Environmental Consulting
M. J. Bradley & Associates, LLC
Mass Audubon
Synapse Energy Economics
TRC Companies, Inc.
Urban Habitat Initiatives
Vanasse Hangen Brustlin, Inc.

ME

PolicyOne Research

NH

New England Wood Pellet, LLC

NY

The Knoer Group, PLLC

PUBLIC RELATIONS

MA

Clear Communications
Hamel Environmental Consulting

RI

Green Machine PR

PUBLISHING

MA

Recycled Paper Printing

RADIANT HEATING

CT

A&B Cooling and Heating Corp.

MA

"A" Alternate Energy Center
Andersen Home Builders, Inc.
MacDougall Plumbing and
Mechanical, LLC
NorthEast Solar Design Associates
Renewable Energy Systems, LLC
SunDrum Solar

ME

Solarmarine, LLC
Solartech Contractors, Inc.

NH

Optimal Energy Solutions, LLC

NY

Ingersoll Painting & Construction, Inc.

PA

Ross Mechanical Group

VT

Robert A. Caneco Architect, R.A.

REAL ESTATE

CT

Good Earth Real Estate, LLC

MA

EcoRealty
Solect, Inc.

NH

Build Green NH

NJ

Urban American

REMODELING

CT

Philippe Campus Architect, LLC
Wolfworks, Inc.

MA

Amacher & Associates, Architects
Andersen Home Builders, Inc.
Austin Design, Inc.
Azimuth Construction, Inc.
Bay State Design, Inc.
Beaton Construction
Bourke Builders
Byggmeister, Inc.
Cape Painting & Carpentry, Inc.
Capizzi Home Improvement
Cellu-Spray
CHAO designs
Coldham & Hartman Architects
David Whitney Architect
Feinmann, Inc.
Flynn High Performance, LLC
Gougeon & Locke
Hill Builders
Innovative Building & Design
INTEGRATA Architects
Jamie Devol, Architect
John Fülöp Associates,
Architects & Planners
Kraus-Fitch Architects, Inc.
Kuhn Riddle Architects, Inc.
KVS Design
Nashawtuc Architects, Inc.
O'Hara Builders, Inc.
Olga Kahn
Panich + Noel Architects
Paul Huijij, Inc., Construction
and Engineering
Polanik Architects
Sage Builders, LLP
Seaside Solar Design/Builders
The Valle Group, Inc.
Turn Key Builders, Inc.
Verdeco Designs, LLC
Westcott G. Clarke General
Contracting & Design, Inc.
Wright Builders, Inc.

ME

Maine Passive House
Taggart Construction, Inc.
Thomas E. Hitchins & Associates
Architecture and Planning

NH

Brooks Post & Beam, Inc.
Build Green NH
Christopher P. Williams Architects,
PLLC
Cobb Hill Construction
Isaak Design, PLLC
Little Green Homes, LLC
Mancusi Builders, LLC
Michael Greene Architecture
Pinkham Building & Solar Services
Sunset Builders, Inc.
Zetland Homes, LLC

NY

Anthony J. Musso, Architect
Green Home Consulting, LLC
Ingersoll Painting & Construction, Inc.
Phinney Design Group
Stephen Tilly, Architect

PA

Bakker & Lewis Architects

RESEARCH**CT**

PAH Associates

MA

Bay State Design, Inc.
Greener Every Day
Hamel Environmental Consulting
Massachusetts Renewable
Energy Trust
Noble Home, LLC
Synapse Energy Economics
U.S. EPA, Solid Waste Reduction
and Global Climate Change

ME

FutureMetrics
Kaplan Thompson Architects
PolicyOne Research

NH

Green Woodlands
NC Electronics, Inc.

NY

NYSERDA
Phinney Design Group

RI

New Commons

VT

Robert L. Spencer, AICP—
Environmental Planning
Consultant
Vermont Energy Investment
Corporation
William Maclay Architects & Planners

RETAIL**MA**

Co-op Power
Horner Millwork
Hunter Panels—Sun Optics
Matkum Industries, Inc.

NH

Green Energy Options

NY

Upstate Solar, LLC

ROOFING**MA**

Capizzi Home Improvement
CBI Consulting, Inc.
Coppinger Builders, LLC
Hunter Panels—Sun Optics
Weston Solutions, Inc.

NJ

New Age Solar, LLC
SunRay Solar, Inc.

PA

Tremco Incorporated

SOCIAL SERVICES**MA**

HAP, Inc.
Urban Habitat Initiatives

SOLAR HOT WATER**CT**

VELUX

MA

Alteris Renewables
Blue Selenium Solar, Inc.
E2 Solar, Inc.
Energy Farm, LLC
NorthEast Solar Design Associates
Renewable Energy Systems, LLC

ME

Alteris Renewables
Earthnet Energy/
Hammersaw Solar
Solartech Contractors, Inc.

NH

Alteris Renewables
Solar Components Corporation

NJ

Alteris Renewables
Bergen County Solar

NY

Alteris Renewables

PA

Alteris Renewables
SRETrade

VT

Alteris Renewables

SPACE HEATING/COOLING**CANADA**

Matrix Energy, Inc.

CT

BBT Mechanical Services, LLC

MA

Alpine Solar Heat and Hot Water
Clark Sustainable Energy
Co-op Power
Eastern Solar Services
F.A.I. Mechanical Contractors
Innovative Building & Design
MacCo Energy
MacDougall Plumbing
and Mechanical, LLC

NTS-Solar

Practical Solar, Inc.
Renewable Energy Systems, LLC
RST Thermal
Seaside Solar Design/Builders
Solar Store, Greenfield
The Green Engineer, LLP
The Sandri Companies
Vanderweil Engineers
Wagner Solar, Inc.

ME

Solaris, LLC

NH

Bio Heat USA
KW Management, Inc.
New England Wood Pellet, LLC
Optimal Energy Solutions, LLC
Petersen Engineering, Inc.
Water Energy Distributors, Inc.

NJ

EAM Associates
Eastern Heating and Cooling
Council

NY

ACT Bioenergy
Chuck Russo Heating & A/C, LLC
Northeast Solair
Upstate Solar, LLC

PA

J. W. Crouse, Inc.
Ross Mechanical Group

RI

Thermal Reserve, LLC

VT

Integrated Solar

**WASTE WATER/
SOLID WASTE****MA**

Clivus New England, Inc.
Tighe & Bond, Inc.

PA

Cardinal Resources, LLC

WIND**CANADA**

Thermotech Fiberglass Fenestration

CT

Alteris Renewables
AW Hastings Co.—
Integrity Windows and Doors
VELUX

MA

A+E Architects
Allain & Son, Inc.
Alteris Renewables
Architecture Involution, LLC
Blue Selenium Solar, Inc.
Boston Green Building
Cape & Islands Self-Reliance Corp.
CBI Consulting, Inc.
Cotuit Solar
Great Rock Windpower
Higgins Energy Alternatives
Horner Millwork

New England Breeze, LLC
New England Window Systems, Inc.
Vanasse Hangen Brustlin, Inc.

MD

National Fenestration Rating Council

ME

Alteris Renewables

NH

Alteris Renewables
Building Energy Technologies, LLC
DNL Energy, LLC
Don Pouliot Home Improvements,
LLC
Seacoast Energy Alternatives, Inc.
(SEA Solar Store)

Southern Exposure Trading Co.
TNT Electrical Contractor, LLC

NJ

Alteris Renewables
Nogginhaus
Viridian Energy

NY

Alteris Renewables
ETM Solar Works
Go Solar, Inc.
New York Wind & Sun, LLC
Renovus Energy, Inc.
Solar & Wind FX, Inc.
Sustainable Energy
Developments, Inc.

PA

Alteris Renewables
Solair Energy, Inc.

RI

Gem Plumbing and Heating
Heartwood Group, Inc.
Wind Energy Development

VT

AllEarth Renewables
Alteris Renewables
DC Energy Innovations
Window Quilt

WINDOWS**CANADA**

Thermotech Fiberglass Fenestration

CT

AW Hastings Co.—
Integrity Windows and Doors
VELUX

MA

Boston Green Building
CBI Consulting, Inc.
Horner Millwork
New England Window Systems, Inc.

MD

National Fenestration Rating Council

NH

Building Energy Technologies, LLC
Don Pouliot Home Improvements,
LLC

VT

Window Quilt

Sustainable Green Pages

ALPHABETICAL LIST

A–Best Energy Power

Bar, Arie
375 Pearsall Avenue
Cedarhurst, NY 11516
Tel: 516-568-7785
Fax: 516-596-7434
info@a-bestenergypower.com
www.a-bestenergypower.com
Description: Solar sales & installations. NY Metropolitan area, Long Island and NJ, licensed electrical contractor, NYSERDA approved installer. Contact an office near you: New York 718-766-5025, New Jersey 201-777-2374.
Specialties: Green Electricity, Photovoltaics

"A" Alternate Energy Center

Pitney, Steve
130 Industrial Park Road
Plymouth, MA 02360
Tel: 508-746-0777
Fax: 508-746-0477
steve.pitney@aecenter.com
www.aecenter.com
Description: "A" Alternate Energy Center serves SE MA with complete energy solutions: Solar, Wind, Bio-fuels, heat pumps, energy conservation & combinations. Est. 1974 Call 800DCSOLAR(327-6527)
Specialties: Domestic Water Heating, Photovoltaics, Radiant Heating

A&B Cooling and Heating Corp.

Wanegar, Guy
P.O. Box 1356
660 Nutmeg Road North
South Windsor, CT 06074
Tel: 860-528-4436
Fax: 860-290-8406
guy@abcoolingandheating.com
www.abcoolingandheating.com
Description: Geothermal specialists since 1995, LEED Gold and Silver designer and installer, custom fabricated duct systems, radiant floor systems, heat and energy recovery ventilation systems.
Specialties: Geothermal, Indoor Art Quality, Radiant Heating

A+E Architects

Alessi, Alison
2384A Main Street (6A)
Brewster, MA 02631
Tel: 508-896-0051

Fax: 508-896-6199
info@capecoddesigner.com
www.capecoddesigner.com
Description: A full service architectural firm specializing in environmentally responsible design, commercial and residential projects throughout Cape Cod.
Specialties: Building Design/Construction, Insulation, Photovoltaics, Wind

ABODE Builders of New England

McBride, John
568 Tenney Mountain Highway
Plymouth, NH 03264
Tel: 603-882-2333
Fax: 603-882-0222
jmcbride@yourabodehome.com
www.yourabodehome.com
Description: Certified green designer/builder specializing in eco-sensitive developed building lots and energy-efficient, healthy homes throughout New England. Visit our LEED Platinum model home and Design Center in Plymouth, NH.
Specialties: Building Design/Construction

Absolute Green Energy Corporation

Ortolano, Michael
92 Gardner Street
Worcester, MA 01610
Tel: 508-459-5410
Fax: 508-792-9646
mortolano@absolutegreenenergy.com
www.absolutegreenenergy.com
Specialties: Alternative Technologies, Domestic Water Heating, Photovoltaics

ABSOLUTELY ENERGIZED Solar Electric, Inc.

Lichtman, Dan
37 Prodelin Way
Millstone, NJ 08535
Tel: 732-792-0700
Fax: 732-385-1359
dan@aesolar.com
www.aesolar.com
Description: We design and install high end grid tied solar electric system for residential and business applications. Finding the manufacturer products that meet

your visual and performance requirements is our #1 priority.
Specialties: Energy Audit Services, Fuel Cells, Green Electricity, Photovoltaics

ACI (Affordable Comfort, Inc.)

Perrine, Helen
32 Church Street, Suite 204
Waynesburg, PA 15370
Tel: 724-627-5200
Fax: 724-627-5226
hperrine@affordablecomfort.org
www.affordablecomfort.org
Description: ACI Home Performance Conferences teach building science principles and provide a forum for networking to help create energy efficient, comfortable, healthy, safe and durable homes. Visit our website for scheduled events.
Specialties: Environmental Education

ACT Bioenergy

Dungate, David
30 Commerce Park Drive
Schenectady, NY 12309
Tel: 518-377-2349
Fax: 518-631-5811
info@actbioenergy.com
www.actbioenergy.com
Description: Manufacturer of biomass (wood pellet/wood chip) boiler systems for commercial and institutional buildings. These gasification type boilers are high-efficiency, fully-automated and have exceptionally low emissions. Burning renewable biomass reduces greenhouse gas emissions, saves money and creates local renewable energy jobs.
Specialties: Alternative Technologies, Biomass, Space Heating/Cooling

Adirondack Alternate Energy

Brownell, Bruce R.
98 Northville Road
Edinburg, NY 12134-5405
Tel: 518-863-4338
Fax: 518-863-4192
aaeinc@frontiernet.net
www.aepassivesolar.com
Description: We supply design, engineering and site supervision for insulated shell of any size,

shape and style passive solar building. We have done over 300 homes/buildings.
Specialties: Alternative Technologies, Building Design/Construction, Insulation

Adros Energy

Currier, Matt
10 Northern Boulevard
Amherst, NH 03031
Tel: 603-880-6007
info@adrosenergy.com
www.adrosenergy.com
Description: Adros Energy is a leading supplier of alternative energy systems and specialist in BPI certified energy audits and RESNET HERS rating. We are experts in Solar, Geothermal and Wind power technology. We educate residential and commercial consumers on how to harvest renewable energy to reduce, or even eliminate, soaring heating/cooling and electric bills. Adros Energy sells and installs high quality, custom, Solar, Geothermal and Wind systems to meet each consumer's budget and clean energy goals. We simplify the often complex process of converting to green energy and help you get the many incentives available to reduce your system costs. Customer satisfaction drives every aspect of the company's operation to assure customers receive superb service and high value from their system.
Specialties: Energy Audit Services, Geothermal, Photovoltaics

Aegis Electrical Systems, LLC

Lenda, Chris
1 Research Drive
Branford, CT 06405
Tel: 203-481-2187
info@aegiselectric.com
www.aegiselectric.com
Description: Aegis will design and install a solar electric or solar thermal system ideally suited to your needs. We are fully licensed in CT and an approved CCEF installer.
Specialties: Domestic Water Heating, Green Electricity, Photovoltaics

AHAdams & Company

Adams, Arthur Hall
P.O. Box 1166
309 Davisville Road
Willow Grove, PA 19090-0704
Tel: 215-659-8844
Fax: 215-659-8873
mailto:mailbox@ahadamsco.com
www.ahadamsco.com

Description: Professional services to create distinctive architecture and humanistic environments responsive to the natural order.

Specialties: Building Design/Construction

AirSealing America, LLC

Garvey, Mark
25 Damon Street
Concord, MA 01742
Tel: 978-495-1798
info@airsealingamerica.com
www.airsealingamerica.com

Description: We can assess your home's airsealing and insulation needs and complete the necessary work to improve your home's thermal envelope and efficiency.

Specialties: Energy Audit Services, Energy Conservation, Insulation

Aldon Electric

Mullaney, Allen
38 Greenwood Avenue
Weymouth, MA 02189
Tel: 781-337-0222
allen@aldonelectric.com
www.aldonelectric.com

Description: NABCEP Certified and Sharp Solar Certified Installer. Solar PV site evaluations, designs, and installations. Aldon Electric is a full service electrical contractor in Eastern MA.

Specialties: Photovoltaics

Allain & Son, Inc.

Allain, Jason & Al
10R Rainbow Terrace
Danvers, MA 01923
Tel: 978-777-4633
Fax: 978-739-5644
cuo@msn.com
www.allainandsoninc.com

Description: Over 60 years in industrial and residential electrical business, 4th generation, national and international, energy professionals.

Specialties: Domestic Water Heating, Photovoltaics, Wind

AllEarth Renewables

Bijur, Anne
94 Harvest Lane
Williston, VT 05495
Tel: 802-872-9600
abijur@allearthrenewables.com
www.allearthrenewables.com

Description: All Earth Renewables, formerly Earth Turbines, Inc., Vermont's only manufacturer of residential wind turbines and the AllSun Tracker dual-axis solar system, provides grid-connected renewable energy systems that lessen dependence on fossil fuels and reduce greenhouse gas emissions. Our goal is to offer turnkey solutions that harness the power of the wind and sun for homes and businesses.

Specialties: Green Electricity, Photovoltaics, Wind

Allsopp Design, Inc.

Allsopp, Jeffrey
587 Bay Road
P.O. Box 138
Hamilton, MA 01936
Tel: 978-468-1556 x10
Fax: 978-468-3435
jeffrey@allsoppdesign.com

Specialties: Building Design/Construction

Alpine Solar Heat and Hot Water

Besnoff, Stu
189 North Street
Windsor, MA 01270
Tel: 413-684-3950
stu@alpinesolarheat.com
www.alpinesolarheat.com

Description: Evacuated tube solar hot water collectors for sale. Visit and see: operational domestic hot water, whole house heating, and swimming pool heating systems. Affordable Prices!

Specialties: Domestic Water Heating, Space Heating/Cooling

Alteris Renewables

Chew, Robert
28 Wolcott Street
Providence, RI 02908
Tel: 800-339-7804
Fax: 401-396-9902
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving RI.

Specialties: Alternative Technologies, Domestic Water Heating, Photovoltaics

Alteris Renewables

French, Ron
523 Danbury Road
Wilton, CT 06897
Tel: 800-339-7804
Fax: 203-762-8921
info@alterisinc.com
www.alterisinc.com

Description: Alteris Renewables is the largest design-build renewable energy company in the Northeast, with more than 2,250 completed installations over the past thirty years and more than a dozen offices across six states. Alteris provides solar electric (photovoltaic or PV), solar thermal, and wind solutions for commercial, residential, education, government and institutional clients. The company has industry-leading expertise in engineering, design, project management, performance analysis, project financing and renewable energy credit programs. We have several locations in states throughout the Northeast. Visit our website for a location near you.

Specialties: Domestic Water Heating, Photovoltaics, Wind

Alteris Renewables

Arruda, Joe
34 Front Street, Building 2,
Suite 321
P.O. Box 51924
Springfield, MA 01151
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving MA.

Specialties: Wind, Photovoltaics, Solar Hot Water

Alteris Renewables

Behn, Nils
64 Main Street
Montpelier, VT 05602
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving VT.

Specialties: Solar Hot Water, Photovoltaics, Wind

Alteris Renewables

Rostafin, Mark
5 Great Valley Parkway
Suite 210
Malvern, PA 19355
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes

and businesses. Serving PA.
Specialties: Photovoltaics, Solar Hot Water, Wind

Alteris Renewables

Phayre, Dennis
120 Broadway
Albany, NY 12204
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving NY.

Specialties: Solar Hot Water, Photovoltaics, Wind

Alteris Renewables

Kern, Andrew
2001 Route 46 East, Suite 310
Parsippany, NJ 07034
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving NJ.

Specialties: Solar Hot Water, Wind, Photovoltaics

Alteris Renewables

Gentossio, Travis
23 Cutts Island Lane
Kittery Point, ME 03905
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving ME.

Specialties: Photovoltaics, Solar Hot Water, Wind

Alteris Renewables

Condon, Steve
McDonough Street
Portsmouth, NH 03801
Tel: 800-339-7804
info@alterisinc.com
www.alterisinc.com

Description: Experience, expertise, results and high customer satisfaction have made Alteris the number one solar and wind energy installer in the Northeast for homes and businesses. Serving NH

Specialties: Solar Hot Water, Photovoltaics, Wind

Alphabetical List

Amacher & Associates, Architects

Amacher, Franziska
237 Mount Auburn Street
Cambridge, MA 02138
Tel: 617-354-8707
fran@amacher-associates.net
www.amacher-associates.net

Description: Innovative practical sustainable design Good use of resources Maximizing light spaciousness functionality Residential & small commercial Houses mixed-use communities offices

Specialties: Building Design/ Construction, Energy Conservation, Remodeling

Amberjack Solar Energy

Kulick, Lance
22 Muller Road
Oakland, NJ 07436
Tel: 201-906-6872
lkulick2000@yahoo.com

Specialties: Photovoltaics

AMERICAN CAPITAL ENERGY

Witham, Gail
15 Tyngsboro Road, Suite 4a
North Chelmsford, MA 01863
Tel: 978-251-3257
Fax: 978-251-4120
gwitham@americancapitalenergy.com

Specialties: Photovoltaics

Andersen Home Builders, Inc.

Andersen, Neil
211 Blacksmith Shop Road
East Falmouth, MA 02536
Tel: 508-540-8325
Fax: 508-540-8325
andersenhbinc@aol.com

Description: General contractor and builder specializing in passive solar energy, super insulation, energy efficient homes and additions.

Specialties: Building Design/ Construction, Insulation, Remodeling, Radiant Heating

Anthony J. Musso, Architect

Musso, Anthony
181 Main Street
Cold Spring Harbor, NY 11724
Tel: 631-367-8626
Fax: 631-367-4276
ajmusso@aol.com

Description: An architectural firm practicing architecture, interior architecture, landscape design and sustainable design, "The architecture for today, respects the past; while solving our contemporary needs in a responsible sensible, design."

Specialties: Building Design/ Construction, Landscape Design/ Construction, Lighting Design, Remodeling

Architecture Involution, LLC

Jordan, James
286 Boston Post Road
Boston, MA 01778
Tel: 508-358-0790
Fax: 508-358-0791
jordan@ai-3.com
www.ai-3.com

Description: Designers of educational facilities.

Specialties: Building Design/ Construction, Photovoltaics, Wind

Arrowstreet, Inc.

Batchelor, James
212 Elm Street
Somerville, MA 02144
Tel: 617-623-5555
Fax: 617-625-4646
batchelor@arrowstreet.com
www.arrowstreet.com

Description: Arrowstreet is a 150-person, multi-disciplinary firm providing architecture, planning, interiors, and graphic design services. The award-winning firm designed the first platinum LEED certified building in Boston.

Specialties: Building Design/ Construction, College/University, Photovoltaics

Atlantic Heating & Air Conditioning, Inc.

Boyles, David
116 Cypress Street
Brookline, MA 02447
Tel: 617-566-6990
Fax: 617-277-7741
info@atlantic-heat.com
www.atlantic-heat.com

Description: Atlantic Heating is a full service HVAC and plumbing company that specializes in energy efficient heating, cooling and solar systems. Atlantic can design a solar thermal or photovoltaic system to meet your needs.

Specialties: Domestic Water Heating, Geothermal, Indoor Air Quality, Photovoltaics

Austin Design, Inc.

Austin, Bill
16 Call Road
Colrain, MA 01340
Tel: 413-624-9669
Fax: 413-624-9635
office@austindesign.biz
www.austindesign.biz

Description: Austin Design, Inc. provides architectural design services for homes, businesses

and communities. We advocate a team approach among client, builder and architect that encourages the sharing of expertise and a passion for good design.

Specialties: Building Design/ Construction, Landscape Design/ Construction, Remodeling

AW Hastings Co.— Integrity Windows and Doors

Jackson, Bill
2 Pearson Way
Enfield, CT 06082
Tel: 860-394-3428
bjackson@awhastings.com
www.awhastings.com

Description: For over 25 years A.W. Hastings & Co. has been a distributor for Marvin Windows & Doors, supplying quality window & door products to the industry throughout the northeast.

Specialties: Windows

Azimuth Construction, Inc.

Simon, Marc
195H High Street
Ipswich, MA 01938
Tel: 978-356-7501
azimuth5@verizon.net
www.azimuthconstruction.com

Description: Residential general contractor specializing in energy efficient construction and remodeling for over 20 years. Recently completed first Energy Star certified solar home in Ipswich.

