Energy Efficiency Retrofit Nets OWB Packers **$480K** in Annual Energy Cost Savings and Nearly **$3 Million** in State Grants and Utility Incentives

Project Partners

DC Energy Services
Bakersfield, CA

OWB Packers
Brawley, CA

California Energy Commission
Sacramento, CA

Imperial Irrigation District
Imperial, CA

SoCal Gas
Monterey Park, CA

CLEAResult
Oakland, CA

DC Energy Services Case Study

OWB Packers - Project Overview

OWB Packers is a beef processing and packaging facility located in Brawley, California. Their operation is energy intensive, with refrigeration, steam/hot water, and compressed air running continuously and limited options to curtail activities or otherwise lower demand and usage during processing periods.

To reduce operating costs, OWB Packers sought to upgrade the facility's existing utility systems through state-of-the-art energy conservation measures. Since OWB Packers is situated within an air-quality disadvantaged community, site workers, residents, and visitors are subject to a range of consequent adverse impacts. As a result, OWB was also looking to reduce the plant's impact on the local community.

The DCE project team developed a comprehensive strategy that maximized energy, cost, and emission savings, while taking advantage of nearly $3 million in implementation rebates, grants, and incentives.

"With DCE's help, we secured nearly $3 million in funding to upgrade our processing equipment in a way that is good for us and good for our community. The improvements to operational efficiency hit two key targets of ours - to use less energy and to reduce our facility's carbon footprint. We're now on track to save nearly a half million dollars a year in energy costs, and our employees, neighbors and families are benefiting from the significant reduction in emissions. These guys know how to check all the boxes."
– Armand Nicholi, CFO, OWB Packers

Estimated Project Results

Food Production Investment Program (FPIP) Grant
$2,342,740

Utility-Backed Rebates & Incentives
$550,000

Full Facility Electricity Use Reduction
26.2%

Natural Gas Energy Use Reduction
37.3%

Annual Energy Savings
2,500,000 kWh

Annual Natural Gas Savings
380,000 Therms

Annual Cost Savings
$480,000

Annual Carbon Footprint Reduction
2,593 MTCO2e

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Energy Conservation Measures

OWB Packers - Project Summary

Amonia Refrigeration

New refrigeration equipment includes a 700 HP stationary screw compressor which replaced existing onsite portable refrigeration trailers and a 500 HP VFD-equipped screw compressor to efficiently trim during part-load conditions. Additionally, new refrigeration system controls will dynamically adjust the discharge and suction pressures as weather and production conditions permit. These pressure adjustments increase the compressors' operational efficiencies throughout the year.

- Installed new VFD-equipped screw compressors.
- Replaced liquid recirculating unit (LRU) pumps with VFD driven hermetically sealed equivalents.
- Implemented floating discharge and suction pressure controls.

Steam/Hot Water

Boiler system upgrades included retrofitting each boiler with stack economizers, combustion blower VFDs, hot water pump VFDs, and a central controller capable of 02 trim and sequencing controls. The economizers increase the feed-water temperature, reducing the amount of fuel consumed by the boilers to meet the pre-existing steam/hot water demand. Additionally, the new controls will optimally load the boilers and pumps in relation to facility demand, while minimizing excess oxygen during the combustion process. The boiler system scope also involved insulating approximately 2,000 feet of steam/hot water piping and a 250,000 gallon hot water storage tank.

- Retrofitted (3) 600 HP and (1) 700 HP steam boilers with waste-heat recovery economizers, combustion blower VFDs, 02 trim and sequencing controls.
- Retrofitted (3) 50 HP and (3) 100 HP hot water pumps with VFDs.
- Insulated approximately 2,000 feet of steam/hot water piping and a 250,000 gallon hot water tank.

Compressed Air

The compressed air equipment includes oil-free direct drive centrifugal and screw compressors with integrated VFD motor controls and heat of compression desiccant air dryer package. The two-stage variable speed centrifugal compressor provides unmatched efficiency due to its low energy consumption and incredibly low off-load power consumption. These off-load power savings, along with improved efficiency, result in approximately 25% lower energy consumption compared to a two-stage variable speed oil-free rotary screw compressor.

- Replaced existing air-cooled, oil-flooded, air compressors with ultra-efficient water-cooled, oil-free, air compressors.
- Increased engine room and distribution piping diameter size to minimize system pressure drop.
- Replaced existing blower purge air dryer with a heat of compression desiccant air dryer.