

McCain Foods USA Compressed Air System Retrofit Saves Energy

The Business

Canadian-owned McCain Foods USA food processing plant in Burley produces more than 550 million pounds of French fries and specialty potato products per year. In 2007, McCain received the Golbon Frozen Food Supplier of the Year award.

The Challenge

Two Burley on-site processing plants produce the highest volume of potato products of any McCain Foods' United States plants. Compressed air is critical for processing and packaging potato products. At one of the Burley plants, irregular air supply affected productivity.

Three air compressors supplied the compressed air for production at McCain Foods. Two, 200horsepower compressors ran fully loaded year-round, and one 150HP compressor cycled, meeting the system demand as needed. Both compressors were screw compressors with load-unload controls. Plant departmental managers and the McCain energy conservation team, in conjunction with engineers from Idaho Power's Custom Efficiency program, investigated upgrading the compressed air system.

A compressed air energy audit, conducted by Gardner Denver and Air Equipment Company in October 2006, showed an average year-round load of 382 kilowatts. "As we dug into it, we found there were some energy savings to be had there," said Steve Lundberg, engineering manager at the Burley plant.

The Solution

Installation of a new refrigerated air dryer, a new variablespeed air compressor, and a compressor control system provided clean, dry compressed air with increased efficiency and reliability. With minimal interruptions to the production line, the project was completed between May and July 2008.

The plant converted to a variable-speed trim machine control strategy. Energy savings increased by allowing one of the units to run fully loaded, where it is most efficient, with the new variablespeed machine trimming to match the remaining load.

Additional energy savings were realized through the dryer replacement, new oversized piping, and additional receiver capacity. A 3,000gallon receiver, supplemented with oversized piping, allows for a reduction in pressure drop through the system. The new compressor and new refrigerated dryer added a buffer capacity to the system, enabling steady productivity levels during maintenance and repairs. A new compressor controller centralized the operation of the machines, optimizing energy and production efficiency.



"We (McCain) realize that energy conservation is key to the longevity of our business and have set aggressive energy-reduction goals that keep us competitive and meet customer requirements."

– Steve Lundberg, McCain Foods USA engineering manager

The Savings

Energy savings for the project are 1,742,825 kilowatt hours per year, which is equivalent to the average energy use of 138 houses or the planting of 333 acres of trees. Projections suggest more than \$50,000 worth of savings on electric bills per year.

The Outcome

Labor and materials for the project totaled \$327,404. Lundberg said, "Air quality improved tremendously, and the energy savings are pulling through; those two things are huge."

The Bottom Line

Idaho Power provided McCain Foods with a \$209,139 incentive for the compressed air system upgrades. "That was what really allowed us to make the return on investment that McCain was looking for and make the project go through our approval process quickly," Lundberg said.

McCain Foods is working with the Custom Efficiency program on upgrading their second production plant in Burley.

If you are looking for similar success, Idaho Power can help. Call 208-388-5949 or 208-388-5624 for more information on the Custom Efficiency program.

The above Success Story was produced in cooperation with, and approval from, Idaho Power customer McCain Foods USA.

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American Falls, ID

Idaho Power Company
Lines Office only
119 Harrison

Blackfoot, ID

Idaho Power Company
Lines Office only
420 W. Bridge

Boise, ID

Idaho Power Company
Lines Office Only
10790 Franklin Rd

Idaho Power Corporate Headquarters
1221 W. Idaho St.

Caldwell, ID

Idaho Power - Canyon Operations Center
Lines Office Only
2420 Chacartegui, Nampa

Emmett, ID

Idaho Power Company Warehouse
Lines Office Only
2195 & 2196 Schiller Rd

Idaho Power Drop Box
Corner of Hayes and First St.

Gooding, ID

Idaho Power Company
Lines Office Only
422 Main

Hailey, ID

Idaho Power Company
Office
11831 Highway 75

McCall, ID

Idaho Power Company
Lines Office Only

Meridian, ID

Idaho Power Company, Boise Operations Center
Lines office only
10790 Franklin

Mini-Cassia, ID

Idaho Power Company
Lines Office - Drop Box only
599 W 300 South, Heyburn

Mountain Home, ID

Idaho Power Company
Lines Office
2430 American Legion Bld

Payette, ID

Idaho Power Company, Payette Service Center
Lines Office
1550 Hwy 95 S

Pocatello, ID

Idaho Power Company
Lines Office
301 E Benton

Salmon, ID

Idaho Power Company
611 Van Dreff

Twin Falls, ID

Idaho Power Company
Operations Center
273 Blue Lakes Boulevard South