Specialties: Building Design/ Construction, Remodeling

Bakker & Lewis Architects

Bakker, Margaret
Lewis, Robert
243 Jackson Road
Shavertown, PA 18708
Tel: 570-675-8843
mbakker@bakker-lewis.com
www.bakker-lewis.com

Description: We are a small architectural firm specializing in designing new and retrofitting existing buildings which are both responsive to individual needs and that contribute to a greener environment.

Specialties: Building Design/ Construction, Energy Conservation, Remodeling

Bay State Design, Inc.

Govalet, Gordon
241 Boston Post Road West
Marlborough, MA 01752
Tel: 508-229-4142
gordon.govalet@maxtontech.com
www.baystatedesign.com

Description: Founded in March of 1985, Bay State Design Inc., provides comprehensive, professional architectural and engineering design services ranging from site selection through construction administration. The firm's in-house staff includes over 30 Engineers, Architects, Project Managers, CAD Designers and Graphics Design personnel. Our Architectural Department provides Project Management, Space Planning and Design for public, institutional and commercial clients. Our Structural Engineers are registered in all New England States and are well versed in analysis and modification of existing structures. Our Graphic Design staff specializes in Photo-simulation presentations for zoning and historic submittals. At BSD, quality control is paramount. Our in-house Quality Assurance Process utilizes experienced professionals in each major discipline to review all major projects and co-ordinate the work of our outside consultants. Our clients are encouraged to participate in these Project Reviews.

Specialties: Building Design/ Construction, Remodeling, Research

BBT Mechanical Services, LLC

Miller, Chris
22 Wapping Wood Road
Ellington, CT 06029-3917
Tel: 860-209-9917
Fax: 860-896-5830
bbtmechanical@snet.net

Specialties: Space Heating/ Cooling

Beaton Construction

Beaton, Matthew
P.O. Box 595
Shrewsbury, MA 01545
Tel: 508-736-7910
matt@beatonconstruction.com
www.resenergysolutions.com
Description: Energy audit services—infrared imaging, blower door. Environmentally responsible remodeling. Energy audit services through: Residential Energy Solutions.

Specialties: Building Design/ Construction, Energy Audit Services, Remodeling

Benchmark Builders, Inc.

Harkins, Matt
364 Thoreau Street
Concord, MA 01742
Tel: 978-254-5595
mharkins@benchmark-realty-group.com

Specialties: Building Design/ Construction

Bergen County Solar

Wellington, Mark
P.O. Box 115
Alpine, NJ 07620
Tel: 201-767-0800
bergen solar@aol.com
bergencountysolar.com

Description: BCS handles everything from consultation, installation, maintenance and repair of solar electric, water heating, and monitoring systems. BCS is a licensed contractor.

Specialties: Energy Conservation, Photovoltaics, Solar Hot Water

Bill Wenzel Heating & Air Conditioning, Inc.

Wenzel, Bill
37 Scenic Vista Way
Merrimack, NH 03054
Tel: 603-429-8082
Fax: 603-429-6393
bill@billwenzelgeo.com
www.billwenzelgeo.com

Description: Geothermal installation specialists with over 14 years experience in geothermal and over 30 years experience in heating and air conditioning.

Specialties: Geothermal

Bio Heat USA

Nichols, Scott
P.O. Box 285
Lyme, NH 03768
Tel: 603-795-9100
Fax: 603-795-4740
info@bioheatusa.com
www.bioheatusa.com

Description: North American importer and distributor of high efficiency, low emissions wood, wood pallet, and corn burning boilers for central heat for residential and commercial use.

Specialties: Biomass, Space Heating/Cooling

Blast/Solar Walls, LLC

Krause, William
P.O. Box 35
Quakertown, PA 18951
Tel: 732-947-7439
Fax: 267-373-9589
billkrause1115@comcast.net

Specialties: Photovoltaics

Blue Sea Development Company

Bluestone, Les
164 Main Street
Huntington, NY 11743
Tel: 631-923-0081 x2
Fax: 631-923-0083
les.bluestone@blueseadev.com

Description: Blue Sea Development Company/Blue Sea Construction Company is an affordable housing developer/general contractor working primarily in the New York City metropolitan area.

Specialties: Building Design/Construction

Blue Selenium Solar, Inc.

Tanghe, Mike
17 Jan Sebastian Drive
Suite 6
Sandwich, MA 02563
Tel: 774-368-0019
mtanghe@bluesel.com
www.bluesel.com

Description: Blue Selenium Solar provides solar electric, solar hot water, and wind energy systems to homeowners and businesses in Massachusetts and New Hampshire.

Specialties: Photovoltaics, Solar Hot Water, Wind

Bone Builders

Bone, James
42 Newmarch Street
Ipswich, MA 01938-2440
Tel: 978-857-6800
jbonebldrs@verizon.net
www.jbonebuilders.com

Specialties: Alternative Technologies, Building Design/Construction, Energy Conservation

Bonview Corporation

Bonfiglioli, Stephen
237 Thompson Street
Middleborough, MA 02346
Tel: 508-946-4944
Fax: 508-946-4944
bonfiglioli15@verizon.net
www.meadowbrookfarm.com

Description: Thirty years experience with residential energy efficient design and construction. Energy Star builder; walls to R40, ceilings to R60. Experience with solar, ground source heat pumps and whole house ventilation.

Specialties: Building Design/Construction, Geothermal, Photovoltaics

Boston Green Building

Butler, Brian
49 Dartmouth Street
Somerville, MA 02145
Tel: 617-718-0208
Fax: 617-202-3783
info@bostongreenbuilding.com
www.bostongreenbuilding.com

Description: Boston Green Building provides ecologically-oriented construction and remodeling services throughout the Greater Boston area.

Specialties: Building Design/Construction, Energy Conservation, Windows, Alternative Technologies

Bourke Builders

Bourke, Paul
77 Long Hill Road
Leverett, MA 01054
Tel: 413-548-9214
Fax: 413-548-9214
paul@bourkebuilders.net
www.bourkebuilders.net

Description: Passionate in our dedication to energy efficient, green building for over 25 years, Bourke Builders offers design-build services for Hampshire and Franklin counties of W. MA.

Specialties: Building Design/Construction, Remodeling

BPC Green Builders, LLC

Trolle, Michael
523 Danbury Road
Wilton, CT 06897-2233
Tel: 203-563-9909
Fax: 203-563-9912
info@bpcgreenbuilders.com
www.bpcgreenbuilders.com

Description: Green building for new and existing homes based on residential building science and other sustainability considerations. Award-winning builder with ten years experience building high performance, green homes.

Specialties: Building Design/Construction

BPVS, Berkshire Photovoltaic Services

Kilfoyle, Christopher Derby
46 Howland Avenue
Adams, MA 01220
Tel: 413-743-0152
Fax: 413-743-4827
info@bpvs.com
www.bpvs.com

Description: Since 1985, the highest quality design and installation of efficient and durable photovoltaic systems featuring Schott solar modules.

Specialties: Green Electricity, Photovoltaics

Branch River Plastics, Inc.

Kelleher, Greg
15 Thurber Boulevard
Smithfield, RI 02917
Tel: 401-252-0270
Fax: 401-231-3434
greg@branchriver.com
www.branchriver.com

Specialties: Insulation

Brooks Post & Beam, Inc.

Freeman, Paul
208 Pettingill Hill Road
Lyndeborough, NH 03082
Tel: 603-654-3210
Fax: 530-654-7376
paul@spbrooks.com
www.brookspostandbeam.com

Description: Brooks Post & Beam has been building energy efficient, sustainable homes throughout New England for over 40 years.

We have been building homes, barns and commercial buildings sustainably for decades. We are a small company focused on improving our quality and efficiency year after year. We operate a sustainable business model by returning profits to our employees through medical benefits, bonuses, paid time off, and profit sharing. Maintaining an experienced professional workforce has been our key to success. Limiting growth by focusing on a select number of projects per year maintains our quality control and prevents us from over extending our resources in lean times. Please visit our website to see how our unique joinery system facilitates the use of smaller timbers for a more elegant framing style without sacrificing joinery strength or littering the frame with steel brackets. We use 1" oak pegged, mortise and tenon joinery and locally harvested timbers. Our enclosure system consists of an uninterrupted layer of foam insulation detailed to eliminate thermal bridging and minimize air infiltration.

Specialties: Building Design/Construction, Insulation, Remodeling

Bruner/Cott

Kelly, Dana
130 Propsect Street
Cambridge, MA 02139
Tel: 617-492-8400
dkelly@brunercott.com

Specialties: Building Design/Construction

Build Green NH

Fischer, Elizabeth
119 Airport Road
Concord, NH 03301
Tel: 603-228-0351
Fax: 606-228-1877
erfischer@buildgreennh.com
www.buildgreennh.com

Description: Build Green NH works to promote, educate and support the practice of green building and remodeling in New Hampshire.

Specialties: Consumer Information, Real Estate, Remodeling

Alphabetical List

Building Alternatives, Inc.

Tortorice, Bob
P.O. Box 7
15 Nature Drive
Franconia, NH 03580
Tel: 603-823-5100
Fax: 603-823-9006
bob@buildingalternatives.com
www.buildingalternatives.com
Description: New construction or energy renovations for existing homes. Consulting, construction management, general contracting for high energy efficient new or existing homes utilizing SIP, ICF, modular, 2X6 and timber frame homes.

Specialties: Alternative Technologies, Building Design/Construction, Energy Audit Services

Building Diagnostics

Torrey, Bruce
P.O. Box 989
East Sandwich, MA 02537
Tel: 508-833-3100
Fax: 508-833-3100
info@buildingdiagnosticshelp.com
Specialties: Building Design/Construction, Consultant

Building Energy Technologies, LLC

LaTourette, Donald
8 Oakmont Drive
Concord, NH 03301
Tel: 603-724-7849
Fax: 603-369-6468
dlatourette@bldenergytech.com
Specialties: Windows, Insulation, Energy Audit Services

BuildingGreen, LLC

Wilson, Jerelyn
122 Birge Street
Suite 30
Brattleboro, VT 05301
Tel: 802-257-7300 x102
Fax: 802-257-7304
jerelyn@buildinggreen.com
www.buildinggreen.com
Description: BuildingGreen provides building industry professionals with well-researched information on environmentally sound building practices and green products both in print and online.
Specialties: Alternative Technologies, Energy Conservation, Environmental Education

Burrington's Solar Edge

Burrington, Gail Ann
6 Reed Circle
Windsor Locks, CT 06096-1214
Tel: 860-623-0159
Fax: 413-683-2871
solaredge@yahoo.com
www.solaredge.biz

Description: Solar electric and energy efficient appliances, sales, and service; site evaluations, solar workshops, and consulting including PV roofing materials.
CT Elec#0195608-PV1

Specialties: Building Design/Construction, Environmental Education, Photovoltaics

Buy Discount Power

Dahle, David
151 Town Farm Road
Farmington, CT 06032
Tel: 888-659-4284
ddahle529@yahoo.com
Specialties: Green Electricity

Byggmeister, Inc.

Eldrenkamp, Paul
667 Sawmill Brook Parkway
Newton, MA 02459
Tel: 617-527-7871
Fax: 617-527-7872
paul@byggmeister.com
www.byggmeister.com

Description: Byggmeister is a residential design-build firm working in metropolitan Boston and focusing on high-performance design and construction. We define a "high performance" home as one that requires a minimum amount of energy to heat, cool, light, and maintain over time. Byggmeister provides certified Passive House consulting and HERS ratings and is on the qualified contractors list for National Grid's deep energy retrofit program. In addition to design-build remodeling, we provide detailed energy audits and work with homeowners to develop master plans for incremental deep energy retrofits that can be implemented over a period of several years.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Caliper Studio

Lynch, Stephen
67 Metropolitan Avenue
2nd Floor
Brooklyn, NY 11211
Tel: 718-302-2427
slynch@caliperstudio.com
Specialties: Building Design/Construction

Camilo Environmental Group, Inc.

Camilo, Joseph
2 Ridge Street
Andover, MA 01810
Tel: 978-470-0055
jacamilo@verizon.net
Specialties: Consultant

Cape & Islands Self-Reliance Corp.

Amsler, Megan
23A Edgerton Drive
North Falmouth, MA 02556
Tel: 508-563-6633
Fax: 508-563-1123
reliance@reliance.org
www.reliance.org
Specialties: Green Electricity, Other Transportation Technologies/Services, Photovoltaics, Wind

Cape Green Energy—Cape Cod Stove Co.

Burton, Dave
78 Industrial Drive #2
Mashpee Park
Mashpee, MA 02649
Fax: 508-477-8687
info@capecodstove.com
www.capecodstove.com
Description: Cape Green Energy, Energy Audits—Green Real Estate, Cape Cod Stove Co., Sustainable Biomass Energy Products, Pellet, Corn, Multi-fuel & Wood Stoves, Biomass Fuels
Specialties: Biomass, Other Renewable Energy Generation

Cape Light Compact

Downey, Maggie
Barnstable Superior Courthouse
P.O. Box 427
Barnstable, MA 02630
Tel: 1-800-797-6699
Fax: 508-362-4136
mdowney@barnstablecounty.org
Description: The Cape Light Compact, as administered through Barnstable County, is an inter-municipal regional energy services organization made up of all 21 towns of Barnstable and Dukes counties. The purpose of the Compact is to represent and protect consumer interests in a restructured utility industry. As authorized by each town, the Compact administers the regional energy efficiency program and works with the combined buying power of the region's over 200,000 electric consumers to negotiate for lower cost electricity, including a green power offering, and other public benefits.
Specialties: Energy Audit Services, Environmental Education, Green Electricity

Cape Painting & Carpentry, Inc.

Kroll, Peter
24 Bay Road
P.O. Box 39
North Falmouth, MA 02556-0039
Tel: 508-563-9393
Fax: 508-563-9399
pmarshalk@aol.com
www.capecarpentry.com
Description: An established renovation, restoration and custom home building contractor that has incorporated sustainable and green practices for over 30 years. Employee owned.
Specialties: Building Design/Construction, Energy Conservation, Remodeling

Capizzi Home Improvement

Capizzi, Thomas
1645 Newtown Road
Cotuit, MA 02635
Tel: 508-428-9518
Fax: 508-428-1547
chi@capecod.net
www.capizzihome.com
Description: A remodeling and restoration company specializing in energy efficient room additions, 2nd stories, sunrooms, kitchens, bathrooms, siding, roofing, insulation and full-service home improvements.
Specialties: Building Design/Construction, Remodeling, Roofing

Cardinal Resources, LLC

Jones, Kevin
1505 East Carson Street #200
Pittsburgh, PA 15203
Tel: 412-374-0989
kjones@cardinalres.com
Specialties: Waste Water/Solid Waste

Carpenter & MacNeille Architects & Builders, Inc.

Gray, Michael
106 Western Avenue
Essex, MA 01929
Tel: 978-768-7900
Fax: 978-768-7911
mgray@carpentermacneille.com
www.carpentermacneille.com
Description: Residential Design-Build Firm specializing in Architecture, Interior Design & Construction Services.
Specialties: Building Design/Construction

CBI Consulting, Inc.

Teller, Michael
250 Dorchester Avenue
Boston, MA 02127
Tel: 617-268-8977
Fax: 617-464-2971
mteller@cbi1984.com
www.cbiconsultinginc.com

Description: Sustainable design of building repair technologies. Building envelope evaluation and design. Historical renovation. Green roofs, plaza decks, masonry, concrete, windows, natural stone restoration and repair.

Specialties: Building Design/Construction, College/University, Roofing, Windows

Cellu-Spray

Tauer, Jonathan
94 East Catamount Hill Road
Colrain, MA 01340-3212
Tel: 413-624-0100
Fax: 413-584-3700
info@cellu-spray.com
www.cellu-spray.com

Description: Spray applied and dense pack cellulose in new and existing buildings. Excellent fire, mold, and vermin resistance. Fully insured, free estimates. The best R-value per \$.

Specialties: Indoor Air Quality, Insulation, Remodeling

Celtic Energy, Inc.

Halpin, Christopher
701 Hebron Avenue
Glastonbury, CT 06033
Tel: 860-882-1515
Fax: 860-882-1593
chris@celticenergy.com
www.celticenergy.com

Description: Celtic Energy is an independent consulting firm founded to help energy users and associated organizations maximize their cost reduction and productivity benefits in the ever-changing energy marketplace. Celtic Energy utilizes an Industry Best Practices philosophy in providing the following services to large commercial, industrial, government, and institutional clients: Energy Savings Performance Contract Consulting, LEED Consulting, Energy Simulation Modeling, Energy Audits (Preliminary Audits and Investment Grade Audits), Maximize Benefits of Utility and Government Grants and Incentives, USEPA Energy Star Building Certification, Personnel Training Services, Technical Assistance During Architectural/Engineering Design, Design and Enhance Corporate/Government Agency Energy Standards, Develop Energy Information, Accounting, and Benchmark-

ing Systems, Energy Procurement Services, Quality Assurance and Other Services

Specialties: Alternative Technologies, Energy Audit Services, Energy Conservation

Center for Ecological Technology (CET)

Silverstein, Alan
112 Elm Street
Pittsfield, MA 01201
Tel: 413-445-4556 x21
Fax: 413-443-8123
alans@cetonline.org
www.cetonline.org

Description: CET is a community based, non-profit organization that helps individuals, businesses, schools and communities reduce their environmental impact. Founded in 1976, CET is active in the fields of renewable resources, energy efficiency, waste management, and environmental education. CET provides Energy Star Homes certification, LEED for Homes verification, green building trainings, and green homes/business audits.

Specialties: Consumer Information, Energy Audit Services, Environmental Education, Public Policy, Wastewater/Solid Waste

CHAO designs

Chao, Maria
128 Snell Street
Amherst, MA 01002
Tel: 413-461-6448
mechao@adelphia.net

Description: Design work focuses on modern+green residences. Currently collaborating with innovative developers, researchers and engineers to design and build in beautiful and sustainable ways.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Christopher P. Williams Architects, PLLC

Williams, Christopher
P.O. Box 703
4 Stevens Avenue
Meredith, NH 03253
Tel: 603 279-6513
Fax: 603-279-5666
info@cpwarchitects.com
www.cpwarchitects.com

Description: Specializing in sustainable building practices that conserve natural resources and incorporate green building techniques to safeguard the ecosystem and lower building costs.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Chuck Russo Heating & A/C, LLC

Russo, Chuck
48 Clove Road
Castleton, NY 12033-3036
Tel: 518-732-2356
Fax: 518-732-0410
crhvac@nycap.rr.com
chuckrussoheatandair.com

Description: An IGSPA certified Geothermal installer with 20+ years experience. BPI and NATE certified. We also specialize in whole house comfort zoning and IAQ in the greater Albany, NY area.

Specialties: Geothermal, Indoor Air Quality, Space Heating/Cooling

City Solar

Fitz, Tracy
531A 6th Avenue
Brooklyn, NY 11215-4908
Tel: 347-254-0019
Fax: 718-768-8161
tracy@citysolar.us
www.citysolar.us

Description: Solar electric/thermal, small hydro, wind, wave, water harvesting, green roofs. Commercial/industrial/gov/not-for-profit/residential. Evaluation/design/funding/installation.

Specialties: Domestic Water Heating, Other Renewable Energy Generation, Photovoltaics

Clark Sustainable Energy

Clark, Gary
159 Number 9 Road
Rowe, MA 01367
Tel: 413-339-8519
clarksolar@gmail.com

Description: Clark Sustainable Energy provides Solar thermal (hot water) sales, installations, repair and service. A small local company with an emphasis on quality and customer satisfaction.

Specialties: Domestic Water Heating, Energy Storage, Space Heating/Cooling

Clear Communications

Lester, Pamela
9 Atherton Road
Gill, MA 01354
Tel: 413-863-4125
plester56@hotmail.com

Description: Project manager, expertise: communications, public & press relations, direct marketing, website publishing, developing plans & tracking, events planning & management.

Specialties: Communications, Marketing, Public Relations

Clear Stake

Virginia, Marina
108 Town Hill Road
P.O. Box 134
Sandisfield, MA 01255
Tel: 516-790-2801

marinavirginia@clearstake.com

Description: Research and program development for sustainability initiatives, renewable alternatives, associated state & federal incentives & regulations; additionally we offer project and renewable financing & REC/VER/CERs through Clear Stake Capital

Specialties: Alternative Technologies, Consultant, Research

Clivus New England, Inc.

Truchon, Lisa
P.O. Box 127
North Andover, MA 01845
Tel: 978-794-9400
Fax: 978-794-9444
ltruchon@clivusne.com
www.clivusne.com

Specialties: Waste Water/Solid Waste

Co-op Power

Benander, Lynn
324 Wells Street
Greenfield, MA 01301
Tel: 413-772-8898
Fax: 413-517-0300
info@cooppower.coop
www.cooppower.coop

Description: Co-op Power is a decentralized network of community organizations and businesses building a sustainable and just energy future.

Specialties: Consumer Information, Space Heating/Cooling, Alternative Technologies, Retail

Cobb Hill Construction

Couch, Robert
206 North State Street
Concord, NH 03301
Tel: 603-224-8373
bob@cobhill.com
www.cobhill.com

Description: Founded in 1986, Cobb Hill Construction, a dynamic and progressive design-build company, prides itself on service and client satisfaction.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Coldham & Hartman Architects

Hartman, Thomas RC
155 Pine Street
Amherst, MA 01002
Tel: 413-549-3616
Fax: 413-549-6802
tom@coldhamandhartman.com
www.coldhamandhartman.com
Description: Coldham & Hartman Architects provides full service professional design for institutional, commercial and residential clients committed to making green buildings throughout the Northeast. C&H is dedicated to upgrading the existing structures of the Northeast for a changing energy climate by providing Deep Energy Retrofit design and master plan services.
Specialties: Building Design/Construction, Energy Conservation, Remodeling

Concord Energy Solutions, LLC

Falvey, Scott
1153 South Road
Hopkinton, NH 03229
Tel: 603-568-0537
clearviewhi@yahoo.com
Description: Providing Home Performance Evaluations, by a BPI (Building Performance Institute) Certified Building Analyst & Building Envelope Professional.
Specialties: Energy Audit Services, Energy Conservation, Home Inspections

Connecticut Clean Energy Fund

200 Corporate Place, 3rd Floor
Rocky Hill, CT 06067
Tel: 860-563-0015
Fax: 860-563-4877
www.ctcleanenergy.com
Description: The Connecticut Clean Energy Fund offers financial incentives and educational programs to encourage homeowners, companies, municipalities, and other institutions to support renewable energy and lead the nation toward a brighter energy future. You are invited to join us on this mission. You have the power to make a difference. Together we can change our world for the better.
Specialties: Alternative Technologies, Consumer Information, Environmental Education

Conservation Solutions Corporation

Cook, Dan
162 Great Road
Acton, MA 01720
Tel: 978-266-1900
Fax: 978-266-1976
dcook@conservationsolutions.com
www.conservationsolutions.com
Description: Conservation Solutions Corporation is an energy and water efficiency company. We provided detailed studies of steam, water and energy using systems in buildings. We are also a manufacturer's representative representing SteamLoc Steam Traps, Velan Bi-Metallic Steam Traps ISTEK Radiator Valves, BTU Meters & Water Meters, ZeroFlush Urinals, Toto water products, Clearwater Dolphin Chemical-Free Water Treatment for Boilers and Cooling Towers, Sunda Solar water Heating systems and Ozon-eSolutions Laundry Ozone Systems.
Specialties: Domestic Water Heating, Energy Audit Services, Energy Conservation, Wastewater/Solid Waste

Consulting Engineering Services

Smith, Delbert
811 Middle Street
Middletown, CT 06457
Tel: 860-632-1682
Fax: 860-632-1768
dsmith@cesct.com
www.cesct.com
Description: CES provides exceptional MEP Engineering, Commissioning, CA and Sustainable Design services. CES has an outstanding record of providing high caliber service to 100s of clients.
Specialties: Building Design/Construction, Geothermal, Photovoltaics

Coppinger Builders, LLC

Coppinger, Lise & Tim
151B North Leverett Road
Leverett, MA 01054
Tel: 413-367-9137
lcopp@crocker.com
Description: We are a local, worker owned manufacturer/installer of standing seam metal roofing—an energy efficient, sustainable, recycled/recyclable, 80+ years roofing system. We also consult on roof insulation/ventilation as well as design.
Specialties: Consultant, Roofing

Cotuit Bay Design, LLC

Cook, Steven
43 Brewster Road
Mashpee, MA 02649
Tel: 508-274-1166
Fax: 508-539-9402
steve@cotuitbaydesign.com
www.cotuitbaydesign.com
Description: Cotuit Bay Design, LLC is an architectural design firm for new homes, additions, & remodeling. The firm also provides environmentally friendly & photovoltaic design services.
Specialties: Building Design/Construction, Energy Conservation, Photovoltaics

Cotuit Solar

Geyser, Conrad
P.O. Box 89
64 Old Shore Road
Cotuit, MA 02635
Tel: 508-428-8442
Fax: 508-428-8441
conradg@cape.com
www.cotuitsolar.com
Description: Solar thermal, photovoltaics, wind and wastewater alternative engineering, installation and service. In business since 1988.
Specialties: Domestic Water Heating, Photovoltaics, Wind

Cronk Agency, Inc.

