Liberty™

Mid-Term Modification

July 2022 EEAC

Project Details

- One of Liberty's largest commercial and industrial customers
- Project located in Fall River, MA (EJC)
- Total Project Cost: $3.7 million (heat pumps)
- Total BCR 3.34
- Customer is undergoing an expansion and has two options:
    - Installing additional gas fired steam boiler capacity
    - Installation of an 800-ton electric heat pump system.

MTM Request

C&I EXISTING BUILDING RETROFIT PROGRAM

60% BUDGET INCREASE IN THE C&I SECTOR

INCREASE OF $2,135,250

THERM SAVINGS: 481,433 (46.4%) REDUCTION

Next Steps

- Council Vote July EEAC meeting
- Liberty to submit MTM request to DPU
- Asking for DPU approval by Aug 30th
- Continue to push for ARPA funding; but no assurance it will be provided
- If MTM approved by the DPU customer will complete install by EOY 2023

Appendix

Summary

Total Savings Summary				
	Existing Case Use	Proposed Case Use	Project Savings	% Reduction
kWh	0	2,580,995	-2,580,995	-
Therms	1,036,856	555,423	481,433	46.4%

Project Cost	
Equipment Cost	$1,505,180
Labor Cost	$1,505,180
Total Cost	$3,773,000
BCR	3.34

Savings Summary		
	Project Savings (kWh or Therms)	Carbon Reduction (Tons CO_2)
kWh	-2,580,995	-880
Therms	481,433	2,792
Total Carbon Reduction (Tons CO_2)		1,912

Proposed Heat Pump System

- Four ammonia compressors (termed “heat pump compressors”) would be installed with an evaporator that will condense a portion of the discharge gas from the existing central refrigeration system. In this manner, the suction temperature for the heat pump compressors is nominally the same as the condensing temperature of the central system minus the evaporator temperature differential.
- Discharge gas from the heat pump compressors is routed to a glycol-cooled condenser. A glycol loop transfers heat to an insulated hot-water storage tank through an isolation heat exchanger.
- The compressors are modulated to maintain a 144F setpoint for the storage tank.
- Hot water is drawn from the storage tank for the following uses:
  - Ingredient water - Instead of using cold city water, hot water from the storage tank is used for ingredient water in order to reduce the heating requirement of the kettle jackets.
  - CIP – Hot water from the storage tank is used for CIP instead of using boiler-heated water, thus reducing the boiler load.
  - Boiler make-up water - Pre-heated water from the storage tank is used for boiler make-up, thereby further reducing the boiler load