

CASE STUDY

Case Study on Heat Recovery

SITUATION: A commercial laundry facility opted to use waste heat from a 75hp (55kW) rotary screw compressor to pre-heat water. At full load the max heat rejected is 279,349 BTU/hr, but in this case, the compressor was a variable frequency/speed drive unit with widely varying load.

OUTCOME:

Assumptions:

- Laundry plant operates 5200 hours/year
- Gas cost - \$1.00 / therm
- Boiler Efficiency – 82%
- 72% of total compressor energy input is available for recovery
- Cost adder for Heat Recovery Option: \$2827

Total value of recovered heat from compressor compared to using steam from natural gas fired boiler to pre-heat water at various compressor load points as follows:

- @40% Load: \$5096 / year
- @60% Load: \$7644 / year
- @80% Load: \$10,192 / year

ROI Calculation at various load points:

- @40% Load: < 7 months
- @60% Load: < 5 months
- @80% Load: < 4 months

Even at partial loads, the energy savings quickly repaid the added cost for the heat recovery equipment.