

## SHOWCASE PROJECT: J.R. SIMPLOT COMPANY: NEW POTATO PROCESSING PLANT

### SOLUTION OVERVIEW

J.R. Simplot's showcase project is a new, 420,000 square foot, state-of-the-art potato processing plant that will integrate innovative energy-efficient technologies to achieve dramatic energy efficiency improvements of up to 25% while producing hundreds of millions of pounds of frozen potato products per year. Once built, the plant is expected to save the company millions of dollars and contribute to its goal of reducing energy intensity by 25% over 10 years.

The new mega-factory will consolidate the operations of three aging facilities and achieve economies of scale in the production of frozen French fries, formed, and shredded potatoes. J.R. Simplot invested large amounts of capital in this facility to adapt to the changing requirements for maintenance, environmental compliance, and modernization. After breaking ground in 2012, the new factory is expected to be fully operational in early 2014. The new plant is expected to be about 25% more energy efficient on average than the three plants it is replacing.

### SECTOR TYPE

Industrial

### LOCATION

Caldwell, Idaho

### PROJECT SIZE

420,000 Square Feet

### SOLUTIONS

New technologies will upgrade the factory's energy performance with improvements throughout the plant's refrigeration systems and improved pipe insulation. Compressed air systems will feature a centrifugal compressor, master controller to ensure efficient compressor sequencing, and an oversized receiver to reduce peak electric demand during high usage air events. New regenerative thermal oxidizer, boiler stack, and fryer exhaust technologies will recover heat more efficiently.

The J.R. Simplot Engineering staff worked with Burns & McDonnell Engineering staff, as well as a design-build contractor (Republic), to identify energy efficiency features in the major energy-using systems. The group identified the following features for inclusion in the final design based on energy savings and project costs:

## Refrigeration system features

- Economizer flash vessel and efficient defrost
- Condenser fan motor VFD
- Raised low stage suction pressure
- Pre-cool process load reduction using process water
- Thicker pipe insulation
- Evaporator fan VFDs
- Economized refrigerated air handlers

## Compressed air features

- Centrifugal compressor
- VFD control for trim compressors
- Cycling refrigerated dryer
- Master controller to ensure efficient compressor sequencing
- Demand expander to ensure a constant header pressure
- Oversized receiver to reduce the peak electric demand during high usage air events

## Lighting

- Solar powered LED exterior lighting

## Heat recovery systems

- Systems are being installed to recover heat from the plant's regenerative thermal oxidizer, boiler stack and fryer exhaust

## OTHER BENEFITS

Simplot will further uphold its commitment to high product quality standards, safety, environmental stewardship, and energy efficiency by seeking ENERGY STAR<sup>®</sup> and LEED<sup>®</sup> Gold certification for the new factory. Additional environmental improvements will be achieved through the regenerative thermal oxidizer and a water recovery system.

## Annual Energy Use

(Source EUI)

Baseline()



Expected(2015)



Actual()



**Energy Savings**

**25%**

## Annual Energy Cost

Baseline()



Expected(2015)



Actual()



**Cost Savings**

**25%**

