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## SMALL BUSINESS ENERGY ADVANTAGE ENERGY EFFICIENCY CASE STUDY: Modern Woodcrafts, Plainville, CT

This program provides cost-effective, turnkey, energy-saving products and services for small business customers. Benefits include financial incentives to offset the premium costs associated with energy-efficient technology.

This program is one of several innovative solutions offered by Energize Connecticut and administered by Connecticut's utility companies.

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### Energize Connecticut and Eversource Helped Modern Woodcrafts, L.L.C.:

- Save approximately \$35,555 and 182,706 kilowatt-hours annually.
- Defray their investment with a \$52,459 incentive.
- Achieve a lifetime savings of over 2,486,054 kilowatt-hours.

### The electricity saved on this project over the lifetime of the measures is the equivalent of approximately:

- 91,791 gallons of oil not burned, or
- 1,195 tons of carbon dioxide (CO<sub>2</sub>) emission avoided, or
- 558 tons of coal not burned, or
- 296 homes provided with electricity for one year, or
- 208 cars taken off the roads for one year.



VARIABLE-FREQUENCY MOTORS ON FANS SAVE ENERGY BY ALLOWING THE VOLUME OF AIR MOVED TO MATCH THE SYSTEM DEMAND

## Background

Modern Woodcrafts L.L.C. is one of the country's premier designers and crafters of wood-paneled interiors for high-end retail, corporate and collegiate clients. First opened in 1959 in the garage of founder Gerald Pelletier, it now occupies a 65,000 square-foot facility in Plainville, Connecticut with 75 employees. Its clientele includes a number of Fortune 500 companies, upscale retail establishments such as Tiffany's, Bloomingdale's and Neiman Marcus, and a number of Ivy League institutions, including Yale, Harvard and Brown University. The firm's chief role, according to Vice President of Operations Joseph A. Legere, is to transform architectural renderings into actual fixtures, wall panels and built-in furnishings, both for retrofits and new interior space.

## The Challenge

As one of the many enterprises impacted by the economic downturn of 2008, Modern Woodcrafts found itself having to scale down its operations in order to adjust to market conditions. This meant downsizing its manufacturing space by 60 percent through the closing of a manufacturing plant in Maine and, as Legere puts it, "doing more with less" – meaning having to consolidate its entire operation into its Plainville facility while attempting to get back to its 2007 income level. An important aspect of this realignment was finding ways to make its operation more energy efficient that didn't involve a significant upfront expenditure.

## The Solution

The opportunity for the company to realize a substantial reduction in energy consumption came when it was approached by the manufacturer of its compressor, Atlas-Copco. The firm said it had a replacement compressor available – a "smart" computer-controlled variablespeed-drive, load-sensing unit that could generate savings within a short payback period. They suggested to Legere that Energize Connecticut might help with the financing. He was receptive to the idea, and was subsequently contacted by an Eversource-authorized Small Business Energy Advantage (SBEA) program contractor that "got the ball rolling."

"Given the economy, I knew I wouldn't take a project like this to the ownership unless it was a cash-neutral proposition," says Legere. But once having found that the company was indeed eligible for zero-percent financing coupled with a substantial incentive payment through the SBEA program, management began to wonder what other pieces of equipment it might have in continuous operation that could be similarly replaced or retrofitted to save energy and cut costs. And that, he says, "is how the project went from just being about a compressor to a much more comprehensive arrangement" – one that also included upgraded lighting throughout the offices and the manufacturing floor, dust collection and ventilation equipment. Variable-frequency motors on fans save energy by allowing the volume of air moved to match the system demand. Once Modern Woodcrafts decided to streamline its entire operation via the SBEA program, representatives of both Eversource and the authorized

contractor conducted a thorough audit to identify all the areas that could be upgraded and all potential energy savings. The measures they came up with are expected to provide an estimated annual energy savings of 182,706 kilowatt-hours, amounting to a lifetime energy savings of 2,486,054 kilowatt-hours, and to reduce peak demand by 60.42 kilowatts. And while the equipment involved would ordinarily have cost the company \$134,361 to install, an incentive payment of \$52,459 has significantly reduced that figure

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“We’re very happy that Energize Connecticut and our utility has a program like this available to small business.”  
— Joseph a. Legere

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to a point where all the combined improvements are expected to pay for themselves in less than two-and-a-half years.

