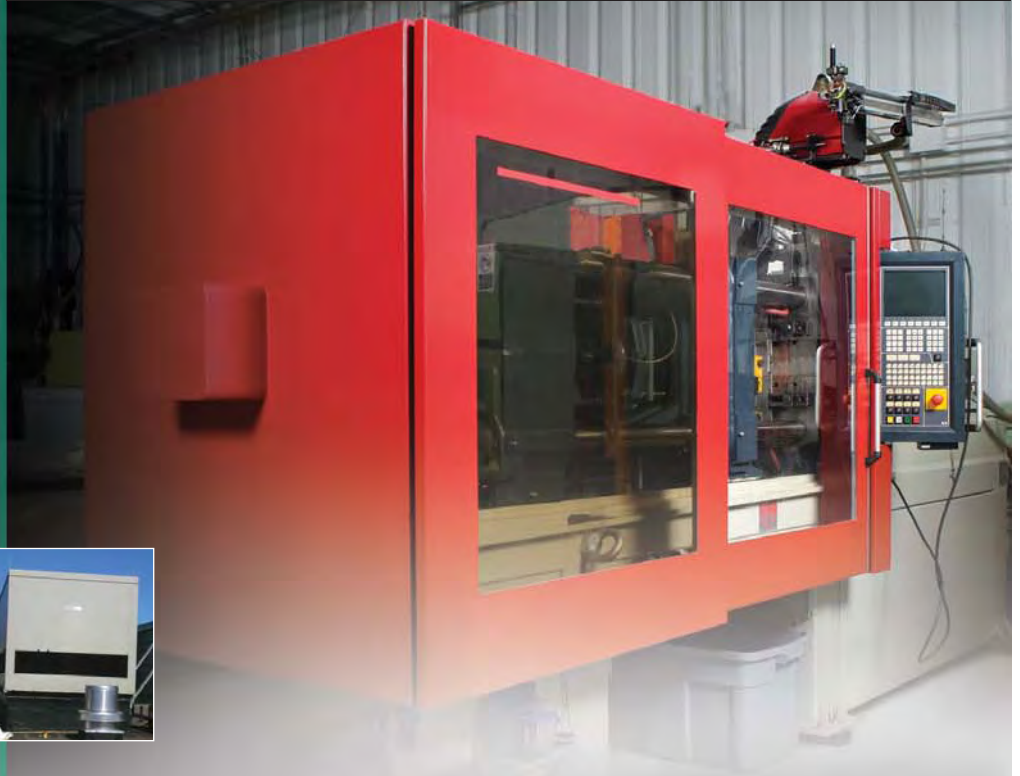


Energy Conscious Blueprint



This program is for business customers planning new construction, major renovations, new production or process equipment, or replacement of existing equipment near the end of its useful life. Benefits include financial incentives to offset the premium costs associated with energy-efficient technology.

This program is one of several innovative solutions offered by the Connecticut Energy Efficiency Fund and administered by Connecticut's utility companies. For a complete listing of energy-efficiency programs and services for electric and natural gas customers, visit www.CTEnergyInfo.com or your utility company's website.

DETERMINE YOUR OWN ENERGY FUTURE.

Case Study: Vanguard Plastics Corp.

The Connecticut Energy Efficiency Fund and CL&P Helped Vanguard Plastics:

- Save approximately \$6,000 and 40,223 kilowatt-hours annually
- Defray their investment with a \$32,860 incentive
- Achieve a lifetime savings of over 603,345 kilowatt hours

Efficient use of electricity slows down the need to build more power plants and results in fewer toxins emitted into our atmosphere.

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

- 27,708 gallons of oil not burned or,
- 169 tons of coal not burned or,
- 63 cars taken off the road for one year or,
- 72 homes provided with electricity for one year.



Connecticut
Light & Power

The Northeast Utilities System



www.CTEnergyInfo.com



The United Illuminating Company

Energy Efficiency Case Study: Vanguard Plastics Corp.