Upwood, Jacquelyn
647 South Main Street
P.O. Box 477
Central Square, NY 13036
Tel: 3156682444
Fax: 3156764255
upwoodjb@att.net
Specialties: Insurance

Cushman Design Group, Inc.

Cushman, Milford
P.O. Box 655
100 Mountain Road
Stowe, VT 05672
Tel: 802-253-2169
Fax: 802-253-2160
info@cushmandesign.com
www.cushmandesign.com
Description: Offering personalized residential design services for those who value elegant design, natural materials and environmental consciousness in their home.
Specialties: Building Design/Construction, Landscape Design/Construction, Lighting Design

D & D Electrical/Solar Installation

Mahoney, Jim
10 Everberg Road
Woburn, MA 01801
Tel: 781-932-0707
jim@danddnet.com
www.danddnet.com
Description: D&D Electrical & Solar Installations/Dnet Cabling. Design-Build Electrical, PV Solar Installations (pre-fab shop), FA, Security, Low voltage(hvac), Network & Fiber cabling
Specialties: Building Design/Construction, Lighting Design, Photovoltaics

Dartmouth College

Baker-Berry Library
6025 Baker-Berry Library
Hanover, NH 03755-3560
Tel: 603-646-2236
Specialties: Library, College/University

David Whitney Architect

Whitney, David
49 Linden Street
Arlington, MA 02476
Tel: 781-643-0758
Fax: 413-832-8052
mail@davidwhitney.com
www.davidwhitney.com
Description: I am a residential architect concerned about energy use and environmental impact. My projects range from additions and renovations to new home construction. You can see images and descriptions and more information at my website.
Specialties: Building Design/Construction, Remodeling

DC Energy Innovations

Gordesky, Ben
5072 US Route 2
North Hero, VT 05474
Tel: 802-363-1474
Fax: 802-372-4414
bgordesky@dceivt.com
www.dceenergyinnovations.com
Description: We are installers of photovoltaic and wind systems for homeowners and commercial facilities. Our quality installations meet electric code and are completed in a timely fashion.
Specialties: Green Electricity, Photovoltaics, Wind

Dennis K. Burke, Inc.

Burke, Ed
P.O. Box 6069
284 Eastern Avenue
Chelsea, MA 02150
Tel: 617-884-7800
Fax: 617-884-7638
ed.burke@burkeoil.com
www.burkeoil.com

Description: One of New England's largest suppliers of diesel fuels, gasoline and motor oil products. DKB was the state's first supplier to offer biodiesel and E85 at the pump.

Specialties: Other Renewable Energy Generation, Other Transportation Technologies/Services

Dietz & Company Architects, Inc.

Sternick, Marc
17 Hampden Street
Springfield, MA 01103
Tel: 413-733-6798
Fax: 413-732-4385
marcs@dietzarch.com
www.dietzandcompanyarchitects.com

Description: The largest full service architectural firm in Springfield, with four LEED AP architects we are committed to thoughtful, sustainable and contextually appropriate designs.

Specialties: Building Design/Construction, College/University, Energy Conservation

Dimensional Architecture, PC

Deye, Sylvia
P.O. Box 18
Geigertown, PA 19523-0018
Tel: 610-775-7105
Fax: 610-775-4015
ruralda@verizon.net

Description: Architecture—variety of design genres from the East to the West., Large-Small—Public-Private, Retail, Resorts, Schools, Homes, New Construction, Renovations and Preservation.

Specialties: Building Design/Construction

distill studio

Haskett, Joe
27 Sims Avenue
Providence, RI 02909
Tel: 401-331-2811
Fax: 401-273-9559
jhaskett@distillstudio.com

Description: Distill studio was founded to create places to live & work that are not only innovative but simultaneously minimize their impact on the environment.

Specialties: Building Design/Construction

DNL Energy, LLC

Horton, David
P.O. Box 664
Holderness, NH 03245
Tel: 603-536-2461
hortond@dnlenergy.com
www.dnlenergy.com

Description: DNL Energy, LLC sells, installs and maintains products that utilize free energy from the wind. Solar thermal and PV systems for hot water and your electrical needs.

Specialties: Domestic Water Heating, Photovoltaics, Wind

Don Pouliot Home Improvements, LLC

Pouliot, Don
85 Cilley Road
Manchester, NH 03103
Tel: 603-624-8887
Fax: 603-624-4166
don@donpouliot.com
www.donpouliot.com

Description: We furnish and install high "R" value replacement windows. We also furnish and install solar domestic hot water, solar hot air, photovoltaics.

Specialties: Domestic Water Heating, Energy Conservation, Windows

Donald Watson, FAIA

Watson, Donald
54 Larkspur Drive
Trumbull, CT 06611
Tel: 203-459-0332
lakesidedj@aol.com
www.donaldwatson.com

Description: Architect with specialization in green design of residences, nature centers and museums.

Specialties: Building Design/Construction

Dunn Construction Co.

Dunn, Scott
34 Huntington Avenue
Sharon, MA 02067
Tel: 781-784-3076
berdunn@aol.com

Specialties: Building Design/Construction

E.R.G.T., Inc.

Pease, Daniel
48 Dayton Hill Road
Northford, CT 06472
Tel: 203-484-6702
energy.resource.grp@snet.net

Specialties: Energy Audit Services, Energy Conservation, Insulation

E2 Solar, Inc.

Stoots, Jason
120 Chase Street
Hyannis, MA 02601
Tel: 508-775-1385
jason@e2solarcapecod.com
www.e2solarcapecod.com

Specialties: Photovoltaics, Solar Hot Water, Domestic Water Heating

EAM Associates

Marx, Rick
3350 Highway 138
Building 2, Suite 226
Wall, NJ 07719
Tel: 727132251
Fax: 7325569195
rmarx@eamenergy.com

Specialties: Energy Audit Services, Space Heating/Cooling, Consultant

Earthnet Energy/Hammersaw Solar

Hellier, Ted
37 Hawthorne Lane
South Portland, ME 04106
Tel: 207 799-9222
hammersawsolar@maine.rr.com
www.hammersawsolar.com

Specialties: Building Design/Construction, Energy Audit Services, Solar Hot Water

Earthwise Energy Technologies

Ruberti, Jim
505 Narragansett Park Drive
Pawtucket, RI 02861
Tel: 401-365-1575
Fax: 401-312-0092
jruberti@earthwiseenergytech.com
www.earthwiseenergytech.com

Specialties: Other Renewable Energy Generation

Eastern Heating and Cooling Council

Sherako, Jill
20,000 Horizon Way, Suite 260
Mount Laurel, NJ 08054
Tel: 800-247-6547
Fax: 856-608-0923
jsherako@eh-cc.org
www.eh-cc.org

Description: HVAC Training
Specialties: Space Heating/Cooling

Eastern Solar Services

Nelson, Kenneth C.
P.O. Box 60
Wayland, MA 01778
Tel: 508-882-0102
easternsolarservices@hotmail.com

Description: Eastern Solar Services—servicing the solar thermal infrastructure for more than 30 years. Service is our only business.

Specialties: Domestic Water Heating, Energy Conservation, Space Heating/Cooling

Eco+Plan Architecture, LLC

Baum, Scott
574 Bernardston Road
Greenfield, MA 01301-2265
Tel: 413-773-7559
sbaum@ecoplanplus.com
www.ecoplanplus.com

Description: Eco+Plan specializes in creating affordable, superinsulated and zero energy homes.

These homes are both energy and resource efficient, utilizing advanced building techniques and local natural resources. Eco+Plan has extensive experience with various alternative building systems. Through optimizing your building system and your approach to construction Eco+Plan can maximize your construction dollar. We are designing superinsulated buildings today that cost less to construct than conventional non-superinsulated buildings. Eco+Plan's services are available to the northern United States and Canada. 3-D modeling software is used to show design progress and to facilitate discussion. Online design updates that contain sketch views, plans, photo-realistic renderings, and virtual walk-throughs make remote design effective and exciting.

Specialties: Alternative Technologies, Building Design/Construction, Energy Conservation

EcoRealty

Hopkins, Dave
P.O. Box 3007
Amherst, MA 01004
Tel: 413-259-9800
Fax: 413-625-6638
dave@ecorealty.org
www.ecorealty.org

Description: EcoRealty is an environmentally friendly buyer brokerage with a special interest in green building, farming, and living local economies.

Specialties: Real Estate

ECS, Inc.

Tangredi, Paul
588 Silver Street
Agawam, MA 01001
Tel: 413-233-9375
ptangredi@ecsconsult.com

Specialties: Indoor Air Quality, Energy Audit Services, Consultant

Alphabetical List

Efficiency Maine

18 State House Station
Augusta, ME 04333-0018
Tel: 207-287-1594
efficiencymaine@maine.gov
www.efficiencymaine.com

Description: Efficiency Maine is a statewide effort to promote the more efficient use of electricity, help ME residents and businesses reduce energy costs, and improve Maine's environment.

Specialties: Environmental Education, Energy Conservation

Energy Balance, Inc.

Shapiro, Andrew
160 White Rock Drive, No. 1
Montpelier, VT 05602-9455
Tel: 802-229-5676
andy@energybalance.us

Description: Andy works as Energy Balance, Inc., on high performance building design and the Vermont Energy Education Program.

Specialties: Building Design/Construction, Energy Conservation, Environmental Education

Energy Efficiency Associates

Duclos, Mike
3 Birch Hill Road
Stow, MA 01775-1308
Tel: 978-793-3189
mike_duclos@ieeee.org

Description: Our consulting services specialize in Zero Net Energy, Passive House and Deep Energy Retrofits.

Specialties: Building Design/Construction, Energy Conservation

Energy Farm, LLC

Smith, David
15 Church Street
P.O. Box 112
Vineyard Haven, MA 02568
Tel: 508-693-6374
Fax: 508-693-6378
dsmith@energyfarm-usa.com
http://www.energyfarm-usa.com

Specialties: Solar Hot Water, Photovoltaics, Geothermal

Energy Independence Now, LLC

Shapiro, Darek
23 Atlantic Street
Stamford, CT 06901
Tel: 203-321-0222
Fax: 203-329-9776

darek@addictedtoenergy.com
Description: We are architects and design builders of solar, geothermal and insulating systems that when integrated offer energy independence now.

Specialties: Geothermal, Insulation, Photovoltaics

Energy Opportunities, Inc.

Sheffer, Marcus
1200 East Camping Area Road
Wellsville, PA 17365-9783
Tel: 717-292-2636
sheffer@sevengroup.com
www.sevengroup.com

Description: Energy Opportunities provides services focused on energy issues and the interface of nature and human enterprises. Founded in 1993, EO is also a part of 7group, LLC.

Specialties: Building Design/Construction, Energy Conservation, Environmental Education

Energy Saver Enablers, LLC

Aho, Caleb
52 Fitzgerald Drive
Jaffrey, NH 03452
Tel: 800-358-6155
caleb@esaverenabler.com
www.esaverenabler.com

Description: BPI Certified, auditing and installation. Deep Energy Reductions. Extensive work in MA and NH weatherization programs. Residential and Commercial Solar Thermal.

Specialties: Domestic Water Heating, Energy Audit Services, Insulation

Engineered Alternatives

Hennessey, John
P.O. Box 394
West Simsbury, CT 06092
Tel: 860-217-5252
Fax: 860-217-0335
info@engineeredalternatives.com
www.engineeredalternatives.com

Description: Engineered Alternatives is a sustainable buildings consulting firm providing creative building solutions by combining innovative technologies with sound engineering principles.

Specialties: Energy Audit Services, Energy Conservation, Other Renewable Energy Generation

Enviro Energy Connections

Link, Henry
45 Mountain Street
Hartford, CT 06106
Tel: 860-953-7611
hlinkage@alum.mit.edu

Description: Enviro Energy Connections advocates for energy conservation, and renewable energies, promotes design of green buildings, overall sustainable strat-

egies, proper waste management, and testifies at utility and legislative hearings.

Specialties: Consumer Information, Energy Conservation, Environmental Education, Public Policy

ERS-Energy Resource Solutions

Epstein, Gary
13 Railroad Square, Suite 504
Haverhill, MA 01832
Tel: 978-521-2550
Fax: 978-521-4588
info@ers-inc.com
www.ers-inc.com

Description: ERS assists customers solve energy and resource problems in a cost-effective manner. Expertise includes implementing better approaches for facility energy systems; designing or enhancing efficiency programs; developing more environmentally friendly processes.

Specialties: Building Design/Construction, Energy Audit Services, Indoor Air Quality, Lighting Design

ETM Solar Works

Canough, Gay
1001 Union Center Maine
Highway
Endicott, NY 13760-4915
Tel: 607-785-6499
Fax: 607-786-3388
info@etmsolar.com
www.etmsolar.com

Description: Design and installation of solar energy systems; residential & commercial.

Specialties: Domestic Water Heating, Photovoltaics, Wind

EvB Design

vanBeuzekom, Edrick
33-1/2 Union Square
Somerville, MA 02143
Tel: 617-623-2222
edrick@evbdesign.com
Specialties: Building Design/Construction

F.A.I. Mechanical Contractors

Iadarola, Frank
Box 1113
12 Depot Street
East Douglas, MA 01516
Tel: 508-476-1722
franki3@verizon.net
Specialties: Space Heating/Cooling

Feinmann, Inc.

Feinmann, Peter
27 Muzzey Street
Lexington, MA 02421
Tel: 781-860-9800
peter@feinmann.com
www.feinmann.com

Description: Feinmann Inc. is known for its thoughtful and sustainable design, a well-articulated process, superb craftsmanship, responsive service, and the best value for the cost.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Ferry Beach Ecology School

Dumsch, Andrew
8 Morris Avenue, Building 1
Saco, ME 04072
Tel: 207-283-9951
Fax: 207-283-4465
drew@fbes.org
www.fbes.org

Specialties: Environmental Education

Ferut Architects

Ferut, Joseph
401 Broad Street, Suite 200
Elyria, OH 44035
Tel: 440-323-9930
Fax: 440-323-0908
jfarchitects@alltel.net

Specialties: Building Design/Construction

F.H. Perry Builder, Inc.

Perry, Finley
90 Elm Street
Hopkinton, MA 01748
Tel: 508-435-3062
fperry@fhperry.com

Description: Whether we built it or not, F.H. Perry wants to make sure that the love you have for your home endures. This love includes feeling completely comfortable with your home's energy consumption and sustainable systems. At F.H. Perry Builder, we offer comprehensive services from energy audits to recommendations to repair on your existing home or we can GC the construction of the most sustainable home on the planet. Home is supposed to be where the heart is—not the headaches. F.H. Perry Builder, Vision Accomplished.

Specialties: Building Design/Construction, Energy Audit Services, Home Inspections

FieldEddy Insurance

Petit de Mange, Teresa
P.O. Box 709
96 Shaker Road
East Longmeadow, MA 01028
Tel: 413-233-2100
tpetitdemange@fieldeddy.com

Specialties: Insurance

FLIR Systems

O'Toole, Tom
25 Esquire Road
North Billerica, MA 01862
Tel: 978-901-8301
Fax: 978-901-8532
tom.otoole@flir.com
www.goinfrared.com

Description: Thermal imaging is a non-invasive, cost-efficient technology used to diagnose energy efficiency issues in buildings. Infrared inspection quickly detects electrical, structural, and other hidden problems which can impact energy efficiency.

Specialties: Energy Conservation, Home Inspections, Indoor Air Quality

Flynn High Performance, LLC

Flynn, Thomas
146 Hokum Rock Road
Dennis, MA 02638
Tel: 774-268-9370
tomflynncapecod@yahoo.com
www.flynnhighperformancellc.com

Description: A Green Design Build Company. Retrofits homes to NAHB Green & LEED. Floor plan redraws. Specializing in improving home performance. Energy audits & consulting. CGP & AP.

Specialties: Building Design/Construction, Domestic Water Heating, Remodeling

Foard Panel

Ford, Lisa
P.O. Box 185
53 Stow Drive
West Chesterfield, NH 03466
Tel: 800-644-8885
Fax: 603-256-8800
lisa@foardpanel.com
www.foardpanel.com

Description: Foard Panel manufactures and installs structural insulated panels for residential and commercial construction.

Specialties: Alternative Technologies, Building Design/Construction

Fortress Green Building Supply

Lyden, Tim
38 Faunce Corner Road
Dartmouth, MA 02747
Tel: 508-971-1004
Fax: 508-993-7018
fortressgreenbuildingsupply@comcast.net

Description: "High Efficiency" Cost Effective, Green Building Materials Only (No Minimum Code Stuff). Products include: "IntegraSpec" Insulating Concrete Forms, Insul-Deck Concrete Floor/Roof System,

Solar Heat, Radiant-Solar systems, Passive Solar, Sips, Heat Recovery, Windpower, PV, Green Build Project Management, Contractor/Builder EZ-Green Program, Contractors ICF Hands on Training/Build Program, Homeowner-DIY-Programs (ICFs Solar, SIPs), Homeowner Co-Build Programs, Non-Profit Habitat & Municipal Building Barn-Raising & Volunteer Programs, Green Building Optimum Options Analysis, Consulting, much more.

Specialties: Alternative Technologies, Building Design/Construction, Energy Conservation

Frase Electric, LLC

Frase, Kim
789 Whittier Highway
South Tamworth, NH 03883
Tel: 603-284-6618
Fax: 603-284-6343
kfrase@hughes.net

Description: Electrical contractor in the lakes region for 18 years. Install and design solar PV systems. Member of NESAs, NHSEA, IEIA and ECBA.

Specialties: Photovoltaics

Fred Davis Corporation

Davis, Fred
120 North Meadows Road
Medfield, MA 02052
Tel: 800-497-2970
fred@freddaviscorp.com
www.freddaviscorp.com

Description: Leading national independent wholesaler of all efficient lighting products. Fred: former NESEA boardmember; worked on national lamp efficiency standards; chaired first conference on lighting and energy, 1987 (a NESEA conference).

Specialties: Lighting Supply

Froling Energy

Froling, Mark
P.O. Box 178
19 Grove Street
Peterborough, NH 03444
Tel: 603-924-1001
mark@frolingllc.com

Description: Installers of Wood pellet and Wood Chip boiler systems for commercial, industrial and institutional customers. Turnkey project management. In-house design. Free site evaluation.

Specialties: Biomass

Frost Pond Timberframes, LLC

Macy, Sean
544 Lower Jaffrey Road
Dublin, NH 03444
Tel: 603-562-7758
Fax: 603-563-7758
sh Macy@worldpath.net

Description: Contractors/Builders in the Monadnock region. We work with clients to help them find systems and materials that fit their needs. New construction and renovation.

Specialties: Building Design/Construction

FutureMetrics

Strauss, William
8 Garden Way
Albany Township, ME 04217
Tel: 207-824-7428
williamstrauss@futuremetrics.net

Specialties: Research

G O Logic, LLC

Gibson, Alan
163 Moosehead Trail
Waldo, ME 04915
Tel: 207-722-3079
agibson@gologicshomes.com

Specialties: Building Design/Construction

GAIA Host Collective

Strader, Charles
P.O. Box 622
Greenfield, MA 01302
Tel: 800-672-8060 x 803
charles@gaiahost.coop
www.gaiahost.coop

Description: GAIA Host Collective, LLC is a socially and environmentally focused, worker-owned cooperative, providing reliable internet hosting services on Open Source platforms.

Specialties: Alternative Technologies, Communications, I.T.

Gail Hallock Architect, Inc.

Hallock Cyr, Gail
11 Fowler Street
Wickford, RI 02852
Tel: 401-295-1369
gailhallockarcht@verizon.net
www.gailhallockarchitect.com

Description: Specializing in residential design since 1983. New primary residences, new vacation cottages, additions and renovations designed in partnership with our clients.

Specialties: Building Design/Construction

Gate City Electric

Gringras, Don
9 Pine Street Extension
Box 3554
Nashua, NH 03060
Tel: 603-886-0200
dgringras@gatecityelectric.com

Specialties: Lighting Design, Building Design/Construction

Gateway Community College

Cooper, David
88 Bassett Road
North Haven, CT 06473
Tel: 203-285-2426
dcooper@gwcc.commnet.edu

Specialties: College/University

GDNE-Ogden Well & Pump Co., Inc.

Fitzpatrick, Glenn
17 Catherwood Road
Tewksbury, MA 01876
Tel: 978-815-4282
Fax: 978-459-0368
gfitzy@comcast.net

Specialties: Geothermal

GDS Associates, Inc.

Bennett, Bruce
1181 Elm Street, Suite 205
Manchester, NH 03101
Tel: 603-656-0336
Fax: 603-656-0301
bruce.bennett@gdsassociates.com
www.gdsassociates.com/services/rees.html

Specialties: Energy Audit Services

Gem Plumbing and Heating

Mercer, Dan
1 Wellington Road
Lincoln, RI 02865
Tel: 401-421-WIND
dmerc@gemplumbing.com
www.gemplumbing.com

Description: Since its founding in 1949, Gem Plumbing and Heating has proudly serviced residents and businesses with innovative solutions. The newly formed Gem Energy Solutions utilizes the experience of our knowledgeable staff and 24-hour customer service to provide 100% satisfaction guaranteed service. At Gem, we believe in investing in our community and have taken steps to reduce our carbon footprint. Let us help you to do the same by upgrading your current equipment, putting in high efficient systems or installing clean renewable energy technology. Call us today to learn out more about our unique approach to finding your energy solutions. What's your solution? Is it Solar Thermal, Solar PV, Wind, Geothermal, Biomass, Cogeneration, High Efficient Conventional, Power Factor Correction, Rainwater Collection, Plumbing, Heating & Electrical or a combination?