“It was a very smooth process,” Legere recalls, noting that one of its ‘side benefits’ has been the positive image of the company the improvements have

helped create with its clientele. “Everybody is very concerned right now about being environmentally conscious and responsible. That’s something our customers are focused on. To know we’re doing our part on our end is something they’re very happy to see.” But what management is happiest about is the opportunity to have its facility made totally energy efficient without a large up-front cash investment. As for repayments on the no-interest loan, Legere is confident that those are going to be offset by the anticipated energy savings on each month’s bill. And that’s not to mention the extended equipment life that should result from the company’s new ability to automatically shut it off when not in use or adjust its energy consumption to accommodate actual requirements.



## Ventilation, Dust Collection and Other Equipment

In addition to the installation of a computer-controlled variable-speed-drive, load-sensing compressor that prompted the company to rethink the energy efficiency of its entire operation, equipment upgrades carried out with the help of the SBEA program included:

- Replacement of its old ventilation motor with a 40 HP VFD motor that drastically reduced the amount of energy used by the three spray booths and finishing room.
- Replacement of an old compressor with a 40 HP VSD Rotary Air Screw Compressor which runs a built in Energy Saver dryer.
- Installation of another 50 HP VFD motor and Ecogate controls in the dust collection system that uses less power than the previous motor while cutting off air flow to collector units that are not in use.
- Installation of 21 programmable thermostats, 15 on the heating system and 6 on the cooling system to prevent short cycling and unnecessary conditioning of the space when the building is not in use.
- Installation of strip curtains to block unconditioned air from flowing into air conditioned parts of the facility, thus making it a more comfortable place to work as well as more energy efficient

**These cumulative measures are expected to produce annual estimated savings of 161,710 kilowatt-hours and \$31,468 in energy expenditures.**



## Lighting

Upgrades to the facility's lighting system included:

- Replacing 48 incandescent light bulbs with Cold Cathode compact fluorescent lamps (CFLs).
- Retrofitting T8 and T12 lamp fixtures with 2-foot linear lamps, low-power ballasts and specular reflectors, all of which last longer, use less power and are less expensive to replace.
- Retrofitting 8 4-foot linear fluorescent fixtures with lowpower ballasts and lamps.
- The installation of motion sensors to control both interior and exterior lighting throughout the facility and to ensure that lights are not being burned when a room has no occupants.
- Replacement of incandescent exit signs with more energy-efficient LED models. All-told, the improvements to lighting fixtures and equipment are expected to result in a total annual energy savings of 20,996 kilowatt-hours, amounting to an estimated \$4,086 in additional annual energy costs.

## Benefits

- The SBEA program offers a variety of incentive structures to offset the cost of energy-efficient equipment.
- To cover the customer's share of the costs, the SBEA program offers a zero-percent financing option to qualifying customers with a maximum loan term of 36 months.
- Energy upgrades translate into customer savings on monthly energy bills for the life of the measure.
- Eversource provides oversight and inspection.

*(Small business customers with an average 12-month peak demand between 10 kilowatts (kW) and up to 200 kW are eligible.)*

## The Bottom Line

|  |                    |
|--|--------------------|
| Total cost for all project upgrade measures:                         | \$ 134,361         |
| Energize Connecticut incentive paid to Modern Woodcrafts, L.L.C.     | \$(52,459)         |
| Annual estimated electric savings based on rates at time of project: | \$ 6,430           |
| Net cost:  | \$ 81,902          |
| Monthly loan payment :<br>(Zero percent interest)                    | \$2,824./29 months |
| Net monthly savings:<br>(During the loan period)                     | \$ 139             |
| Net monthly savings:<br>(After the loan period):                     | \$ 2,963           |

*Program measures subject to change without notice.*

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