CL&P, through the Connecticut Energy Efficiency Fund (CEEF), can help you manage your energy costs, improve productivity, and protect the environment the way we did for Vanguard Plastics.

[Background

Vanguard Plastics Corporation has been in operation in Southington, Connecticut since 1972. Family owned and operated, Vanguard specializes in precision injection molding applications for the automotive, water filtration, consumer appliance and household goods industries. The facility's plastic injection molding machines (PIMM) run 24 hours a day, 5 days a week.

When it was time to replace one of their 19 hydraulic PIMMs, Vanguard made the decision to replace it with a more energy efficient, all-electric machine. That was more than five years ago. This success story details the energy savings for their fifth PIMM replacement. In each case, Vanguard Plastics participated in the Connecticut Energy Efficiency Fund's Energy Conscious Blueprint program administered by CL&P.

[The Challenge

Hydraulic PIMMs have been in use for decades. Hydraulic components, including pumps, valves, motors and fittings, provide the power to open and close a mold and drive a reciprocating screw. Because hydraulic pressure has to be maintained all the time, these traditional machines consume energy even when in an "idle" state. Additionally, the hydraulic oil produces heat that results in either a hot facility, or higher air conditioning costs.

[CL&P's Solution

An engineering team from CL&P compared the predicted energy usage between a standard 200-ton hydraulic PIMM (the base case) and an equivalent all-electric model. The engineers factored in the run-hours per year, the anticipated peak power (kilowatts) and the average cycle power (kilowatts), and determined that replacing the hydraulic machine with an all-electric model would result in approximately a 67 percent reduction in electrical use (kilowatt-hours.)

Servo motors on the all-electric PIMM account for the energy savings. Now, the motors are only energized when they are needed. "The all-electric technology is superior to hydraulics," states Vanguard. "With the incentive, why wouldn't we do it?"

By eliminating the hydraulics, you eliminate the oils and their equipment including valves, pipes and sensors. With fewer of these consumable-type parts, electric PIMMS require

less maintenance and may have longer lives. The electric PIMM's servo mechanisms are connected via a digital bus system. This enables Vanguard Plastics to save another type of energy — the human type.

Troubleshooting is easier and the readouts are tied into the internet, allowing Vanguard to update the software when available and giving their customers the ability to monitor production in real time. Servo controls also result in improved accuracy, reliability and repeatability.

The energy-efficient machine is also quieter. Vanguard reports that the decibel level in the plant, before they started switching to electric PIMMs, was in the low 70's and now is in the 50-dB range.

“ Participating in the program made good business sense. ”

Vanguard Plastics



[Benefits

- ★ Using CEEF funding, CL&P pays up to 100 percent of the incremental cost between standard and more energy-efficient equipment and measures.
- ★ For new construction, new equipment and major renovations, CL&P's Energy Conscious Blueprint program reduces capital and operating costs. CL&P helps in the development and evaluation of energy-saving upgrades.
- ★ Energy upgrades translate into customer savings on monthly electric bills for the life of the equipment.
- ★ To help customer's cover their share of the costs, the Energy Conscious Blueprint program offers a zero-percent financing option to qualifying customers.
- ★ CL&P also provides oversight and inspection.

(All commercial and industrial customers are eligible.)

[The Bottom Line

Total cost for a 200-ton **all-electric, energy-efficient** PIMM: \$144,730.
Total cost for a 200-ton **hydraulic** PIMM: -102,080.

Incremental cost for energy-efficient machine: \$42,650.
CEEF incentive paid to Vanguard Plastics: -32,860.

Net additional cost by Vanguard Plastics: \$9,790.
Annual estimated electric savings based on rate at time of project: \$6,033.

Estimated payback time for Vanguard Plastics' additional investment in their energy-efficient PIMM:

$\frac{\text{Net additional cost} = \$9,790}{\text{Energy savings} = \$6,033} = 1.62 \text{ years}$

Program measures subject to change without notice.

“ Working with CL&P is tremendously easy - it doesn't get any easier. The program was turnkey - so simple to participate in. ”

Christopher Budnick