Specialties: Alternative Technologies, Photovoltaics, Wind

Alphabetical List

Gendron Construction Services

Gendron, George
427 Cider Hill Road
York, ME 03909
Tel: 207-337-1336
Fax: 207-363-1727
gconstruct@maine.rr.com
www.gendronconstruction.com
Description: Renovation and new construction emphasizing energy efficiency. "Maine Home Performance With Energy Star" energy auditor. Retrofit insulation and weatherization.
Specialties: Building Design/Construction, Energy Audit Services, Insulation

George Malette

Malette, George
115 Concord Stage Road
Weare, NH 03281-4620
Tel: 603-529-5429
Fax: 603-529-5429
gmmalette@comcast.net
Description: Passive solar, super-insulated, environmentally conscious designs and healthy homes; deep energy retrofit designs and zero energy solar greenhouse designs.
Specialties: Building Design/Construction, Energy Audit Services, Indoor Air Quality

Gleason Geothermal

Gleason, Matt
3994 Pardee Hollow Road
Wayland, NY 14572
Tel: 585-534-9029
matt@gleasonheating.com
Specialties: Geothermal

Go Solar, Inc.

Minnick, Gary
272 Main Road (Route 25)
Riverhead, NY 11901
Tel: 631-727-2224
Fax: 631-779-3344
gary@gosolar.com
www.gosolar.com

Description: Full service renewable energy systems designer and installer. Design and install solar electric, solar hot water, solar pool heating, and wind energy systems. We also provide training and distribute products.
Specialties: Domestic Water Heating, Photovoltaics, Wind

Good Earth Real Estate, LLC

Kabasakalian, Colette
26 Barnum Place
Ridgefield, CT 06877
Tel: 800-450-6775
Fax: 800-450-6775
colette@goodearthre.com
Specialties: Real Estate

Gougeon & Locke

Locke, Jim
26 South Street
Williamsburg, MA 01096
Tel: 413-268-9323
Fax: 413-268-0354
glbuild@verizon.net
Description: This company is ready for any residential challenge after thirty-four years of fair dealing, careful craftsmanship, and ongoing education and enthusiasm.
Specialties: Building Design/Construction, Energy Conservation, Remodeling

Great Rock Windpower

Harcourt, Gary
P.O. Box 1919
Vineyard Haven, MA
Tel: 508-560-2834
Fax: 508-693-7414
gary@greatrockwindpower.com
www.greatrockwindpower.com
Description: Sales, installation and service of small wind energy systems on the island of Martha's Vineyard.
Specialties: Green Electricity, Wind

Green Energy Options

Fleischmann, Pablo
79 Emerald Street
Keene, NH 03431
Tel: 603-358-3444
geo@usasolarstore.com
www.usasolarstore.com
Description: A "general store" for Green Energy. Advice, sales and installations. We carry items ranging from CFLs to full solar hot water and solar electric systems! Come in, touch, feel and understand.
Specialties: Alternative Technologies, Photovoltaics, Retail

Green Home Consulting, LLC

Martin, Judith
411 Theodore Fremd Avenue
Suite 206
Rye, NY 10580
Tel: 914-967-2956
Fax: 914-967-2956
info@greenhomeswestchester.com
www.greenhomeswestchester.com
Description: Green home renov./construction in Westchester Co, NY & Fairfield Co, CT, incl research, sourcing & project mgmt. Work with owners of existing homes to improve energy efficiency.
Specialties: Consumer Information, Energy Conservation, Remodeling

Green Machine PR

Lee, Jo
197 Ivy Street
Providence, RI 02906
Tel: 401-338-5445
jo@greenmachinepr.com
http://greenmachinepr.com/
Specialties: Communications, Public Relations, Marketing

Green Mountain College

Griswold Library
One Brennan Circle
Poultney, VT 05764-1078
Specialties: Library, College/University

Green Star Insulation

Novella, Joseph
5 Maple View Lane
Danbury, CT 06810
Tel: 203-947-9335
Fax: 203-702-7063
joenovella@gogreenstar.com
Specialties: Insulation

Green View Building & Design Company, Inc.

Calhoun, Will
P.O. Box 98
Cornwall, CT 06753-0098
Tel: 860-672-0131
Fax: 860-672-6112
will@greenviewco.com
Specialties: Building Design/Construction

Green Woodlands

Green, Robert
P.O. Box 330
Lyme, NH 03768
Tel: 603-643-3136
Fax: 630-285-0578
bgreen@webspoc.com
Specialties: Research, Building Design/Construction, Alternative Technologies

GreenBridge Energy Consortium, LLC

Bowden, Gregory
200 Brickstone Square, Suite 406
Andover, MA 01810-1429
Tel: 978-269-5755
gbowden@greenbridgeenergy.com
www.greenbridgeenergy.com
Description: GreenBridge Energy is a consortium of joint ventures and certified consultants that deliver (1) energy management and conservation advisory and (2) the development, engineering and financing of onsite renewable energy systems. Our two-pronged line of services is designed especially for nonprofit institutions and small businesses that are interested in achieving greater energy efficiency.

GreenBridge Energy is at the forefront of bringing onsite solar energy systems to underserved markets, especially those that are not able to full take advantage of the available tax and financial incentives.

Federal incentives are available on new, qualifying projects located throughout the United States; however, they can only be realized by taxable (non-exempt) companies that have the capacity to utilize the tax benefits. For the nonprofit client that is interested in renewable energy, GreenBridge Energy is able to provide financing through its funding programs with investors who can take advantage of the federal incentives.

Specialties: Domestic Water Heating, Energy Audit Services, Photovoltaics

Greene Energy Consultants, LLC

Greenbaum, Scott
40 Damon Road
Scituate, MA 02066
Fax: 781-545-1843
sgreenbaum@earthlink.net
www.greeneenergyconsultants.com
Description: Sustainable energy project development and implementation specialist (ie Commissioning) for commercial, institutional, multi-family, alternative power generation and co-gen.
Specialties: College/University, Energy Audit Services, Energy Conservation

Greener Every Day

White, Rachel
124 Hagen Road
Newton, MA 02459
Tel: 617-905-6925
rachel@greenereverydayconsulting.com
www.greenereverydayconsulting.com

Description: Greener Every Day provides green home and lifestyle consulting services to help consumers make choices that are good for them and the earth. We advise homeowners on how to conserve energy, save money, reduce waste, protect themselves from environmental health hazards, and promote their overall health and well-being. We also work with residential design/build professionals to develop and implement sustainability goals and targets.

Specialties: Consumer Information, Environmental Education, Research

GreenResNYC

Woods, Alexandra
165 West End Avenue, Suite 1E
New York City, NY 10023
Tel: 917-346-7551

greenresnyc@gmail.com

Specialties: Consultant

GreenSource Energy Solutions, LLC

Gamble, James
22 Pleasant Street
Concord, NH 03301

Tel: 603-856-8035

james@gessolarstore.com

www.gessolarstore.com

Description: Design, sales and installation of renewable energy solutions including solar electricity and solar hot water systems, plus a full line of conservation and high-efficiency products.

Specialties: Alternative Technologies, Green Electricity, Photovoltaics

Grenergy Solar Store, LLC

Torrico, Brian
520 Sheffield Plain Road, Route 7
Sheffield, MA 01257

Tel: 413-229-0049

info@grenergysolarstore.com

www.grenergysolarstore.com

Description: Full service retail store offering renewable energy generating technologies, installation services, generators, and consumer education all under one roof.

Specialties: Consumer Information, Domestic Water Heating, Photovoltaics

groSolar

Martin, Dawn
601 Old River Road, Suite 3
White River Junction, VT 05001
Tel: 802-359-6512

Fax: 802-295-4417

dawn.martin@grosolar.com

www.grosolar.com

Description: groSolar is a leading North American distributor and installer of solar energy systems for residential and commercial installations. Founded in 1998, groSolar is a mission driven company dedicated to providing high value products, systems and services that deliver peace of mind through solar energy systems and whole energy appreciation. Jeff Wolfe, groSolar's founder, knew early on what he was destined to do. In high school he experienced the Energy Crisis of 1973 first-hand. He decided at that point to dedicate his life's work to renewable energy production and energy efficiency, advocacy and

development. Jeff and his wife, Dori, both engineering graduates from Cornell, have developed groSolar to lead the solar industry in innovation and sound business practice. Today, with warehouses across the United States and Canada, groSolar has the broadest solar distribution network in North America. groSolar also serves all major United States solar markets with either a company-owned installation office or a dealer-partner installation office.

Specialties: Green Electricity, Other Renewable Energy Generation, Photovoltaics

Halco Renewable Energy

Kemp, Melissa

865 County Road 6

Phelps, NY 14532

Tel: 315-946-6200

Fax: 315-946-5161

melissa@halcoheating.com

www.halcoheating.com/

renewable_energy

Description: Halco's Renewable Energy Division specializes in designing and installing solar electric, solar heating, geothermal, and small wind systems in the Central, NY area.

Specialties: Energy Audit Services, Geothermal, Photovoltaics

Hamel Environmental Consulting

Hamel, Sonia

34 Fairview Avenue

Arlington, MA 02474

Tel: 617-529-3535

sonia.hamel@gmail.com

Specialties: Public Policy,

Public Relations, Research

HAP, Inc.

Rossmassler, Tom

322 Main Street

Springfield, MA 01038-2473

Tel: 413-233-1728

Fax: 413-731-8723

trossmassler@haphousing.org

Specialties: Social Services,

Consumer Information

Hayward & Company Log & Timber Homes

Hayward, Mike & Julie

355 Oakcrest Road

Bristol, NH 03222

Tel: 603-744-0186

Fax: 603-754-2044

info@haywardandcompany.com

www.haywardandcompany.com

Description: A design/build company specializing in high-performance traditional log and timber homes. A certified Green

Building Professional on staff and EnergyStar building principles utilized.

Specialties: Building Design/Construction

Heartwood Group, Inc.

Unger, Fred

165 Evergreen Street

Providence, RI 02906

Tel: 401-861-1650

unger@hrtwd.com

www.heartwoodsolutions.com

Description: Our company was founded in 1983 to create environmentally responsible buildings.

Today we provide consulting and development services in the renewable energy and building industries. We have managed the development and operations for one of the largest owners of solar electric systems in New England, coordinated the design and federal permitting of a 3.3 MW wind project, and developed numerous innovative real estate projects. In 2004, we founded an information technology company in the energy industry that was merged with a competitor to create the nation's leading provider of remote monitoring of renewable energy projects. As consultants, we have helped leading firms grow their businesses and have teamed with some of the best architectural, design, engineering, construction, contracting, environmental, legal, permitting, financial and other specialists in the country on previous successful efforts and view our role as team builders and project managers as a critical part of the service we provide.

Specialties: Energy Conservation, Photovoltaics, Wind

Heat Shed, Inc.

Reichner, Charles

P.O. Box 336

267 Rock Ridge Road

Revere, PA 18953

Tel: 610-847-2064

Fax: 610-847-2110

charlie@heatshed.com

www.heatshed.com

Description: Heat Shed designs and installs solar photovoltaic systems for small commercial projects and residences. To date we have installed over 500kw and use solar on our own home and business. Lots of customer referrals available.

Specialties: Photovoltaics

Heliotropic Technologies

Mayhew, Michael

60 Campbell Street

Boothbay Harbor, ME 04538-0018

Tel: 207-633-1061

coolsolarguy@yahoo.com

www.heliotropictech.com

Description: Heliotropic Technologies is a renewable energy systems and professional energy engineering business that would like to be your energy partner.

Specialties: Domestic Water Heating, Energy Audit Services, Photovoltaics

Higgins Energy Alternatives

Higgins, Chris

7 Worcester Road

Barre, MA 01005

Tel: 978-355-6343

Fax: 978-355-4582

higgins@higginspowersports.com

Specialties: Domestic Water Heating, Photovoltaics, Wind

Hill Builders

Hill, Ralph

49 Kestrel Lane

Amherst, MA 01002

Tel: 413-256-4633

Fax: 413-256-4633

rahill@comcast.net

www.hill-builders.com

Description: Hill Builders, with over 30 years experience, provides high quality residential construction and remodeling in western Massachusetts with an emphasis on green products and techniques.

Specialties: Building Design/Construction, Remodeling

Hill Energy Services, LLC

Hill, Nicholas

7 Needhamdale Road

Needham, MA 02492

Tel: 617-429-3862

nhill@hill-energy.com

www.hill-energy.com

Description: Hill Energy Services provides commercial and industrial customers with a full range of Energy Management Services: Strategic Energy Planning and Sustainability Consulting; Energy Audits; Lighting Design; Energy Procurement Services; Energy Star and LEED Services. Nick Hill, principal of Hill Energy is a Certified Energy Manager and LEED Accredited Professional with over 25 years experience in the energy efficiency field. He has worked as an energy auditor, construction manager, designer and project manager for consulting firms and major energy services companies.

Specialties: Energy Audit Services, Energy Conservation, Lighting Design

Alphabetical List

Holland Foley Architecture, LLC

Foley, David
232 Beech Hill Road
Northport, ME 04849
Tel: 207-338-9869
contact@hollandandfoley.com
www.hollandandfoley.com

Description: Residential and commercial architectural design services for well-designed, environmentally friendly, energy efficient, solar ready buildings.

Specialties: Building Design/Construction, Energy Conservation, Environmental Education

Home Energy Remedies, LLC

Cole, Russell
74 Pond Street
Douglas, MA 01516-2030
Tel: 508-476-0032
Fax: 508-476-1958
russ@homeenergyremedies.com
www.homeenergyremedies.com

Description: An unbiased and logical approach to cutting home energy costs. I analyze the home's efficiency to help the owner create a plan that will address current needs and future plans.

Specialties: Consumer Information, Energy Audit Services

Homeplace Design Co.

Putnam, Barbara
73 Clark Road
Litchfield, CT 06759
Tel: 860-567-4465
Fax: 860-567-3189
bdputnam@alum.mit.edu

Description: Design and construction drawings for houses, additions and renovations. Trained in LEED.

Specialties: Building Design/Construction, Energy Conservation

Horner Millwork

Gurry, Susan
1255 Grand Army Highway
Somerset, MA 02726
Tel: 508-679-6479
Fax: 508-235-4276
sgurry@northatlanticcorp.com

Specialties: Retail, Energy Conservation, Windows

Hudson River Design

Silver, Chuck
120 Lighthouse Drive
Saugerties, NY 12477
Tel: 845-246-0725
csilver@hvc.rr.com
www.chucksilver.com

Description: Hudson River Design has been designing low energy-use homes in NY's Hudson Valley for over 30 years. We create extra-

ordinary buildings, including the Greenest Building in NY.

Specialties: Building Design/Construction

Hunter Panels—Sun Optics

McEachern, Bob
P.O. Box 41
Woburn, MA 01801
Tel: 603-694-4236
Fax: 603-329-4048
bmecachern@rtsreps.net

Specialties: Roofing, Retail, Lighting Design

Icynene Spray Foam Insulation

Sheehan, John
98 Clarke Street
Jamestown, RI 02835
Tel: 888-960-5421
Fax: 866-247-9263
jack@peddlers.net
www.icynene.com

Specialties: Insulation

IES Commercial, Inc.

Rotman, Michael
904B Boston Turnpike
Shrewsbury, MA 01545
Tel: 508-842-0920
michael.rotman@ies-co.com

Specialties: Photovoltaics, Communications

In Site: Architecture

Hauser, Rick & Yapicioglu, Ali
Rochester—Perry—Geneva
Perry, NY 14530
Tel: 585-237-2614
Fax: 585-237-3679
rick@insitearch.com
www.insitearch.com

Description: WNY/Finger Lakes region. We create innovative, site-specific solutions to every project, marrying our interest in sustainable principles to clients' own priorities.

Specialties: Building Design/Construction, Green Electricity, Landscape Design/Construction

Infrared Diagnostic, LLC

Lund, Flemming
9 Elaine Road
Sudbury, MA 01776
Tel: 978-440-9900
Fax: 978-440-9902
info@infrareddiagnostic.com
www.infrareddiagnostic.com

Description: Infrared energy audit, Duct Blaster and Blower Door testing. Certified Infrared Thermographer, RESNET/HERS Rater. Provide consulting to builders, home owners to reduce energy.

Specialties: Consumer Information, Energy Audit Services, Energy Conservation

Ingersoll Painting & Construction, Inc.

Ingersoll, Jeff
1890 Niagara Street
Buffalo, NY 14207
Tel: 716-877-6502
Fax: 716-877-5900
jingersoll@ingersollpainting.com
www.ingersollpainting.com

Description: Solar hot water, painting and remodeling services.

Specialties: Building Design/Construction, Domestic Water Heating, Remodeling, Radiant Heating

Innovative Building & Design

Clement, Henry R.
54 Porter Street
Granby, MA 01033
Tel: 413-552-9771
Fax: 413-467-3162
henry@gogtt.net

Description: We are a residential general contracting firm which has been designing and building energy efficient homes for 25 years utilizing a wide range of sustainable technologies.

Specialties: Building Design/Construction, Remodeling, Space Heating/Cooling

INTEGRATA Architects

Borgese, Andrew
419 Palmer Avenue
Falmouth, MA 02540
Tel: 508-495-6575
Fax: 508-457-7743
integrata@verizon.net
www.integrata.us

Description: We are Architects & Builders focused on design & construction of high performance buildings that are less expensive to own and operate & provide maximum value to owners & occupants

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Integrated Solar

Cay, Andrew R.
121 Spring Tree Road
Bristol, VT 05301
Tel: 802-257-7493
Fax: 802-257-7447
info@isasolar.com
www.isasolar.com

Description: Integrated Solar specializes in the design, service, and installation of renewable energy systems, including solar thermal hydronic, photovoltaic, small wind, micro-hydro, biomass and hybrid systems.

Specialties: Domestic Water Heating, Photovoltaics, Space Heating/Cooling

Isaak Design, PLLC

Isaak, Nick
35 Oyster River Road
Durham, NH 03824
Tel: 603-969-6711
nick@isaakdesign.com
www.isaakdesign.com

Description: Sustainable Architectural and Urban Design, Commercial and Residential structures, 3D computer modeling, Energy Code Compliance, LEED accredited professional

Specialties: Building Design/Construction, Energy Conservation, Remodeling

ISI Solar

Albert, James
22 Third Street
New City, NY 10956
Tel: 845-708-0800
jla@isi-solar.com
www.isi-solar.com

Description: ISI Solar offers consulting, design, and installation services for solar electric systems. To ensure that we can provide the highest level of service, we currently limit our installations in New York to the following counties - Rockland, Westchester, Putnam, and Orange. In New Jersey we service Bergen, Passaic, and Essex counties. In Connecticut we currently only serve Fairfield county.

Specialties: Photovoltaics

Ives Architects

Ives, Gerard
1 Dartmouth Place
Boston, MA 02116
Tel: 617-266-1899
ivesarch@verizon.net

Description: NEW New England Design; Homes, Visitor Centers, Educational Facilities; Awards For Sustainable Design, Renewables; Planning, Feasibility, 3D Design and Construction Phase Services

Specialties: Building Design/Construction, Environmental Education

J. W. Crouse, Inc.

Crouse, Jesse W.
306 Beechwood Road
Westchester, PA 19382-7363
Tel: 610-430-3618
Fax: 610-430-3618
jwcincps@verizon.net
www.jwcrouse.com

Description: We are committed to the Green buildings concept through our traditional plumbing and heating energy services, EnergyStar partnership and solar initiative.

Specialties: Domestic Water Heating, Geothermal, Space Heating/Cooling

J.A. Plumbing & Heating

Arsenault, Joseph
99 Lancaster Road
Shirley, MA 01464
Tel: 978-652-2212
Fax: 978-425-4902
japlumber@verizon.net

Description: 30yrs thermal solar—2009. Licensed plumber and oil tech. Specialties, High Efficiency gas & oil boilers, Radiant, On Demand Water Heaters, Solar Thermal Installations, Service.

Specialties: Alternative Technologies, Domestic Water Heating, Energy Conservation

Jac-Rack

Kehren, Kurt
3937 Campus Drive
Pontiac, MI 48341
Tel: 586-295-3705
kkehren@jacprod.com

Specialties: Photovoltaics

Jamie Devol, Architect

Devol, Jamie
7 Dix Terrace
Winchester, MA 01890
Tel: 781-721-7574
jdevol_aia@msn.com
www.jamiedevol.com

Description: I optimize passive strategies; create efficient plans; specify green materials; and incorporate energy-saving technology. Stewardship/Renovations/Additions/New Construction.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

John Fülöp Associates, Architects & Planners

Fulop, John
103 East Alford Road
West Stockbridge, MA 01266
Tel: 413-232-7122, 212-219-2121
john@fulopassociates.com
www.fulopassociates.com

Description: John Fülöp Associates, Architects provides design services for all building types, creating aesthetically pleasing, economic "green" architecture throughout the Northeast.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

John Mateyko Architect

Mateyko, John
304 Pilottown Road
Lewes, DE 19958-1230
Tel: 302-645-2657
Fax: 302-645-2657
charitocw@aol.com

Specialties: Building Design/Construction

Kaplan Thompson Architects

Thompson, Jesse
424 Fore Street
Portland, ME 04101
Tel: 207-842-2888
Fax: 207-842-2828
info@kaplanthompson.com
www.kaplanthompson.com

Description: Our mission is to bring beautiful, sustainable and attainable buildings to the world. From your home to your business, we can design the sustainable building you have been looking for.

Specialties: Building Design/Construction, Energy Conservation, Research

Kasten & Company, Inc.

Kasten, Robert
904 Stony Hill Road
Wilbraham, MA 01095
Tel: 413-636-1497
Fax: 978-738-9522
robert@kastencompany.com

Specialties: Alternative Technologies

Kate Mitchell, Attorney-at-Law

Mitchell, Kate
761 Main Street
P.O. Box 160
West Barnstable, MA 02668
Tel: 508-362-1369
Fax: 508-362-1368
katemitchell@comcast.net
www.katemitchellattorney.com

Description: Cape & Islands law firm with focus on construction, land use and environmental issues; serves as owner's representative in residential construction, emphasis on "partnering," energy efficient building practices.

Specialties: Building Design/Construction, Legal

Keene State College

Mason Library
229 Main Street
P.O. Box 3201
Keene, NH 03435-0001
Specialties: Library, College/University

Keene State College Architecture

Sapeta, Bart
Keene State College—TDS Dept
229 Main Street
Keene, NH 03435
Tel: 603-358-2947
bsapeta@keene.edu

Specialties: College/University

Kent Hicks Construction Co.

Hicks, Kent
P.O. Box 57
West Chesterfield, MA 01084
Tel: 413-296-0123
Fax: 413-296-0123
khicksconstruction@verizon.net

Specialties: Building Design/Construction

Kraus-Fitch Architects, Inc.

Fitch, Laura
110 Pulpit Hill Road
Amherst, MA 01002
Tel: 413-549-5799
Fax: 413-549-7918
lfitch@krausfitch.com
www.krausfitch.com

Description: Kraus-Fitch Architects was established in 2000 with the mission of working on environmentally and socially relevant projects. KFA remained at the forefront of the green design movement from this time, and also enjoys a specialty in programming and design of cohousing communities.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Kuhn Riddle Architects, Inc.

Riddle, Christopher E.
28 Amity Street, Suite 2B
Amherst, MA 01002
Tel: 413-259-1630
Fax: 413-259-1621
criddle@kuhnriddle.com
www.kuhnriddle.com

Description: Architectural and Interior Design—LEED Accredited Professionals

Specialties: Building Design/Construction, Lighting Design, Remodeling

KVS Design

Scheurer, Karine
11 Penny Lane
North Easton, MA 02356
Tel: 508-272-0246
Fax: 206-238-8651
karine@kvsdesign.com

Description: Environmental and energy conscious architectural design firm for residential additions, renovations, and new construction.

Specialties: Building Design/Construction, Remodeling

KW Management, Inc.

Weissflog, Mark
55 Lake Street
Nashua, NH 03060
Tel: 603-598-0181
Fax: 603-598-5188
mweissflog@kwmanagement.com
www.kwmanagement.com

Description: KW Management, a full service energy services company with two divisions—Electrical Contracting and the Clean Energy Division—manufacturer's representative for Geo-thermal heating and cooling systems and Venmar heat recovery ventilators.

