

case study **Industrial Shelving Manufacturer** Quincy, Michigan

An investment-grade audit by engineers from the Delta P2E2 Center found more than a dozen opportunities for a shelving manufacturer in Quincy, Michigan, to save money by using energy more efficiently—even though the facility was extremely well run.

The company manufactures custom industrial shelves and ships them via flatbed trucks for onsite assembly at the customer's facility. Manufacturing operations in the 330,000 square foot plant include metal machining, welding, a five-stage wash and rinse system, and painting.

The Quincy facility uses approximately 64,000 million Btus (MMBTU) of energy per year, at a total annual cost of \$750,000, to power the equipment that fabricates and paints its products. Natural gas supplies 45,963 MMBTUs—72 percent of total energy consumption. Electricity accounts for 28 percent of total energy use, or 18,076 MMBTUs (5.3 million kWh) per year.

If the Quincy company were to implement all of the audit's recommendations, the facility would realize annual electricity savings of 15 percent and natural gas savings of 18 percent.

case study **Industrial Shelving Manufacturer** Quincy, Michigan

Project	Estimated Cost	Estimated Annual Savings	Estimated Electricity Savings (kWh)	Estimated Natural Gas Savings (CCF)	Payback (Years)
Replace metal halide fixtures with T-8 fluorescent fixtures	\$ 195,840	\$ 48,664	585,735	—	4.1
Install automatic doors on powder coating rooms	\$ 1,770	\$ 2,000	25,547	—	1.1
Recover flash steam	\$ 2,800	\$ 1,300	—	1,560	2.1
Reduce compressed air leaks—automatic control valves	\$ 9,000	\$ 5,790	57,540	—	1.5
Reduce compressed air leaks—manual ball valves	\$ 900	\$ 5,790	57,540	—	0.2
Recover oven heat for space heating	\$ 131,580	\$ 60,910	—	73,130	2.2
Preheat oven combustion air	\$ 12,000	\$ 5,740	—	6,890	2.1
Relocate air dryer from powder coating room	\$ 250	\$ 230	3,360	—	1.1
Install compressed air storage	\$ 1,080	\$ 2,280	32,880	—	0.5
Install loading dock walls	\$ 12,000	\$ 4,170	—	5,010	2.9
Supply outdoor air to compressors	\$ 250	\$ 570	8,220	—	0.4
Reset office thermostats	\$ 0	\$ 430	4,800	110	—
Reduce powder coating room air supply	\$ 5,300	\$ 880	12,075	—	6.0
Insulate ceilings in powder coating room	\$ 1,400	\$ 445	6,417	—	3.1
Total	\$ 374,170	\$ 139,199	794,114	86,700	1.95

Implementing these projects would benefit the environment, too, by reducing emissions of carbon dioxide, criteria pollutants, and volatile organic compounds:

CO2	1,253 tons/yr
NOx	1.3 tons/yr
SO2	3.2 tons/yr
Particulate matter (PM10)	91.5 lbs/yr
VOC	26.45 lbs/yr
Mercury	0.026 lbs/yr
CO	251.7 lbs/yr