Specialties: Domestic Water Heating, Energy Audit Services, Space Heating/Cooling, Alternative Technologies, Geothermal

Lakes Region ThermalScan

Callahan, Paul
68 Heath Drive
Gilmanton Iron Works, NH 03837
Tel: 603-366-1552
pcallahan@lrthermalscan.com

Specialties: Energy Audit Services

Lang Construction, LLC

Lang, Laurence
210 Church Street, Unit F
Philadelphia, PA 19106
Tel: 215 925 1550
Fax: 215 964 9636
llang@langconllc.com

Specialties: Building Design/Construction

Little Green Homes, LLC

Redmond, Chris
909 Islington Street, #5
Portsmouth, NH 03801
Tel: 603-283-6906
Fax: 603-319-4552
chris@littlegreenhomes.com
www.littlegreenhomes.com

Description: Little Green Homes, LLC is a residential design-build company focusing on healthy, durable and energy efficient new homes and renovation/addition projects.

Specialties: Building Design/Construction, Remodeling

Lockwood Construction Company, Inc.

Lockwood, James
37 Franklin Street
Brookline, MA 02445
Tel: 617-277-6312
lcci.construction@verizon.net
www.lockwoodconstruction.net

Specialties: Energy Audit Services, Energy Conservation, Insulation

Lutron

Peck, Karen
7200 Suter Road
Coopersburg, PA 18014
Tel: 610-282-3800
cbaylor@lutron.com

Specialties: Lighting Design, Lighting Supply

Alphabetical List

M.J. Bradley & Associates, LLC

Bradley, Michael
47 Junction Square Drive
Concord, MA 01742
Tel: 978-369-5533
Fax: 978-369-7712
mbradley@mjb Bradley.com
www.mjbradley.com

Description: MJB&A is a strategic environmental consulting firm with a national reputation for assisting clients in evaluating and shaping environmental and energy policy, new business opportunities, and commercialization of clean technology.

Specialties: Alternative Technologies, Fuel Cells, Public Policy

M.L. Schmitt, Inc.

Noyes, David
P.O. Box 2070
371 Taylor Street
Springfield, MA 01101
Tel: 413-733-7868
Fax: 413-731-8819
servicecall@mlschmittelectric.com
www.mlschmittelectric.com

Specialties: Lighting Design, Photovoltaics

MA Division of Energy Resources (DOER)

100 Cambridge Street, Suite 1020
Boston, MA 02114
Tel: 617-626-7300
doer.energy@state.ma.us
www.mass.gov

Description: Creating a greener energy future for the Commonwealth—economically and environmentally, including: Achieving all cost-effective energy efficiencies, Maximizing development of greener energy resources, Creating and leading implementation of energy strategies to assure reliable supplies and improve relative cost, and Supporting clean tech companies and spurring clean energy employment.

Specialties: Alternative Technologies, Consumer Information, Environmental Education

MacCo Energy

Curry, James
17 Bridge Street, Suite 205
Billerica, MA 01821
Tel: 978-600-1655
Fax: 978-600-1653
jcurry@maccoenergy.com

Description: MacCo Energy delivers the “total package” in clean energy services for residential, commercial and industrial applications. Whether you are looking to retrofit your existing building with

updated systems, or plan a new construction project with the very best in clean, efficient technologies; we have the solution for you. Some of the efficient and renewable technologies we propose include: advanced heating and cooling equipment, solar (hot water and photovoltaic), geothermal, and wind energy; combined heat and power systems (CHP and mCHP), as well as a variety of control and conservation systems to help reduce and monitor usage activity. We'll match the right technology to the right application and help get you the subsidy money available to you. MacCo's experienced in-house team of engineers and technicians will take care of your project from design to installation, making it fast and easy for you to start saving. Our focus is to provide you with quality service and a solid return on your investment. Contact us to get a move on to a rewarding, more efficient future.

Specialties: Alternative Technologies, Energy Conservation, Space Heating/Cooling

MacDougall Plumbing and Mechanical, LLC

MacDougall, Paul
761 Brook Road
Milton, MA 02186
Tel: 617-839-9199
Fax: 617-322-1767
pmmacdoug@hotmail.com

Description: We offer energy efficient solutions for plumbing, heating, cooling, and solar for your home or business.

Specialties: Domestic Water Heating, Radiant Heating, Space Heating/Cooling

Maine Passive House

Kruse, Jesper
278 Rowe Hill Road
Greenwood, ME 04255
Tel: 207-890-3874
jesper@mainepassivehouse.com
www.mainepassivehouse.com

Description: We build and design extremely energy efficient buildings. As a Certified Passive House Consultant we do energy calculations using the PHPP software.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Malcolm & Parsons Insurance Agency, Inc.

Parsons, David
770 Washington Street
P.O. Box 527
Stoughton, MA 02072-0527
Tel: 1-800-FORTIFY (367-8439)

Fax: 781-344-1425
dlp@malcolmandparsons.com
www.malcolmandparsons.com

Description: Guaranteed insurance and bonding provided to environmental, green, emerging technology, and building professionals throughout MA, RI, and NH. We make your insurance easy!
Specialties: Insurance

Mancusi Builders, LLC

Mancusi, Norman
30 Holiday Lane
Hampstead, NH 03841
Tel: 603-329-8113
Fax: 603-329-8223
mancusibuilders@gmail.com
www.mancusibuilders.com

Description: Mancusi Builders, LLC—Sustainable Design and Construction

With over twenty years of quality and experience, Mancusi Builders, LLC enters the modern age of living by building for the demands of today and the prospects of tomorrow. In an ever-changing world with evolving lifestyles, it is our commitment to provide the greatest experience of place with the latest methods and building technologies. Through the balance of design-build, we treat each project individually ensuring that every aspect of the building goes beyond the basic functional needs and aesthetics we tend to accept. We understand the state of global affairs and the role the building industry plays in our environment. It is our devotion, through the use of green building technologies and intelligent design, to create sustainable, ecological, and economical buildings for every client. Mancusi Builders, LLC is proud to be one of the leaders in the building industry committed to innovative design, inspiring spaces, and earth conscious construction.

Specialties: Building Design/Construction, Remodeling

Maple Hill Architects, LLC

Sacra, Doug
55 Glezen Lane
Wayland, MA 01778
Tel: 508-358-1615
doug@maplehillarchitects.com
www.maplehillarchitects.com

Description: Maple Hill Architects is a full service design firm specializing in “green” design work in a variety of project types including educational, religious, and residential.

Specialties: Building Design/Construction, Energy Conservation, Photovoltaics

Maple Hurst Builders, Inc.

DeSisto, Chris
891 Centre Street
Jamaica Plain, MA 02130
Tel: 617-459-0793
Fax: 617-344-0411
chris@maplehurstbldrs.com
www.maplehurstbldrs.com

Description: Construction, design, and development of small residential condominium projects. Blending traditional and modern architecture with a focus on craftsmanship and resource conservation.
Specialties: Building Design/Construction

Margo Jones, Architects

Jones, Margo
308 Main Street
Greenfield, MA 01301
Tel: 413-773-5551
Fax: 413-773-5552
office@margojones.com
www.margojones.com

Description: Established in 1984, Margo Jones Architects is a general practice of architecture with specialties in public and private schools, libraries, and other institutional buildings and historic renovations.

Specialties: Building Design/Construction

Mark Allen Electric & Solar

Allen, Mark
P.O. Box 1395
Arlington, MA 02474-0022
Tel: 617-852-6056
info@markallenelectric.com
www.markallenelectric.com

Description: NABCEP PV/Sharp Solar Certified Installer. Solar PV site evaluations/designs/installations. Master Electrician Mark Allen is a full-service electrical contractor in Eastern MA.

Specialties: Photovoltaics

Mass Audubon

Poor, Bancroft
208 South Great Road
Lincoln, MA 01773
Tel: 781-259-2110
Fax: 781-259-8899
bpoor@massaudubon.org
Specialties: Environmental Education, Public Policy, Consumer Information

Mass Energy Consumers Alliance of New England

Chretien, Larry
670 Centre Street
Jamaica Plain, MA 02130
Tel: 617-524-3950
larry@massenergy.com
www.massenergy.com

Description: Energy Consumers Alliance of New England (ECANE), doing business as Massachusetts Energy Consumers Alliance in Massachusetts (Mass Energy) and People's Power & Light in Rhode Island (People's Power & Light), promotes affordable and sustainable energy through consumer empowerment and market-based efforts. Today, our mission has taken on new meaning, which is to help our members and the public at large find cost-effective ways to reduce their carbon footprints 80% by 2050. To support our mission we organize group buying power in two core social enterprises: a 27-year old discount heating oil buyers group and a green power program. The discount heating oil buyer's group helps members save an average of \$100-\$300 per year on their heating oil bills. The green power program gives consumers green power choices while leveraging the creation of local, renewable energy development. Our current green power options include-1) an option that is tied to National Grid customer utility bills, New England GreenStartSM and 2) a discretionary donation option, New England Wind FundSM.

Specialties: Energy Conservation, Green Electricity, Other Renewable Energy Generation

Mass Renewables

Kelley, Mike
P.O. Box 472
Village Station
Medway, MA 02053
Tel: 508-533-7671
mkelley@massrenewables.net
Description: Photovoltaic and Solar hot water design and installation
Specialties: Domestic Water Heating, Photovoltaics

Massachusetts Renewable Energy Trust

75 North Drive
Westborough, MA 01581
Tel: 508-870-0312
Fax: 508-898-2275
mtc@masstech.org
www.masstech.org
Description: The Renewable Energy Trust seeks to maximize environmental and economic benefits for the Commonwealth's citizens by pioneering and promoting clean energy technologies and fostering the emergence of sustainable markets for electricity generated from renewable sources.

The Trust provides financial assistance to individuals and businesses for solar panels and wind turbines at their homes and facilities, works with communities to incorporate green design into schools, helps emerging clean energy businesses flourish in the Commonwealth, and much more.

The Trust works through a variety of programs geared towards these different groups to provide many avenues for the Commonwealth to become greener. Choose your group below to see which programs might be right for you.

Specialties: Alternative Technologies, Consumer Information, Research

Matkim Industries, Inc.

Shenker, Soraya
P.O. Box 168
Oxford, MA 01540
Tel: 508-987-3599
info@matkim.com
Description: Matkim Industries, Inc. has been a world class value-added contract manufacturer for over 15 yrs specializing in custom Electro-Mechanical, Wire Harness & Cable Assemblies.
Specialties: Retail, Manufacturing

Matrix Energy, Inc.

Wilkinson, Brian
296 Labrosse Avenue
Pointe-Claire, QC H9R-5L8
Canada
Tel: 514-630-5630
Fax: 514-426-9123
bwilkinson@matrixenergy.com
www.matrixenergy.com
Description: With over 125 solar air heating projects to its credit, Matrix Energy has supplied over 400,000 sq. ft. of solar fresh air heating collector area since 1990. These systems provided 2,331,000 CFM of ventilation air saving over 28,748 mWh in energy costs while reducing total CO2 emissions by over 7608 tonnes annually. Products Include: MatrixAir™ TR, designed for new construction or retrofits this patent-pending, unglazed transpired solar air heating collector resembles conventional exterior metal siding. Recommended for solar air heating systems with total fresh air flow needs of at least 3000 CFM. The transpired solar air collectors require the use of an air outlet below the mid-point of the collector. MatrixAir™ BP, ideally suited for new construction with collector heights ranging from 12-24 ft, this back-pass solar air collector performs to within 99% of the performance of our transpired solar air heating

collector thanks to our unique, modular, patent-pending design. Backpass (BP) solar air heating systems are well suited to upper wall-mounted fresh air inlets prescribed by ASHRAE 62. MatrixAir™ DT, a Roof Mounted Solar Air Collector with operating efficiency of up to 89%, this modular transpired collector will deliver up to 250 CFM per module and may be connected in a combination of series and parallel configurations to address a wide variety of roof layouts or CFM requirements.

Specialties: Alternative Technologies, Photovoltaics, Space Heating/Cooling

Mazmanian Design Company, Inc.

Mazmanian, Ian
483 Main Street
Hudson, MA 01749
Tel: 508-361-0296
imazmanian@gmail.com
Specialties: Building Design/Construction

McCauley Lyman, LLC

Winans, Jill
10 Speen Street, Third Floor
Framingham, MA 01701
Tel: 508-665-5802
Fax: 508-665-5858
jillwinans@mccauleylyman.com
www.mccauleylyman.com
Description: McCauley Lyman advises people about energy and business law and represents them in business-related transactions. We have particular expertise in the energy industry, including energy regulatory agencies, and have done a great deal of work with all aspects of developing, financing and operating independent energy projects. We help people negotiate letters of intent and contracts, arrange financings, buy and sell businesses and their assets, resolve disputes, and do the myriad other things business people (and government officials who deal with business people) need to get done in order to accomplish their business objectives. We also welcome assignments as arbitrators and mediators.

McCauley Lyman lawyers stay focused on achieving our clients' goals. We understand the need for timeliness, cost control, and practicality. We make very sure that we are always part of the solution (and not otherwise). We keep perspective on each task as it relates to the client's overall objectives. We are sensitive to our responsibilities as law counselors as well as advo-

cates. We take great care to ensure that our advice is clear and that our clients understand our reasons in giving it. Clients don't always want to follow our advice and, when they make a different decision, we accept it and follow through on it. (Our clients don't make illegal or unethical decisions.) As outside counsel, our clients expect us to perform at the highest level, and we do.

Specialties: Legal

Medomak Camp

Stone, George
13220 Westmeath Lane
Clarksville, MD 21029-1340
Tel: 301-854-9100
george@medomakcamp.com
Description: Medomak Camp is a summer camp in Maine that offers traditional summer camp activities for families with emphasis on environmental conservation and sustainability.
Specialties: Energy Conservation, Environmental Education

Michael Greene Architecture

Greene, Michael
53 Babb Road
Deerfield, NH 03037
Tel: 603-463-5931
Fax: 603-463-7930*51
mpgreene8@myfairpoint.net
Description: Innovative design services, renewable energy integration, high quality construction specifications, advocacy in project management, and a sense of humor. Custom homes a specialty.
Specialties: Building Design/Construction, Energy Conservation, Remodeling

Mount Wachusett Community College

Walsh, John
444 Green Street
Gardner, MA 01440
Tel: 978-630-9194
Fax: 978-630-9554
jdwalsh@mwcc.mass.edu
www.mwcc.edu
Specialties: College/University

mpower

Pellegrino, Joe
89 Springfield Street
Wilbraham, MA 01095
Tel: 413-335-5000
joey@mpowerrenewable.com
Specialties: Alternative Technologies

Alphabetical List

Mulberry Tree Builders, LLC

Liscord, Paul
24 Old Amherst Road
Mont Vernon, NH 03057
Tel: 603-673-2603
Fax: 603-673-2603 call first
pliscord@aol.com

Specialties: Building Design/
Construction, Consultant

Nashawtuc Architects, Inc.

Cratsley, Holly B.
2 Lexington Road
Concord, MA 01742
Tel: 978-371-0344
greatdesigns@nasharch.com
www.nasharch.com

Description: Celebrating our 20th anniversary, we are a woman-owned firm specializing in residential architecture. We strive to create spaces that enhance the quality of life for individuals. A member of our staff is LEED certified.

Specialties: Building Design/
Construction, Remodeling

Nashua Energy Options, LLC

Cramton, Karen
NEO Solar Store
5 Hutchins Drive
P.O. Box 1612
Hollis, NH 03049
Tel: 603-465-7400
neo@usasolarstore.com
nhsolarstores.com

Description: Our showroom offers a wide range of conservation and energy-efficient products. We design, sell and install alternative energy systems including solar thermal, PV & space heating.

Specialties: Domestic Water Heating, Energy Conservation, Photovoltaics

National Fenestration Rating Council

Herron, Tom
6305 Ivy Lane, Suite 140
Greenbelt, MD 20770
Tel: 240-821-9505
therron@nfrnc.org
www.nfrnc.org

Description: NFRC is a non-profit organization that administers the only uniform, independent rating and labeling system for the energy performance of windows, doors, skylights, and attachment products. Our goal is to provide fair, accurate, and reliable energy performance ratings.

Specialties: Energy Conservation, Environmental Education, Windows

National Fiber

Hoch, Chris
50 Depot Street
Belchertown, MA 01007-9619
Tel: 413-283-8747
chris@nationalfiber.com
www.nationalfiber.com

Description: Cellulose is the only green, affordable, high-performance insulation. It is the only insulation in numerous award-winning zero net energy homes. Ideal for retrofit or new construction.

Specialties: Energy Conservation, Insulation

National Grid

40 Sylvan Road
Waltham, MA 02451-1162
Tel: 800-322-3223
Fax: 781-907-5074
adolan@nationalgrid.com
www.nationalgridus.com

Description: We serve a total of 1.2 million customers in 168 Massachusetts communities and are an electricity distribution subsidiary of National Grid. We contribute to the quality of life in communities across the Northeast. Care for the environment is integrated into our business decisions and everyday operations.

Specialties: Energy Storage, Green Electricity, Other Renewable Energy Generation

Natural Capital Investments, LLC

Kelly, Thomas
2 Suncook Terrace, Unit 36
Merrimack, NH 03054
Tel: 603-886-4660
tjkelly2@gmail.com

Specialties: Finance/CPA

Nature's Classroom at Sargent Center

Biederman, Kobe
36 Sargent Camp Road
Hancock, NH 03449
Tel: 603-525-3311
kbied@naturesclassroom.org
www.naturesclassroom.org/
sargent.htm

Description: Sargent Center is excited to announce our new Sustainable Technologies Weekend Workshop series. Facebook: Nature's Classroom at Sargent Center

Specialties: Environmental Education

NC Electronics, Inc.

Ionescu, Cristian
14 Massasoit Road
Nashua, NH 03063-1310
Tel: 603-889-1938
Fax: 603-889-1938

insq@advanced-engineering.com
www.advanced-engineering.com

Description: NC Electronics, Inc. provides services as a technical consultant, product design consultant or litigation consultant, in areas involving energy efficiency and renewable energy technologies.

Specialties: Alternative Technologies, Consultant, Legal

New Age Solar, LLC

Sorgento, Jerry
2 Oak Hill Drive
Clarksburg, NJ 08510
Tel: 609-223-0277
Fax: 609-259-6215
jerry@newagesolar.com
www.newagesolar.com

Description: New Age Solar, a full service organization with design engineers, licensed electricians and roofers, with over 25 years of experience, promotes solar use, installs solar systems, and guarantees customer satisfaction. Authorized installer of Sunslates in NY, NJ, DE, MD, VA.

Specialties: Energy Storage, Green Electricity, Photovoltaics, Roofing

New Commons

Leaver, Robert
545 Pawtucket Avenue
Suite 106A
Pawtucket, RI 02860
Tel: 401-475-6762
Fax: 401-475-6742
rleaver@newcommons.com

Specialties: Research, Consultant, Marketing

New Energy Options, Inc.

Bing, James
410 Great Road, B-6
Littleton, MA 01460
Tel: 978-952-2444
Fax: 978-952-6434
jbing@newenergyoptions.com
www.newenergyoptions.com

Specialties: Photovoltaics

New England Breeze, LLC

Durrenberger, Mark
7 Santos Drive
Hudson, MA 01749
Tel: 978-567-9463
Fax: 866-903-1651
mark@newenglandbreeze.com
newenglandbreeze.com

Description: New England Breeze, LLC is a turn-key installer of residential and commercial Solar Photovoltaic and Wind Systems. Let us help you save the planet with Sunshine and Breezes!

Specialties: Photovoltaics, Wind

New England Window Systems, Inc.

Hadaya, Russell
30 H Street
S. Boston, MA 02127
Tel: 617-269-6397
Fax: 617-269-8053
russell@fiberglasswindows.com
www.fiberglasswindows.com

Description: Distributor of sustainable, high performance window systems.

Specialties: Windows

New England Wood Pellet, LLC

Niebling, Charlie
P.O. Box 532
Jaffrey, NH 03452
Tel: 603-532-4666
cniebling@pelletheat.com

Description: New England Wood Pellet LLC is the largest manufacturer and distributor of wood pellet fuel in the northeastern US. With plants in Jaffrey NH, Schuyler NY, and Deposit NY (under construction), NE Wood Pellet has the capacity to produce 250,000 tons of pellet fuel annually. The company is a leader in the biomass thermal industry, and help to found the Biomass Thermal Energy Council (www.biomassthermal.org). NE Wood Pellet is committed to the growth of high efficiency, ultra-clean pellet combustion for residential/commercial and industrial heating, and community-scale combined heat and power. The company is committed to the sustainable procurement and efficient utilization of wood residuals in the manufacture of its pellet fuel.

Specialties: Biomass, Public Policy, Space Heating/Cooling

New Leaf Photovoltaics, LLC

Transue, Joe
P.O. Box 646
Guilford, CT 06437
Tel: 203-533-9192
info@newleafpv.com

Specialties: Photovoltaics

New York Wind & Sun, LLC

Rutherford, Court
P.O. Box 21
Baldwinsville, NY 13027
Tel: 315-433-6058
Fax: 315-834-6431
court@cnpower.com

Specialties: Photovoltaics, Wind

Nexamp, Inc.

McClintock, Scott
21 High Street, Suite 209
North Andover, MA 01845
Tel: 978-688-2700
Fax: 978-416-2525
smclintock@nexamp.com
www.nexamp.com

Description: Nexamp provides clean energy services & solutions for business & government in the Northeast: energy assessments; solar, geothermal, efficient lighting, wind, & more.

Specialties: Energy Audit Services, Geothermal, Photovoltaics

Next Step Living

Schuller, Clayton
25 Drydock Avenue
Boston, MA 02210
Tel: 866-867-8729
clayton@nextsteplivinginc.com

Specialties: Energy Audit Services, Insulation

Noble Home, LLC

Grunberg, Noah
P.O. Box 476
Shelburne Falls, MA 01370
Tel: 617-694-7253
Fax: 617-629-4669
info@noble-home.net
www.noble-home.net

Description: The modern, all natural, affordable home. The Noble Home is a house kit designed for each building site, easily assembled by an owner-builder.

Specialties: Alternative Technologies, Building Design/Construction, Research

Nogginhaus

Stanch, James
39 North Black Horse Pike
Runnemede, NJ 08078
Tel: 856-939-6652
Fax: 856-939-4619
jim@nogginhaus.com
www.nogginhaus.com

Description: With background in the mechanical trades (HVAC, Plumbing, Electric), only Nogginhaus offers the skills you need for a complete alternative energy solution for your home or business. Nogginhaus also helps you maximize your energy dollar through automation of building processes. Learn more by visiting our website.

Specialties: Domestic Water Heating, Photovoltaics, Wind

Northeast Solair

Cullen, Patrick
P.O. Box 117
Freehold, NY 12431
northeastsolair@yahoo.com

Description: Northeast Solair offers design, consultation and installation services for solar heat, domestic hot water systems as well as solar pool systems. Use "Green heat that's Red hot!"

Specialties: Alternative Technologies, Energy Conservation, Space Heating/Cooling

NorthEast Solar Design Associates

Bronner, Ann
90 Linseed Road
West Hatfield, MA 01088
Tel: 413-247-6045
info@northeast solar.biz
www.northeast solar.biz

Description: NorthEast Solar—formerly Green in Green Inc.—provides professional design and turnkey installation of commercial, municipal, residential and "village" solar electric and solar hot water systems using the latest in state-of-the-art design and installation methods. We use a whole systems design approach—balancing the technical and economic tradeoffs with the non-technical needs of the client to ensure you get the very best system possible.

Our design wisdom and installation experience stems from over 28 years serving homeowners, businesses, non-profits & NGOs, government agencies, and sustainability projects all over the world. Our long term relationships with several suppliers in the industry ensure us a steady supply of solar modules and allows us to choose the very best components to match the needs of the project. And our site survey crew, design crew and installation crew work closely together so that our design savvy is carried through every stage of the installation.

And our primary design driver is the customer. We look forward to working with you!

Specialties: Photovoltaics, Radiant Heating, Solar Hot Water

Novus Engineering, PC

Dana, Dawn R.
25 Delaware Avenue
Delmar, NY 12054-1504
Tel: 518-439-8235
Fax: 518-439-8592
ddana@novusengineering.com
www.novusengineering.com

Description: Established in 1980, Novus Engineering is a multi-disciplinary engineering and environmental consulting firm. Engineering services focus on energy-consuming systems. We provide comprehensive environmental compliance services.

Specialties: Energy Audit Services, Geothermal, Indoor Air Quality, Lighting Design

NSTAR

One NSTAR Way, SW360
Westwood, MA 02090
Tel: 800-592-2000
Fax: 781-441-8855
roseann.brusco@nstar.com
www.nstar.com

Description: NSTAR is the largest Massachusetts-based, investor-owned electric and gas utility, with revenues of approximately \$3.3 billion and assets totaling approximately \$8.3 billion. NSTAR transmits and delivers electricity and gas to 1.1 million electric customers in 81 communities and nearly 300,000 gas customers in 51 communities. NSTAR employs more than 3,200 employees in its regulated business.

NSTAR is committed to conducting its business in a way that least impacts the environment. We're always looking for new and different ways to meet that commitment. It's all part of our mission of delivering great service to our customers.

At NSTAR we're proud of our two decade tradition of offering our customers energy efficiency programs, and moving to further demonstrate our commitment to deliver great service by providing customers with information and tools to help them take part in improving our environment.

In the past five years alone, NSTAR's Energy Efficiency programs have helped customers save 6.5 million therms of natural gas and 800,000 megawatt hours of electricity. This is the equivalent of reducing carbon dioxide emissions by half a million tons. Such programs are available to both electric and gas customers, and designed to not only save on your monthly energy bill, but also help the environment.

Specialties: Energy Audit Services, Green Electricity, Other Renewable Energy Generation

NTS-Solar

York, Burrell M.
233 Libbey Industrial Parkway
Weymouth, MA 02189
Tel: 339-499-6354
Fax: 781-331-4766
butch.york@nts-solar.com
www.nts-solar.com

Specialties: Domestic Water Heating, Space Heating/Cooling

NYSERDA

17 Columbia Circle
Albany, NY 12203-6399
Tel: 1-866-NYSERDA
www.nysesda.org

Description: New York State Energy Research and Development Authority (NYSERDA) is a public benefit corporation created in 1975. NYSEDA's earliest efforts focused solely on research & development with the goal of reducing the State's petroleum consumption. Subsequent research & development projects focused on topics including environmental effects of energy consumption, development of renewable resources, & advancement of innovative technologies.

NYSERDA strives to facilitate change through the widespread development & use of innovative technologies to improve the State's energy, economic, & environmental well-being. In fulfilling its mission, NYSEDA's workforce reflects its public service orientation, placing a premium on objective analysis & collaboration, as well as reaching out to solicit multiple perspectives & share information. NYSEDA is committed to public service, striving to be a model of efficiency and effectiveness, while remaining flexible & responsive to its customers' needs. NYSEDA's programs & services provide a vehicle for the State to work collaboratively with businesses, academia, industry, the federal government, environmental community, public interest groups, and energy market participants. Through these collaborations, NYSEDA seeks to develop a diversified energy supply portfolio, improve market mechanisms, & facilitate the introduction & adoption of advanced technologies that will help New Yorkers plan for & respond to uncertainties in the energy markets.

Specialties: Alternative Technologies, Consumer Information, Research

O'Hara Builders, Inc.

O'Hara, Brendan T.
21 Candle Pine Circle
East Falmouth, MA 02536
Tel: 508-457-1688
Fax: 508-457-1688
oharabldr@comcast.net
www.oharabuilders.com

Description: Specializing in energy efficient custom remodeling, O'Hara Builders provides total client satisfaction. We provide full sustainable construction services in the Boston and upper Cape Cod areas.

Alphabetical List

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Oceanside Charter School

D'Anna, Todd
1750 Bacharach Boulevard
Atlantic City, NJ 08401
Tel: 609-348-3485
Fax: 609-348-5951
tdanna@oceansidecharter.com
www.oceansidecharter.com

Olga Kahn

Kahn, Olga
30 Marsh View
Wellfleet, MA 02667
Tel: 508-349-0997
olgakahn@comcast.net
Description: Architectural services, construction supervision & owner's rep. Specializing in reuse of existing structures & preservation; modular construction. Arch License #7382 & CSL #86402.
Specialties: Building Design/Construction, Lighting Design, Remodeling

OnGrid Solar

Black, Andy
4175 Renaissance Drive, #4
San Jose, CA 95134
Tel: 408-428-0808 x1
andy@ongrid.net
www.ongrid.net
Description: OnGrid Solar makes the OnGrid Tool for solar financial analysis & sales to assist dealers, installers and their salespeople in making a complete and compelling sales presentation. The OnGrid Tool includes PV system sizing, pricing and quoting. It calculates the financial savings and demonstrates the payback several ways. It produces several proposal options and the contract, rebate and inter-connection paperwork auto-filled and customized to each customer, to speed the close and make a very professional presentation. The OnGrid Tool is a must for every dealer, installer, salesperson, contractor, electrician or roofer involved with the sales process for PV systems, and will significantly ease entry into this marketplace. See www.ongrid.net/payback.

OnGrid Solar teaches popular classes in solar financial payback and sales: Solar Sales & Marketing, Economics of Solar: Making the Financial Case, and Commercial Solar Economics & Financing. See <http://www.ongrid.net/classes.html> Future class listings and slides from past classes

OnGrid also publishes a variety of works on the economics and related aspects of solar, including the popular "Economics of Solar Electric Systems for Consumers: Payback and other Financial Tests" which can be found at www.ongrid.net/papers.

Specialties: Marketing, Photovoltaics

Optimal Energy Solutions, LLC

Spindler, Henry
64 Peg Shop Road
Keene, NH 03431
Tel: 603-283-0366
Fax: 603-283-0366
hcs@optimalenergysolutions.net
Description: Comprehensive building system analysis and design, including: building envelope, high-efficiency HVAC (esp. hydronic), customized control systems and renewable energy.
Specialties: Biomass, Radiant Heating, Space Heating/Cooling

PAH Associates

Horowitz, Paul
9 Quorn Hunt Road
Simsbury, CT 06092
Tel: 860-658-9506
pahorowitz@earthlink.net
Description: Provides management and regulatory consulting services to institutions, businesses, and individuals to support their consideration and implementation of energy efficiency, renewables, green electricity purchases, and overall sustainable strategies.
Specialties: Energy Conservation, Public Policy, Research

Panich + Noel Architects

Panich, David
807 Windsor Drive
Framingham, MA 01701
Tel: 740-591-9901
dpanich@pnarch.com
Description: David Panich, AIA, LEED AP is a registered architect with experience on a wide variety of project types. He specializes in sustainable and energy efficient designs.
Specialties: Building Design/Construction, Energy Conservation, Remodeling

Partners For Architecture

Grasso, Stephen
48 Union Street
Stamford, CT 06906
Tel: 203-708-0047
Fax: 203-348-4165
studio@pfarch.net
www.pfarch.net

Description: Full service architectural firm providing healthy, sustainable and low energy design solutions in commercial and residential construction. Principals: Kevin Davignon and Rainer Schrom, LEED AP
Specialties: Building Design/Construction

Paul Huijting, Inc. Construction and Engineering

Huijting, Paul
P.O. Box 516
Wilbraham, MA 01095
Tel: 413-599-4884
Fax: 413-599-4884
phinc@charter.net
www.paulhuijting.com
Description: Paul Huijting founded Paul Huijting, Inc. Construction and Engineering with a goal of establishing a small personal construction company with time to focus on the individual needs of his clients. Paul stresses sustainable projects with lasting value. His commitment to efficiency, organization, responsiveness, and knowledge make the company unique. An organized professional approach makes life easier/less stressful for customers. Quality scheduling and construction are a powerful combination for customers. A realistic completion date enables you to accurately plan your move-in date.

Keywords: Residential construction, super insulation, Energy Star, new homes, remodeling, energy conservation
Specialties: Building Design/Construction, Insulation, Remodeling

Paul Tuller, Construction Management

Tuller, Paul
P.O. Box 64
87 Pierce Road
Dublin, NH 03444-0064
Tel: 603-563-8884
barndoor@myfairpoint.net
Specialties: Building Design/Construction, Consultant

Penguin ICF, LLC

Caluwe, Marc
269 Middlesex Road
Tyngsboro, MA 01879
Tel: 781-308-8583
marc@penguinicf.com
www.penguinicf.com
Specialties: Building Design/Construction, Insulation

Petersen Engineering, Inc.

Petersen, James
P.O. Box 4774
Portsmouth, NH 03802
Tel: 603-436-4233
Fax: 603-436-4274
james@petersenengineering.com
www.petersenengineering.com
Description: Petersen Engineering provides green consulting services in the areas of HVAC, plumbing, fire protection and building envelope for commercial, residential and industrial buildings.
Specialties: Building Design/Construction, Energy Conservation, Space Heating/Cooling

Philippe Campus Architect, LLC

Campus, Philippe
202 South Motowese Street
Branford, CT 06405
Tel: 203-483-0608
phcarchitect@snet.net
www.geosolararchitect.com
Specialties: Alternative Technologies, Building Design/Construction, Remodeling

Phinney Design Group

Phinney, Michael R.
142 Grand Avenue
Floor 3
Saratoga Springs, NY 12866
Tel: 518-587-7120
Fax: 518-587-7250
info@phinneydesign.com
www.phinneydesign.com
Description: Phinney Design Group (PDG) is a multi-disciplinary Architecture, Interior Design, and Green Building Consulting firm with a focus on sustainable and environmentally sensitive construction methods.

We make it easy to be green...
Through the use of LEED and NYSERDA programs our design team and consultants are leaders in assessing the potential of your project to benefit from green building design and technology. Through detailed payback analysis and life-cycle costing of building products and mechanical equipment, we can evaluate and inform owners of opportunities available to them. Keeping owners aware of emerging technology and how it may benefit both operation and maintenance costs and improve the health and attitude of the inhabitants is something we pride ourselves on.

Whether pursuing green building technology to the greatest extent practicable or simply utilizing only the minimum "common sense" approach to green design, we can

supply the necessary information to make an educated decision when investing in sustainable building practices.

PDG has worked closely with city planning officials throughout the development of various architectural projects from single family residences in historic districts to multi-use urban infill development. The firm has a long track record of designing and coordinating through construction the completion of environmentally friendly homes, commercial offices, and retail spaces.

Specialties: Building Design/Construction, Remodeling, Research

Phoenix Composting Toilets/Advanced Composting Systems

Goldberg, Ben
P.O. Box 550
Leeds, MA 01053
Tel: 413-586-3699
Fax: 406-862-3855
ben@compostingtoilet.com
www.compostingtoilet.com

Description: ACS designs and manufactures the Phoenix Composting Toilet for commercial and residential applications, and pre-fabricated rest room buildings for installation in public facilities, camp sites, and ecologically sensitive areas.

Specialties: Alternative Technologies, Consumer Information, Environmental Education, Wastewater/Solid Waste

Pill-Maharam Architects

Pill, David
5597 Shelburne Road
P.O. Box 1300
Shelburne, VT 05482
Tel: 802-735-1286
dpill@pillmaharam.com
www.pillmaharam.com

Description: Pill-Maharam Architects is committed to provide architectural services which incorporate site specific, innovative and sustainable solutions.

Specialties: Building Design/Construction, Energy Conservation, Geothermal

Pinkham Building & Solar Services

Pinkham, Chris
P.O. Box 1419
507 County Road
Hillsboro, NH 03244-1419
Tel: 603-464-5821
Fax: 603-464-5821
cp_info@mcttelecom.com

Description: We design, sell, install and service Sunda Solar domestic hot water systems throughout New Hampshire. Teach the solar workforce program at Lakes Region Community College.

Specialties: Consumer Information, Domestic Water Heating, Remodeling

Plymouth Area Renewable Energy Initiative

Adams, Robbin
P.O. Box 753
Plymouth, NH 03264
Tel: 603-536-5030
robbin@plymouthenergy.org
Specialties: Energy Conservation, Consumer Information, Alternative Technologies

Polanik Architects

Polanik, Gregory J.
6 Pine Cone Drive
East Sandwich, MA 02537
Tel: 508-833-6540
mr7b7@aol.com
www.polarch.com

Description: Specializing in environmentally appropriate architecture, planning, & consulting, we strive to design efficient, healthy buildings that preserve the local community.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

PolicyOne Research

Damicis, Jim
201 US Route, #222
Scarborough, ME 04074
Tel: 207-510-6055
jim@policyoneresearch.com
www.policyoneresearch.com

Description: PolicyOne provides research and analysis in economic and business development to transform information into action.

Specialties: Alternative Technologies, Public Policy, Research

PowerDash

Lapointe, Stephen
1619 Massachusetts Avenue
Cambridge, MA 02138
Tel: 617-864-0770
info@powerdash.com
www.powerdash.com

Description: PowerDash offers low-cost, flexible energy monitoring, designed to streamline and simplify the collection, management, and distribution of critical energy data required for the new world of clean, efficient energy. The PowerDash platform is designed with flexibility as a guiding principle. Energy data can enter

the PowerDash data stream from a variety of devices and applications. Supported devices include solar inverters, solar hot water systems, wind power systems, electric meters—virtually any kind of system that produces or consumes energy. PowerDash can accept data feeds directly from such devices, when this capability is present. Or the PowerDash data logger, with a proven track record in the field for over five years, can be used to collect and transmit data.

PowerDash can transmit the data from the collection point using a variety of methods, including mobile broadband and wireless radio networks.

With your energy data safely stored with PowerDash, customers then have full access to a comprehensive toolset for managing their energy systems. Tools include a robust alerts service when system problems occur and comprehensive reporting to verify rebates, REC/SREC/FCM generation, and other secondary market programs.

Specialties: Energy Conservation, Energy Monitoring, Photovoltaics

Powersmith

Levine, Paul
91B Moffitt Boulevard
Bay Shore, NY 11706
Tel: 631-647-4701
paul.levine@thepowersmith.com
Specialties: Energy Audit Services

Practical Solar, Inc.

Rohr, Rachel
516 East 2nd Street, Suite 18
Boston, MA 02127
Tel: 617-464-1770
info@practicalsolar.com
www.practicalsolar.com

Description: Practical Solar's small-scale Heliostat system reflects sunlight to provide natural lighting and space heating. The system is hand-installable and PC-controlled and can also be used for CSP.

Specialties: Alternative Technologies, Lighting Design, Space Heating/Cooling

Precision Decisions, LLC

Vreeland, Chris
P.O. Box 746
Otis, MA 01253
Tel: 413-269-4965
vreeland67@msn.com

Description: Providing engineering services for renewable energy, conservation and green construction. We service contractors, architects and directly to industry, commercial and residential clients.

Professional Engineering licensed in MA,CT,NY,RI.

Specialties: Wastewater/Solid Waste, Alternative Technologies, Consultant, Photovoltaics, Energy Conservation

Preferred Building Systems

Huot, Bryan
143 Twistback Road
P.O. Box 1
Claremont, NH 03743
Tel: 603-372-1050
Fax: 603-372-1001
bhuot@preferredbuildings.com
www.preferredbuildings.com

Description: We are the leader of energy efficient modular home manufacturing in New England. Our production specializes in building science principles, custom design & vast product choices.

Specialties: Building Design/Construction, Energy Conservation, Insulation

Pro Energy Consultants

Mitton, Jon
15 Hanifan Lane
Weymouth, MA 02189
Tel: 781-626-1992
jmitton@proenergyconsultants.com
Specialties: Energy Audit Services

Project Resource Group, LLC

Pietroniro, John
P.O. Box 43
Francestown, NH 03043
Tel: 603-831-5060
Fax: 603-831-5026
pietroniro@att.net
www.projectresourcegroup.com

Description: Professional construction management services for commercial and custom residential projects with a commitment to sustainability principles.

Specialties: Building Design/Construction

Public Service Company of NH

Lemay, Gary
64 Business Park Drive
Tilton, NH 03276
Tel: 603-286-8374 X5440
Fax: 603-286-8720
lemaygs@nu.com

Specialties: Alternative Technologies, Energy Conservation, Consumer Information

Alphabetical List

Quigley Builders, Inc.

Quigley, Mary
73 Bear River Road
Ashfield, MA 01330
Tel: 413-625-2301
maryquigley@quigleybuilders.com
www.quigleybuilders.com
Specialties: Building Design/
Construction

R.L. Benton—Builder

Benton, Rich
154 Schoolhouse Road
Center Sandwich, NH 03227
Tel: 603-284-6860
Fax: 603-284-6860
rlbenton@cyberpine.net
Description: Full service builder/
designer for energy-efficient resi-
dential construction in the NH
lakes region. Timber-framing as
well as advanced hybrid construc-
tion, with expertise in solar thermal
system design and installation since
1978. Our Sandwich Cabinet Shop
can furnish your project as well.
Specialties: Building Design/
Construction, Energy Conserva-
tion, Other Renewable Energy
Generation

Ra Solar Company

Vann, Jim
P.O. Box 512
Waitsfield, VT 05673-3222
Tel: 802-496-9496
yimbo98@gmavt.net
Description: Builders of energy
efficient, solar, green
homes, additions, and renovations
since 1978. We can provide com-
plete design/build services to our
clients. We also offer green project
consulting, plans modification,
and specifications writing.
Specialties: Building Design/
Construction, Energy Audit Services,
Indoor Air Quality

Raleigh Engineering

Raleigh, Robert
P.O. Box 205
Torrington, CT 06790
Tel: 860-496-0323
Fax: 860-626-9705
r.raleigh@att.net
Specialties: Energy Conservation,
Consultant

RE/MAX Heritage/ CyberGreenRealty

Cahill, Tim
55 Lafayette Street
Arlington, MA 02474
Tel: 781-517-4223
Fax: 781-944-1592
tim@cybergreenrealty.com
www.cybergreenrealty.com

Description: I am a Licensed
Realtor and certified EcoBroker,
meaning my clients get the knowl-
edge they need to make informed
energy-efficient and eco-conscious
real estate choices.

Specialties: Consumer Information

Real Green Goods

de Moulpied, Deborah
35 South Main Street
Concord, NH 03301
Tel: 603-224-9700
Fax: 603-224-9700
realgreengoods@comcast.net
Specialties: Energy Conservation,
Consumer Information

Recycled Paper Printing

Truesdale, Todd
12 Channel Street, Suite 603
Boston, MA 02210
Tel: 617-737-9911
todd@recycledpaper.com
Description: Recycled Paper
Printing is the nation's oldest
"green" printer. Founded in 1983,
we specialize in sustainable printing
—using certified recycled papers,
soy-based inks, and 100% certified
wind-energy credits. We also produce
an extensive line of sustainable
ad specialty items.

Specialties: Environmental
Education, Marketing, Publishing

Renewable Energy Systems, LLC

Boyle, Erica
P.O. Box 262
No. Scituate, MA 02066
Tel: 781-545-3320
Fax: 781-545-3321
erica@ressolar.com
www.ressolar.com

Description: Renewable Energy
Systems LLC specializes in solar
thermal hot water and space heat-
ing. We also work with energy
conservation and solar electricity.
Specialties: Radiant Heating,
Solar Hot Water, Space Heating/
Cooling

Reno Engineering and Light Design

Reno, Vic
Reno Road
HCR32 Box 729
Marlow, NH 03456-9708
Tel: 603-446-3426
Fax: 603-446-3731
renoengineering@earthlink.net
Description: Architectural lighting
design, energy-conscious lighting,
and energy conservation. Also

full electrical engineering services.
Specialties: Energy Conservation,
Lighting Design

Renovus Energy, Inc.

Weaver, Arthur
102 Cherry Street
Ithaca, NY 14850
Tel: 607-277-1777
Fax: 607-277-1277
duncan@renovusenergy.com
renovusenergy.com

Description: Design, installation
of renewable energy systems,
commercial and residential, solar
electric, solar thermal, wind, hydro.
NABCEP-certified. NYSERDA
Eligible.

Specialties: Domestic Water
Heating, Photovoltaics, Wind

Resolution Energy

Evans, David and Wright, Prescott
49 Herring Pond Road
Buzzards Bay, MA 02532
david@resolutionenergy.com
Specialties: Insulation

Richard Renner Architects

Renner, Richard
35 Pleasant Street
Portland, ME 04101
Tel: 207-773-9699, 508-651-2385
Fax: 207-773-9599
rrenner@rrennerarchitects.com
www.rrennerarchitects.com

Description: Environmentally
responsible design is a cornerstone
of our architectural practice.

Specialties: Building Design/
Construction

Robert A. Caneco Architect, R.A.

Caneco, Robert
1500 Savage Point Road
North Hero, VT 05474
Tel: 802-372-4306
Fax: 802-372-4330
racz3@aol.com
www.racarchitect.com

Description: Our Mission—
Practical architecture through sen-
sitive design working with nature.
Robert A. Caneco, Registered
Architect, is the principle of an ar-
chitectural design firm of the same
name, who has been a practicing
architect in the state of New York,
New Jersey, and Vermont for the
last 24 years. His relocation to the
Burlington/Champlain Islands area
was prompted by the thought that
Vermont is a great place to live
and work.

His personal and business lives
have always been intertwined, so
what better place is there to enjoy

the lifestyle Vermont affords, while
practicing his profession. He is an
experienced and dedicated profes-
sional who knows how important
your projects are to you. You will
appreciate the attention to detail
that dealing with a small practice,
where the principle is hands on
can afford.

His office is fully computerized
and the majority of his work is
new or renovated residential and
commercial buildings, but performs
various tasks for a varied list of
project types ranging from space
planning, storefronts, residential
alteration projects, commercial
interiors, landscape design. The
office does, however, specialize in
Sustainable Energy Building Design,
Renewable Energy Building Design
(including Solar Thermal and Solar
Photovoltaic Design), Zero Energy
Building Design as well as Restau-
rant Design.

Specialties: Building Design/
Construction, Photovoltaics,
Radiant Heating

Robert L. Spencer, AICP—Environmental Planning Consultant

Spencer, Robert
15 Christine Court
Vernon, VT 05354
Tel: 978-479-1450
Fax: 802-254-9607
spencebbc@aol.com
Description: Professional planner
specializing in organic waste man-
agement & project development.
Assessment of on-site & off-site
recycling of food waste, manure,
yard waste & biosolids.
Specialties: Other Renewable
Energy Generation, Research

Rodman & Rodman, PC CPA

Rice, Larry
3 Newton Executive Park
Suite 101
Newton, MA 02462
Tel: 617-965-5959
Fax: 617-965-1792
larry@rodmancpa.com
www.rodmancpa.com
Description: Rodman & Rodman
CPA's, established in 1961, is com-
mitted to providing to the Sustain-
able Energy Industry a cadre of
services delivered with profession-
alism and proficiency. We can assist
in such areas as entity selection
(for tax purposes), tax planning and
preparation, assurance services
such as audits and reviews, business
valuations, accounting software
selection and implementation.

We make it our responsibility to inform our clients, and assist them in identifying and taking advantage of the various federal and state tax and other incentive programs that exist. We work closely with your CFO/Controller to assure you that your financial and tax well-being is looked after.

We're a small regional firm with offices located in Newton & Braintree, Massachusetts. You won't be lost in the machinery of the larger CPA firms. If you are our client, you'll be important to us.

Specialties: Consumer Information, Finance/CPA

Ross Mechanical Group

Goldstein, Ross M.
814 Welsh Road
Huntingdon Valley, PA 19006
Tel: 215-914-0305
Fax: 215-914-0309
ross@rossmechanicalgroup.com

Description: We specialize in commercial, industrial, institutional, conventional & geothermal HVAC, solar hot water systems, solar PV & hot-water based cooling solar exhaust fans, rain water collection.

Specialties: Domestic Water Heating, Geothermal, Space Heating/Cooling, Radiant Heating

Royer Architects

Royer, Chris
237 Tremont Street
Newton, MA 02458
Tel: 617-244-4477
chris@royerarchitects.com
www.royerarchitects.com

Description: Environmentally sensitive residential work in the New England region is our specialty. We enjoy the collaborative process of working with a client and their contractor to bring ideas to fruition.

Specialties: Building Design/Construction, Energy Conservation, Landscape Design/Construction

RST Thermal

Hickey, Mary Ellen
372 University Avenue
Westwood, MA 02090
Tel: 781-320-9910
Fax: 781-320-9906
mehickey@rstreps.com

Specialties: Domestic Water Heating, Space Heating/Cooling

S.E.E.D.S.—Sustainable Energy Education & Demonstration Services

Dillon, Margaret
48 Bullard Road
Jaffrey, NH 03452
Tel: 603-532-8979

mdillon@wildblue.net

Description: S.E.E.D.S. services include blower door testing, thermography, whole building energy assessments, envelope design, HERS ratings, and related sustainable energy consulting.

Specialties: Building Design/Construction, Energy Audit Services

S&H Construction

Leef, Jamie
26 New Street
Cambridge, MA 02138
Tel: 617-876-8286
Fax: 617-864-1850
jamie@shconstruction.com

Description: An award-winning general contractor delivering sustainability and quality to residential renovations. Our Renewable Energy Division designs and installs solar electric, hot water, and geothermal systems, and offers energy management consulting.

Specialties: Building Design/Construction, Geothermal, Photovoltaics

Sage Builders, LLP

Kantar, Jonathan
672 Chestnut Street
Newton, MA 02468
Tel: 617-965-5272
Fax: 617-630-5272
info@sagebuilders.com
www.sagebuilders.com

Description: Award-winning, full service Boston area residential design-build company committed to responsible design and construction practices. Experts in energy efficiency and weatherization.

Specialties: Building Design/Construction, Energy Conservation, Remodeling

Salmon Falls Ecological Design

Erslev, Kim
16 Wilde Road
Shelburne Falls, MA 01370
Tel: 413-369-4044 x1
erslev@csls.edu
Specialties: Building Design/Construction, Landscape Design/Construction

Saltonstall Architects, Inc.

Saltonstall, William W.
380 Wareham Street
Marion, MA 02738
Tel: 508-748-1043
Fax: 508-748-2330
will@saltonstallarchitects.com
www.saltonstallarchitects.com

Description: Providing architectural services to residential, commercial and institutional clients the firm is committed to sustainable design practices; focusing on working closely with our clients to design thoughtful, innovative, healthy and energy-efficient places to live and work.

Specialties: Building Design/Construction

Sasaki Associates, Inc.

Finlayson, Tracy
64 Pleasant Street
Watertown, MA 02472
Tel: 617-926-3300
Fax: 617-924-2748
tfinlayson@sasaki.com
www.sasaki.com

Description: Sasaki, headquartered in one of the nation's oldest LEED EB certified structures, is deeply committed to sustainability through research, testing and application across our multiple design disciplines.

Specialties: Building Design/Construction, College/University, Landscape Design/Construction

Seacoast Energy Alternatives, Inc. (SEA Solar Store)

Bingham, Pamela
187 New Rochester Road
Dover, NH 03820
Tel: 603-749-9550
Fax: 603-749-9551
pam@seasolarstore.com
www.seasolarstore.com

Description: Solar store providing domestic and commercial alternative energy options plus items to improve conservation measures in the home and business. Commercial solar hot water systems for hotels, schools and industry.

Specialties: Domestic Water Heating, Photovoltaics, Wind

Seaside Solar Design/Builders

Mello, Stephen A.
1 Farrell Court
West Wareham, MA 02576
Tel: 508-295-8214
seasidesolar@comcast.net

Description: Work in the practice of sustainability since 1981. Providing clients affordable design and construction services and achieving successful energy efficient new homes, renovations and additions to existing buildings.

Specialties: Building Design/Construction, Domestic Water Heating, Remodeling, Space Heating/Cooling

Second Generation Energy

Whitaker, Edward
21 Overdale Parkway
Hopedale, MA 01747
Tel: 800-653-4270
Fax: 508-275-8541
info@sgegroup.com
www.secondgenerationenergy.com

Description: We provide energy solutions. Renewable energy, comprehensive energy audits, building retrofits and upgrades and weatherization services.

Specialties: Domestic Water Heating, Energy Audit Services, Photovoltaics

Siemens Industry—Building Technologies Division

Drummond, Jerry
40 Sharpe Drive
Cranston, RI 02920
Tel: 401-225-5432
jerry.drummond@siemens.com

Specialties: Building Design/Construction, Energy Conservation, Energy Monitoring

Solair Energy, Inc.

Denlinger, Pamela
P.O. Box 275
Ralston, PA 17763
Tel: 570-995-5747
Fax: 570-995-9116
conserve@solaireenergy.com
www.solaireenergy.com

Description: Solair Energy provides solar and wind site surveys and installations for residential, agricultural, commercial and industrial applications. We provide energy auditing and energy efficient home repairs.

Specialties: Consumer Information, Energy Audit Services, Photovoltaics, Wind

Solar & Wind FX, Inc.

Schaefer, Chris
5115 South Hill Road
Canandaigua, NY 14424
Tel: 585-229-2083
chris@solarandwindfx.com
www.solarandwindfx.com

Description: Providing Solar Power for Residential and Commercial Sites. For both Remote Off-Grid or Straight Utility Grid-Tied Elect Systems. New York's only Off-Grid Design Center.

Specialties: Green Electricity, Photovoltaics, Wind

Alphabetical List

Solar Components Corporation

Keller, Scott F.
121 Valley Street
Manchester, NH 03103
Tel: 603-668-8186
Fax: 603-668-1783
skeller@solar-components.com
www.solar-components.com

Description: Your supply source for active and passive solar systems and components since 1973. Catalog online. Over 100 products. www.solar-components.com Retail store open M-F 8AM-4:30PM
Specialties: Energy Conservation, Photovoltaics, Solar Hot Water

Solar Electric Power Systems, Inc.

McDermott, Michael
830 S. Dogwood Road
Walnutport, PA 18088
Tel: 610-760-1554
mike@solareps.com
solareps.com

Description: NE PA's Solar Installer. Any and all types of solar Electric systems designed and installed. From 1 panel to 200 panels. Roof mount, ground mount, top of pole mount and speciality mount. We have over 1.7mW's of experience. We are a full service Licensed and Certified Electrical and Solar Contractor.

Specialties: Photovoltaics

SolarFlair Energy, Inc.

Arner, Matthew
11 Mayhew Street
Framingham, MA 01702
Tel: 508-293-4293
info@solarflair.com
www.solarflair.com

Description: SolarFlair is an experienced solar energy installer providing solar electric (PV) and solar hot water systems for Massachusetts homes and businesses.

Specialties: Energy Conservation, Green Electricity, Photovoltaics,

Solar Hydronics & PV

McDerby, Jim
79 Valley Park Drive
Spofford, NH 03462
Tel: 603-209-5941
jim@solarhydronics.us.com

Description: Design and sales of solar thermal & PV systems providing control systems to meet customer needs. Our systems will integrate efficiently into our customers existing heating systems.

Specialties: Domestic Water Heating, Energy Audit Services, Photovoltaics

Solar Installation, LLC

Gaydou, Roger
83 Ames Street
Brockton, MA 02302
Tel: 888-376-5271
Fax: 508-823-2600
service@solarinstallco.com
www.solarinstallco.com

Description: Solar Installation LLC is a full service solar energy consulting & installation company. We provide system design and installation along with guiding you through federal energy incentives and state rebates. We will also determine which solar components will best meet your needs and deliver maximum return on investment.

Specialties: Energy Conservation, Green Electricity, Photovoltaics

Solar Source—A Division of Home-Efficiency Resources, LLC

Kondos, John
P.O. Box 584
218 Old Swanzy Road
Spofford, NH 03462-0584
Tel: 603-363-4505
jkondos@home-efficiency.com
www.solarsourcesite.com

Description: Serving the Monadnock region and Southeast Vermont with energy efficiency assessments and renewable energy systems for homes and businesses. With 12 years experience in solar water heating and photovoltaics.

Specialties: Domestic Water Heating, Energy Audit Services, Photovoltaics

Solar Store, Greenfield

Skinder, Mark
2 Fiske Avenue
Greenfield, MA 01301
Tel: 413-772-3122
greenfieldsolarstore@verizon.net
www.usasolarstore.com

Description: We meet all your renewable energy needs: solar electric, hot water, hot air, energy conservation, biomass heating, window inserts, lighting, biodiesel, and education.

Specialties: Domestic Water Heating, Photovoltaics, Space Heating/Cooling

Solar Systems

Gorman, Dan
81 Old Bog Road
Plymouth, MA 02360
Tel: 800-681-2480
Fax: 508-732-0116
dkgorman@solarsystemsinc.com
www.solarsystemsinc.com

Description: Solar Systems services and repairs all existing solar thermal systems in addition to designing and installing new solar thermal systems. We are a dealer for Apricus Systems.

Specialties: Alternative Technologies, Domestic Water Heating

Solaris, LLC

Crawford, Matt
P.O. Box 6849
Portland, ME 04103
Tel: 207-797-0979
Fax: 207-797-8438
info@solaristhermal.com
solaristhermal.com

Description: Commercial & Residential: Solar Thermal Heat & Hot Water, PV electric, vertical wind turbines, and high efficiency boilers.

Specialties: Domestic Water Heating, Photovoltaics, Space Heating/Cooling

Solarmarine, LLC

Coomer, David
498 Varnumville Road
Brooksville, ME 04617
Tel: 207-326-8016
Fax: 207-326-8021
solarmarine29@yahoo.com
www.solarmarine.com

Specialties: Domestic Water Heating, Photovoltaics, Radiant Heating

SolarOne Solutions, Inc.

Garland, Justin
330 Reservoir Street
Needham, MA 02494
Tel: 339-225-4530 x200
jgarland@solarone.net
www.solarone.net

Description: SolarOne Solutions provides simple and effective autonomous solar powered solutions for high value commercial applications. SolarOne Solutions has consistently led the industry in innovation: it was the first solar powered lighting company to offer max power tracking, and the first to use solar powered LED lighting for general illumination.

Specialties: Alternative Technologies, Lighting Design, Photovoltaics

Solartechnic Contractors, Inc.

Cole, Clayton
234 West Corinth Road
Corinth, ME 04427
Tel: 207-285-7886
c1cole@roadrunner.com
solartechniccontractors.com

Description: Est. 1987, design-service & installation of solar thermal-radiant heat-bioheat

& geothermal systems, Maxxon/Gyp-Crete applicator, Radiant Panel Association Hall of Fame inductee.

Specialties: Alternative Technologies, Radiant Heating, Solar Hot Water

Solect, Inc.

Driscoll, Ken
89 Hayden Rowe
Hopkinton, MA 01748
Tel: 508-589-4630
kdriscoll@solectenergydev.com
www.solectenergydev.com

Description: Solect, Inc. is a solar renewable energy development company focused on the deployment of solar photovoltaic (PV) systems. Solect works with the appropriate financial partners to fund the deployment of solar renewable energy systems. Solect designs, coordinates and manages every stage of the project throughout its productive life.

Solect targets commercial, light industrial, local government and higher education entities to deploy solar renewable energy systems through the innovative use of Power Purchase Agreements (PPA) or through the direct installation of owner capitalized systems. Solect leverages its access to financial resources, coupled with its design expertise, sales and marketing experience, project management skills, and its strategic fulfillment partners to differentiate itself in the emerging and expanding renewable energy market. Solect provides the expertise relating to government energy policy and administrative guidance to capture all appropriate financial incentives.

Specialties: Other Renewable Energy Generation, Photovoltaics, Real Estate

Solectria Renewables

Worden, Anita
360 Merrimack Street, Building 9
Lawrence, MA 01843
Tel: 978-683-9700
Fax: 978-683-9702
inverters@solren.com
www.solren.com

Description: Solectria Renewables designs and manufactures grid-tied photovoltaic inverters and related equipment (string combiners and data monitoring) for residential and commercial applications.

Specialties: Photovoltaics

Solterra Renewable Energy, LLC

Balakier, Anthony
P.O. Box 695
Portsmouth, NH 03802
Tel: 603-812-1204
Fax: 207-363-0265
abalakier@solterrare.com
www.solterrare.com

Description: SolTerra Renewable Energy provides turnkey design build services for renewable energy systems including Photovoltaics, Solar Thermal, Wind and Geothermal Heat Pump Systems.

Specialties: Domestic Water Heating, Geothermal, Photovoltaics

Southern Exposure Trading Co.

Kelley, Greg
407 Ridge Road
New Durham, NH 03855
Tel: 603-509-2956
info@southernexposuretrading.com

Description: Sol R Heat Systems is now Southern Exposure Trading Co. Provider of solar thermal evacuated tube collectors for domestic hot water and radiant floor heat, grid tie/off-grid PV Systems and wind turbines, Battery Backup Systems. Solar Irrigation, drip irrigation, commercial veggie garden. Electric Car Conversions.

Specialties: Domestic Water Heating, Photovoltaics, Wind

SouthPoint, LLC

Lastella, Michael
77 Arlington Street
Leominster, MA 01453
Tel: 978-840-4300
info@southpoint-llc.com
www.southpoint-llc.com

Description: Provide design/installation services; specializing in solar electric systems in the New England area. Our systems are for new and existing residential and commercial applications.

Specialties: Domestic Water Heating, Photovoltaics

Special Services

Skelskie, Jeff
21 Taylor Street
Granby, MA 01033-9520
Tel: 413-467-7665
Fax: 413-467-7666
jeffski@the-spa.com
Description: Warehouse distributor for QuickCable, Northeast distributor for PulseTech battery maintenance and desulfation products, ASE master technician. Quality is 1st and foremost at Special Services.

Specialties: Alternative Technologies, Electric & Hybrid Electric Vehicles, Energy Storage, Other Transportation Technologies/Services

Spector Associates Architects

Spector, Alan
19 Fox Hill Road
Lafayette, NJ 07848
Tel: 973-702-0309
Fax: 206-333-1986
spectorarch@earthlink.net
www.spectorarch.com

Description: Since 1974 we have provided Sustainable Building Solutions—designs include energy modeling, passive solar, solar PV & hot water, geothermal, daylighting & energy recovery.

Specialties: Building Design/Construction, Energy Audit Services, Energy Conservation

SRECTrade

Johnston, Christopher
45 East City Avenue, #511
Bala Cynwyd, PA 19004
customerservice@srectrade.com
www.srectrade.com

Description: SRECTrade is an online marketplace for SRECs (Solar Renewable Energy Credits) through monthly auctions and a long-term contracts exchange.

Specialties: Other Renewable Energy Generation, Photovoltaics, Solar Hot Water

Stahnke & Kitagawa Architects

Stahnke, Bruce
20 Bakeman Road
Harborside, ME 04642
Tel: 207-326-8877
bstahnke@midmaine.com

Description: Sustainable design services for community, cultural, and residential buildings, LEED consulting and green building design.

Specialties: Building Design/Construction, Energy Conservation, Environmental Education

Stephen Greenleaf Architect

Greenleaf, Stephen
P.O. Box 16612
Rumford, RI 02916
Tel: 401-434-8200
Fax: 815-572-0498
stephen@sgreenleaf.com
www.sgreenleaf.com

Description: We are a full service Architectural Firm with an interest in small projects. We assist our clients in integrating sustainable

elements into their new or existing projects.

Specialties: Building Design/Construction, Energy Conservation, Other Renewable Energy Generation

Stephen Tilly, Architect

Tilly, Stephen
22 Elm Street
Dobbs Ferry, NY 10522
Tel: 914-693-8898
office@stillyarchitect.com
www.stillyarchitect.com

Description: Sustainable architecture, planning, landscape design. New construction and renovations. Green historic preservation, feasibility studies, zoning studies and adaptive reuse; all building types.

Specialties: Building Design/Construction, Landscape Design/Construction, Remodeling

Sterling College

Brown Library
P.O. Box 72
Craftsbury Common, VT 05827
Specialties: Library, College/University, Environmental Education

Stewart Brecher Architects

Brecher, Stewart
93 Cottage Street, Suite F
Bar Harbor, ME 04609
Tel: 207-288-3747
stewart@sbrecherarchitects.com
www.sbrecherarchitects.com

Description: A small full service architectural firm providing human centered, environmentally responsible and appropriate design since 1984. We are licensed in Maine and New Hampshire

Specialties: Building Design/Construction, College/University, Energy Conservation

Sun Electric, LLC

Guzda, Steven
2 Cold Spring Drive
New Fairfield, CT 06812
Tel: 203-312-9402
Fax: 203-312-0042
sunelectric@charter.net

Specialties: Green Electricity, Photovoltaics

Sun Energy

Sherratt, Jim
P.O. Box 630
Cheshire, MA 01225
Tel: 413-447-7658
Fax: 413-743-5308
sune@bcn.net

Description: Solar technology for the Berkshires and beyond for over 35 years.

Specialties: Domestic Water Heating

SunDrum Solar

Intrieri, Michael
15 Hillside Road
Northborough, MA 01532
Tel: 978-257-2981
mintrieri@sundrumsolar.com
www.sundrumsolar.com

Description: SunDrum Solar provides hybrid solar solutions. Our SDM100 collector when attached to a PV panel cools the panel for improved electrical performance while gathering thermal energy. The hybrid module results in triple the energy output of a bare PV panel.

Specialties: Alternative Technologies, Photovoltaics, Radiant Heating

Sunlight Solar Energy, Inc.

Oxman, Rachel
4 Oxford Road, Suite D8
Milford, CT 06460
Tel: 888-78-SOLAR
Fax: 541-322-1911
rachel.oxman@sunlightsolar.com
www.sunlightsolar.com

Description: Sunlight Solar is dedicated to educating our customers, empowering them to make intelligent buying decisions. Our specialized installers are certified in Connecticut, Rhode Island, Massachusetts, New York, Nevada and Oregon.

Specialties: Photovoltaics

SunPower Builders

Costanza, Jon
80 Pechins Mill Road
Collegeville, PA 19426
Tel: 610-489-1105
Fax: 610-489-6608
kira@sunpowerbuilders.com
www.sunpowerbuilders.com
Description: With over three decades of experience, SunPower Builders offers an unparalleled scope of energy-efficient construction services and solar system installations (photovoltaics, hot water + radiant space heating, pool heating.)

Specialties: Building Design/Construction, Domestic Water Heating, Photovoltaics

SunRay Solar, Inc.

Lambe, T.
261 Highway 35
Red Bank, NJ 07701
Tel: 732-450-9800
4sunraysolar@gmail.com
www.sunray-solar.com

Description: Our parent company is 20 years in business. we specialize in commercial and residential solar energy sales, service and design, we distribute for unirc, suntech, sma, sunpower
Specialties: Green Electricity, Photovoltaics, Roofing

Sunrise Energy

Knopp, William
587 Bay Road
P.O. Box 56
Hamilton, MA 01936
Tel: 978-809-1056
lackeyknopp@verizon.net
www.sunriseenergysolar.com
Specialties: Photovoltaics

Sunset Builders, Inc.

Martin, Rick
154 Barlett Drive
Weare, NH 03281
Tel: 603-533-7504
rick.martin@sunsetbuild.com
Specialties: Building Design/
Construction, Remodeling

Sustainable Energy Developments, Inc.

Schulte, Meaghann
317 State Route 104
Ontario, NY 14519
Tel: 585-265-2384
Fax: 585-265-1148
info@sed-net.com
www.sed-net.com
Description: SED is an Ontario, NY based company developing on-site wind projects with municipalities, industry, schools, farms and homeowners. Working on projects from 10kw to several megawatts, SED assists clients with wind assessment and feasibility studies, siting, securing financing and funding, interconnection agreements, construction and maintenance of wind turbines.

Specialties: Wind

Sustainable Retrofits

Fine, Lawrence
9 Lake Boon Drive
Hudson, MA 01749-3033
Tel: 978-562-9223
Fax: 617-277-2499
lorenzonline@earthlink.net
http://home.earthlink.net/~lorenzonline

Specialties: Alternative Technologies, Indoor Air Quality, Insulation

Synapse Energy Economics

Biewald, Bruce
22 Pearl Street
Cambridge, MA 02139
Tel: 617-661-3248
Fax: 617-661-0599
bbiewald@synapse-energy.com
Specialties: Alternative Technologies, Public Policy, Research

Taggart Construction, Inc.

Taggart, Peter W.
P.O. Box 255
10 South Street
Freeport, ME 04032-0255
Tel: 207-865-2281
Fax: 207-865-2183
peter@tagcon.com
www.tagcon.com
Description: Residential and commercial design/build construction company, emphasizing energy efficient, environment friendly and occupant healthy building solutions. Architectural services, construction management, value engineering, historic restoration and custom woodworking.
Specialties: Building Design/
Construction, Remodeling

Tai Soo Kim Partners

Iglehart, T. Whitcomb
146 Wyllys Street, Suite 1-203
Hartford, CT 06105
Tel: 860-547-1970
Fax: 860-249-0695
twiglehart@tskp.com
www.tskp.com
Description: Seasoned group of licensed professionals dedicated to exceeding client expectations and to excellence in design, in which the essential elements entail harmony with the surrounding environment, natural lighting and energy efficiency.
Specialties: Building Design/
Construction, College/University

Technipower, LLC

Testa, Jay
146 Millstone Road
Wilton, CT 06897
Tel: 617-960-6741
jtesta@technipowerllc.com
Specialties: Photovoltaics

The Energy Emporium

Quirk, Kimberley
P.O. Box 351
Enfield, NH 03748
Tel: 978-844-1755
kim@energyemp.com
Specialties: Consumer Information

The Green Engineer, LLP

Schaffner, Christopher
50 Beharrell Street
Concord, MA 01742
Tel: 978-369-8978
chris@greenengineer.com
www.greenengineer.com
Description: The Green Engineer is a sustainable design consulting firm, specializing in energy efficiency for the built environment.
Specialties: Building Design/
Construction, College/University,
Space Heating/Cooling

The Jordan Institute, Inc.

Soucy, Melissa
49 North Main Street
Concord, NH 03301
Tel: 603-226-1009
Fax: 603-226-0042
msoucy@jordaninstitute.org
Specialties: Building Design/
Construction, Energy Audit Services
The Knoer Group, PLLC
Knoer, Robert
424 Main Street
Suite 1820
Buffalo, NY 14202
Tel: 716-332-0032
rknoer@knoergroup.com
Specialties: Public Policy, Legal

The Resource Technologies Group

2 Chauncy Street, #2
Cambridge, MA 02138
Tel: 617-868-8102
mgorden@sustainableresources.com
www.sustainableresources.com
Description: TRTG works with businesses and communities to develop sustainable, cost-saving energy, water, and material-reuse projects.
Specialties: Alternative Technologies, Green Electricity, Wastewater/Solid Waste

The Sandri Companies

Wedegartner, Kirsten
P.O. Box 1578
400 Chapman Street
Greenfield, MA 01302-1578
Tel: 413-223-1185
Fax: 413-773-5049
marketing@sandri.com
www.sandri.com
Description: Sandri is a full service energy provider for your home or business. We are family owned company that has been in business for 80 years. Our direct service area encompasses Western MA and Southern VT and NH. We wholesale our products throughout the North East. Our staff of well trained energy experts are able to

meet all your heating, cooling, & indoor air quality needs. We offer a wide range of products and services including: Solar Hot Water, PV, High-Efficiency Wood Pellet Boilers, Wood Pellets, Heating Fuels, Indoor Air Quality, and full professional HVAC installation and repair. Put Sandri's energy experts to work for you! 1-800-628-1900
Specialties: Biomass, Domestic Water Heating, Space Heating/
Cooling

The United Illuminating Company & CT Energy Efficiency Fund

Burns, Patrick
157 Church Street MS 1-6B
P.O. Box 1564
New Haven, CT 06505
Tel: 203-499-3504
Fax: 203-499-2800
patrick.burns@uinet.com
www.uinet.com
Description: The United Illuminating Company (UI) is an administrator of the Residential and Commercial & Industrial Energy Efficiency Programs through the Connecticut Energy Efficiency Fund (CEEF).

The CEEF promotes efficient energy use, helps residents and businesses save on their electric bills, advances economic development, reduces electric demand and helps reduce air pollution. UI and CL&P administer the CEEF through conservation programs that serve residential customers, including fixed-income customers, as well as business and municipal customers. Connecticut's energy efficiency programs are funded by a charge on customer bills. Additional information on Connecticut's energy-efficiency programs can be found at www.ctenergyinfo.com.

Specialties: Building Design/
Construction, Energy Audit Services,
Energy Conservation

The Valle Group, Inc.

DeMello, Julie
70 East Falmouth Highway, #3
East Falmouth, MA 02536
Tel: 508-548-1450
Fax: 508-548-1950
jad@vallegroup.com
Description: The Valle Group sets the standard for thoughtfully planned communities in southern New England. The company's special expertise is planning and creating communities of quality, energy-efficient homes, and building and remodeling for homeowners.
Specialties: Building Design/
Construction, Remodeling

Thermal Reserve, LLC

Weinberg, Richard
24 Countryside Drive
Johnston, RI 02919-1104
Tel: 401-261-0475
Fax: 401-949-2016
richard@thermalreserve.com
www.thermalreserve.com/

Description: A Thermal Reserve system includes vacuum tube solar collectors, a control system and storage tanks. The system is flexible and integrates well into an existing building or makes an excellent choice for new construction. Thermal Reserve, LLC is an authorized reseller of the Sea-Groups solar energy product line.

Our solar space heating solution uses relatively simple technology with few moving parts that can provide nearly no cost heating based on storage tank size and building site conditions.

Specialties: Domestic Water Heating, Energy Storage, Space Heating/Cooling

Thermotech Fiberglass Fenestration

Thwaites, Stephen
2121 Thermotech Road
Ottawa, ON K0A 1L0
Canada
Tel: 613-816-6156
Fax: 613-839-9066
steven@thermotechwindows.com
www.thermotechfiberglass.com

Specialties: Windows

Theford Hill Design

Schunk, Michael
P.O. Box 181
Theford, VT 05074
Tel: 978-973-1597
thefordhilldesign@gmail.com

Specialties: Building Design/Construction

Thomas Buckborough & Associates

Buckborough, Thomas
358 Great Road
Acton, MA 01720
Tel: 978-263-3850
Fax: 978-263-3851
thomasb@tbadesigns.com

Specialties: Building Design/Construction

Thomas E. Hitchins & Associates Architecture and Planning

Hitchins, Tom
62 Sunset Bay Drive
Steuben, ME 04680
Tel: 207-546-4232
Fax: 973-728-3216

tomhitchins@teharchitecture.com
www.teharchitecture.com

Description: Small, sustainable architecture firm dedicated to high quality design and service. We work closely with our clients to create energy efficient designs that best fit their specific needs.

Specialties: Building Design/Construction, Remodeling

Thoughtforms Corporation

Doughty, Mark
543 Mass Avenue
Acton, MA 01720
Tel: 978-263-6019

mark@thoughtforms-corp.com

Description: Thoughtforms Corporation specializes in building high-end custom homes and unique institutional buildings in eastern Massachusetts. Now in our fourth decade, we have built our reputation and business by working together with architects and clients to create successful projects. We offer technical expertise, superior craftsmanship, and an ability to collaborate seamlessly with architects and clients on demanding construction projects ranging from \$500,000 to \$10 million.

We believe in quality, value and providing great service; however the characteristic that we are most proud of is our integrity. We approach all of our relationships—with employees, subcontractors, suppliers, architects, and clients—with the same simple ethic: that we will communicate and interact with them according to the highest standards of integrity. We treat our clients as we would want to be treated. We have found this to be a very effective and satisfying way of conducting our business.

We have always approached projects with an eye on sustainability and have made every effort to inform the design teams and clients of opportunities to reduce the "footprint" of their projects. Our starting point is superior quality, and quality is a pre-requisite to sustainability.

Specialties: Building Design/Construction

Tighe & Bond, Inc.

Bales, Bart
53 Southampton Road
Westfield, MA 01085
Tel: 413-562-1600
Fax: 413-562-5317
bbales@tighebond.com

Specialties: Waste Water/Solid Waste

TNT Electrical Contractor, LLC

Mahoney, Troy
371 White Oaks Road
Weirs Beach, NH 03246
Tel: 603-455-4217
Fax: 603-528-9489
tntelectric@metrocast.net
www.tntelectricalcontractor.com

Specialties: Photovoltaics, Wind, Green Electricity

Transformations, Inc.

Scott, Carter
8 Coppersmith Way
Townsend, MA 01469-4412
Tel: 978-597-0542
Fax: 978-597-0543
rcarterscott@msn.com

Description: Transformations, Inc. is focused on creating Zero and Near Zero Energy homes including Sustainable Developments.

Specialties: Building Design/Construction, Photovoltaics

TRC Companies, Inc.

O'Brien, Caren
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854
Tel: 978-656-3548
Fax: 978-453-1995
cobrien@trcsolutions.com
www.trcsolutions.com

Description: TRC Companies, Inc. is an engineering, consulting, and construction management firm that provides integrated services to the environmental, energy, infrastructure, and real estate markets. Our multi-discipline project teams provide turnkey services to help you implement complex projects from initial concept to delivery and operation.

Specialties: Alternative Technologies, Public Policy

Treehouse Design, Inc.

Thurman, Tim
31 Poole's Lane
Rockport, MA 01960
Tel: 978-546-8302
tim@treehousedesigninc.com

Specialties: Building Design/Construction

Tremco Incorporated

Foley, Bill
7806 Pine Road
Glenside, PA 19038
Tel: 610-390-1068
Fax: 215-233-4371
bfoley@tremcoinc.com

Specialties: Roofing

TruexCullins Architecture and Interior Design

Weeks, Susan
209 Battery Street
Burlington, VT 05401
Tel: 802-488-8232
Fax: 802-658-6495
sweeks@truexcullins.com
www.truexcullins.com

Specialties: Building Design/Construction

Trumbull-Nelson Construction Co., Inc.

Usle, Steve
P.O. Box 1000
200 Lebanon Street
Hanover, NH 03755-1000
Tel: 603-643-3658
Fax: 603-643-2924
susle@t-n.com
www.t-n.com

Description: Trumbull-Nelson Construction Company offers Construction Management and General Contracting services to northern New England Commercial, Residential, Industrial and Institutional clients. Recent building projects have included biomass heating plants, geothermal heating and cooling, innovative lighting and temperature control systems. Currently, four individuals on Trumbull-Nelson's Project Management staff are LEED-Accredited Professionals. Two Trumbull-Nelson projects have received LEED Gold Certification.

Specialties: Building Design/Construction, College/University, Other Renewable Energy Generation

Truth Box, Inc.

Case, Peter Gill
27 Sims Avenue
Providence, RI 02909
Tel: 401-453-1300
pgc@truthbox.com
www.truthbox.com

Description: This architectural firm is for clients who seek alternatives to wasteful building practices. We offer cost effective solutions that help the environment and enhance design and comfort.

Specialties: Alternative Technologies, Building Design/Construction, Energy Conservation, Wastewater/Solid Waste

Alphabetical List

Turn Key Builders, Inc.

Meehleder, Jim
410 Chapman Street
Greenfield, MA 01301
Tel: 413-774-9946
Fax: 413-774-9926
turnkeybuild10@aol.com
Specialties: Building Design/
Construction, Photovoltaics,
Remodeling

U.S. EPA, Solid Waste Reduction and Global Climate Change

One Congress Street, Suite 1100 (SP)
Boston, MA 02114-2023
Tel: 888-372-7341
Fax: 617-918-1810
www.epa.gov/region01
Description: EPA leads the
nation's environmental science,
research, education & assessment
efforts. The mission of the EPA is
to protect human health & the
environment.
Specialties: Consumer Informa-
tion, Environmental Education,
Research

University of New Hampshire

18 Library Way
Durham, NH 03824-3520
Tel: 603-862-1020
Specialties: Library, College/
University

Upstate Solar, LLC

Fitzmaurice, William
35 Broad Street
Catskill, NY 12414
Tel: 518-947-0208
upstatesolar@mhicable.com
www.upstatesolar.net
Description: There is an abun-
dance of free energy coming from
the sun every day. With our prod-
ucts you can tap into this free heat
& power quickly & without major
modifications to your house.
Specialties: Photovoltaics,
Space Heating/Cooling, Retail

Urban American

Eisenberg, Joshua
590 56th Street
West New York, NJ 07093
joshua.eisenberg@urbanamerican.
net
Specialties: Real Estate

Urban Habitat Initiatives

Vermeer, Kimberly
77 North Washington Street, 6th Floor
Boston, MA 02118
Tel: 617-624-3930
Fax: 617-624-3933
kim.vermeer@
urbanhabitatinitiatives.com
Specialties: Public Policy, Con-
sumer Information, Social Services

US Solar Works, LLC

Fine, Pete
7 North Main Street
Attleboro, MA 02703
Tel: 508-226-8001
pete@ussolarworks.com
Specialties: Consultant, Energy
Conservation

Vanasse Hangen Brustlin, Inc.

Roy, Leo Pierre
101 Walnut Street
P.O. Box 9151
Watertown, MA 02471-9151
Tel: 617-924-1770
Fax: 617-924-2286
lroy@vhb.com
www.vhb.com
Description: Large East Coast
civil engineering firm offering plan-
ning, land development, transpor-
tation and environmental services.
Specialize in environmental plan-
ning and sustainable design.
Specialties: Landscape Design/
Construction, Public Policy, Waste-
water/Solid Waste, Wind, Biomass

Vanderweil Engineers

Pakulski, Andrea
274 Summer Street
Boston, MA 02210
Tel: 617-423-7423
Fax: 617-423-7401
apakulski@vanderweil.com
www.vanderweil.com
Description: R.G. Vanderweil
Engineers, LLP provides MEP engi-
neering, power generation, and
electrical transmission and dis-
tribution engineering.
Specialties: Building Design/
Construction, Fuel Cells, Geo-
thermal, Space Heating/Cooling

VELUX

Lojek, Neal
754 Rainbow Road, Suite 1
Windsor, CT 06095
Tel: 864-941-5360
neal.lojek@velux.com
Specialties: Solar Hot Water,
Windows

Verdeco Designs, LLC

Yanowitz, Mark
20 Wild Rose Drive
Andover, MA 01810
Tel: 978-409-2217
mark@verdecodesigns.com
www.verdecodesigns.com
Description: Full service architec-
tural design/build firm specializing
in pragmatic energy efficient de-
sign, green building principles,
passive solar, and active renewable
energy systems.
Specialties: Building Design/
Construction, Energy Conservation,
Remodeling

Verdentity

Parslow, Nick
4 Briar Lane
Saratoga Springs, NY 12866
nfparslow@gmail.com
Specialties: Marketing

Vermont Energy Investment Corporation

Faesy, Richard
255 South Champlain Street
Burlington, VT 05401-8401
Tel: 802-658-6060
Fax: 802-658-1643
rfaesy@veic.org
www.veic.org
Description: Vermont Energy
Investment Corporation provides
energy program planning, evalu-
ation and consulting services,
including operating Efficiency
Vermont, the nation's premier
energy efficiency utility.
Specialties: Alternative Technolo-
gies, Energy Audit Services, Energy
Conservation, Research, Consultant

Vermontwise Energy Services, Inc.

Gephart, Jeffrey
237 South Main Street, #10
Rochester, VT 05767
Tel: 802-767-4501
Fax: 802-767-3861
vtwise@together.net
Description: Vermontwise Energy
Services, Inc.—Founded in 1997
to provide energy efficiency services
to the residential new construction
and gut rehab market. Since our
inception we have provided de-
mand-side-management program
design consultation, marketing
support, and implementation ser-
vices with a specialty in builder
communication/education and
trade ally outreach. Experiences
include implementation services
involving U.S. EPA/DOE ENERGY
STAR Homes; green building
certification programs LEED for

Homes, National Green Building
Standard, and Vermont Builds
Greener; and an active proponent
(though not a certified consultant)
of Passive House construction.
Also experienced with design and
implementation of demand-side-
management direct installation
programs.
Specialties: Energy Conservation

Viridian Energy

Lahey, Daniel
217 Fred Allen Drive
South Plainfield, NJ 07080-2805
Tel: 908-917-9323
dmlahey@gmail.com
Description: Viridian Energy is a
green electricity suppliers that en-
ables people to buy green elec-
tricity at a discount to the utility.
Specialties: Green Electricity,
Wind

Wagner Solar, Inc.

Gaebler, Joerg
485 Mass Avenue, Suite 300
Cambridge, MA 02238
Tel: 617-230-5604
joerg.gaebler@wagner-solar.com
www.wagner-solar.com
Specialties: Domestic Water
Heating, Photovoltaics, Space
Heating/Cooling

Walden Street Web Services

Lapointe, Stephen
1619 Massachusetts Avenue
Cambridge, MA 02138
Tel: 617-864-0770
stephen@waldenstreet.com
www.waldenstreet.com
Description: Walden Street offers
a suite of hosted web services to
support the missions of leading
sustainability organizations. Appli-
cations include web-based energy
monitoring and customizable
solutions for search, news, and
mapping.
Specialties: Consumer Infor-
mation, Environmental Education,
Photovoltaics

WampWorx

Harding, Mark
25 Devon Street
Mashpee, MA 02649-3635
Tel: 508-477-1600
Fax: 508-477-1920
mark@wampworx.com
www.wampworx.com
Specialties: Building Design/
Construction, Consultant

Warner + Cunningham, Inc.

Cunningham, Lisa
397 Newton Street
Chestnut Hill, MA 02467
Tel: 617-566-1644
Fax: 617-566-2720
lisa@warnercunningham.com
Specialties: Building Design/
Construction

Warren Design Build

Warren, Carl
268 West Street
Berlin, MA 01503
Tel: 978-838-0022
carl@warrendesign.com
warrendesign.com

Description: 30 years experience using current building science techniques to design and build durable, low maintenance, healthy, low-impact homes. Check us out at warrendesign.com

Specialties: Building Design/
Construction

Warrenstreet Architects, Inc.

Halle, Jonathan
27 Warren Street
Concord, NH 03301
Tel: 603-225-0640 x113
Fax: 603-225-0621
jh@warrenstreetarchitects.com
Specialties: Building Design/
Construction

Water Energy Distributors, Inc.

Orio, Martin J.
2 Starwood Drive
Hampstead, NH 03841
Tel: 603-329-8122
Fax: 603-329-0285
martin@northeastgeo.com
www.northeastgeo.com

Description: Geothermal design & geothermal heat pump distribution for the northeastern United States since 1978.

Specialties: Energy Conservation, Geothermal, Space Heating/
Cooling

West Hill Energy

Parlin, Kathryn
23 Williamstown Road
Chelsea, VT 05038
Tel: 802-685-4424
Fax: 802-685-3340
kathryn@westhillenergy.com
Specialties: Consultant

Westcott G. Clarke General Contracting & Design, Inc.

Clarke, Westcott G.
510 Mountain Road
Wilbraham, MA 01095
Tel: 413-596-2010
Fax: 413-596-4076
westcottclarke@yahoo.com
www.westcottclarke.com

Description: Residential and light commercial building and remodeling with emphasis on renewable building practices, super insulation and passive solar. Quality and service of yesterday, concepts for today and tomorrow.

Specialties: Building Design/
Construction, Remodeling

Weston Solutions, Inc.

Lindsay, Joel
104 Green Road
Bolton, MA 01740
Tel: 978-779-8904
Fax: 978-779-0777
joel.lindsay@westonsolutions.com
Specialties: Alternative Technologies, Building Design/Construction, Roofing

William Maclay Architects & Planners

Maclay, William
4509 Main Street
Waitsfield, VT 05673
Tel: 802-496-4004
Fax: 802-496-4007
wmap@wmap-aia.com
www.wmap-aia.com

Description: WMAP is an award-winning architectural firm specializing in collaborative, integrative design incorporating energy and resource conservation, renewable energy use, optimal indoor air quality, healthy building design technology, and environmentally responsive land use planning.

Specialties: Alternative Technologies, Building Design/Construction, Research

William Wolfe Architect

Wolfe, William
50 Hawthorne Avenue
Princeton, NJ 08540
Tel: 609-683-1921
Fax: 609-683-1322
wwolfearch@aol.com
Specialties: Building Design/
Construction

Wind Energy Development

DePasquale, June
1130 Ten Rod Road
Suite E-102
North Kingstown, RI 02852
Tel: 401-295-4998
Fax: 401-295-4944
jdepasquale@windenergydevelopmentllc.com
Specialties: Wind

Window Quilt

Digney, Larry
22 Browne Court, Unit 105
Brattleboro, VT 05301
Tel: 802-246-4500
larry@windowquilt.com
www.windowquilt.com

Description: Window Quilts raise the R-value of single pane windows beyond that of typical replacement windows. They raise mean radiant temperature, so rooms are comfortable at lower temps.

Specialties: Energy Conservation, Insulation, Windows

Wolfworks, Inc.

Wolf, Jamie
195 West Main Street
Avon, CT 06001
Tel: 860-676-9238
Fax: 860-676-9238
jamie@homesthatfit.com
www.homesthatfit.com

Description: We are guides. We guide a process for clients who are prepared to design and build collaboratively and responsibly. Together we create spaces that look great, work well and feel good to be in.

We rely on building materials and energy to create a project. Our choices are guided by the opportunity to use materials and energy wisely. This means seeking solutions that make the best use of available space before constructing additional space. It means striving to use energy efficient equipment and construction strategies. It means seeking materials that are durable, safe, and resource efficient. We expect to respect what we use.

We are trained to design and build using the Passive House Planning Package to produce extraordinarily low energy buildings. We think solar is for dessert—after you eat your veggies!

Specialties: Building Design/
Construction, Remodeling

Wright Builders, Inc.

Paige, Joyce
48 Bates Street
Northampton, MA 01060
Tel: 413-586-8287 x32
Fax: 413-587-9276
jpaige@wright-builders.com
www.wright-builders.com
Description: A design/build general contractor specializing in energy efficient housing since 1977, serving the Pioneer Valley.
Specialties: Remodeling

Zapotec Energy, Inc.

Lyons, Paul
675 Massachusetts Avenue
Cambridge, MA 02139
Tel: 617-547-5900
Fax: 617-547-5901
lyons@zapotecenergy.com
www.zapotecenergy.com
Specialties: Energy Conservation, Photovoltaics

ZeroEnergy Design

Prince, Adam
348 Medford Street
Boston, MA 02129
Tel: 617-720-5002 x102
aprince@zeroenergy.com
www.zeroenergy.com
Description: Innovative design embracing energy, environment, and lifestyle. Architecture, Mechanical Engineering, and Energy Consulting.
Specialties: Building Design/
Construction

Zetland Homes, LLC

Reddy, Steve
P.O. Box 146
Hopkinton, NH 03229-0146
Tel: 603-746-3556
Fax: 603-746-4513
zetlandhomesllc@comcast.net
www.zetlandhomes.com
Description: Builder of high performance and green homes. Choice of home types: stick built and SIP; Log; TimberFrame; ICF; Modular; and Historic Reproduction.
Specialties: Building Design/
Construction, Remodeling

Sandri

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premium pellet fuel delivery:*

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- Bulk Pellet Delivery & Storage

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Season after season,
the sun gives its light to the earth,
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Every day a limitless crop of free,
clean energy reaches our planet.

Stiebel Eltron manufactures all the tools you
need for a successful thermal solar harvest.
And we've been doing so since 1976.

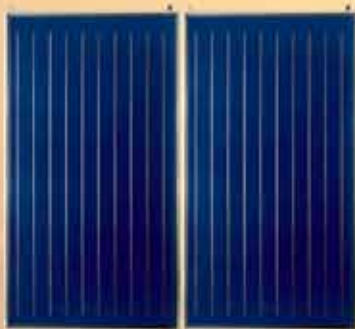
From our highly efficient flat plate collectors and
storage tanks to our complete line of mounting
hardware, pump stations, controllers, and
accessories, we have it all.

Stiebel Eltron is your one stop source for thermal solar products.

SOLKIT 2 includes:



SBB 300 Plus Storage Tank



2 x SOL 26 PLUS
Flat Plate Collectors



Pump station with
SOM 6 Controller



Because every installation is
different, we have a full line of
SOLKITS and mounting
hardware kits available. All
components and accessories are
available for individual sale.
SRCC 06300 Certified



www.stiebel-eltron-usa.com

STIEBEL ELTRON
Simply the Best

TOLL FREE 800.582.8423
info@stiebel-eltron-usa.com

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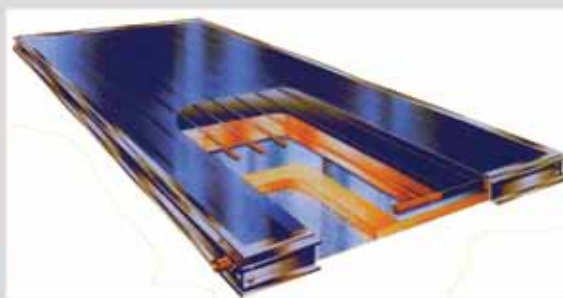
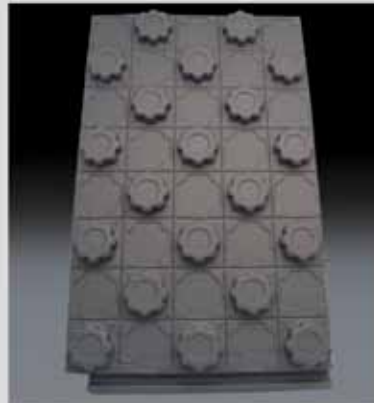
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Energy Systems



Oventrop Energy Systems is a complete line of solar collectors, solar controls, radiant floor systems and solar hot water storage tanks. The main components of the Oventrop Solar System are the evacuated glass tube collectors. The collector tubes have aluminum absorbers mounted in either 8 or 16 evacuated glass tubes. The absorber, coated with a special aluminum nitride layer, converts incoming solar radiation to heat. The special coating absorbs more than 92% of the arriving radiation. The Regusol controller can control the flow of fluid between the solar collector and Oventrop's 80- or 115-gallon dual coil storage tanks.



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