NEWARK HOUSING AUTHORITY

Multi-family Housing

THE CHALLENGE

The Housing Authority of the City of Newark (NHA) had a complex system with centralized boilers that were built in 1939. Multiple leaks in the steam piping distribution system; a non-operational condensate recovery system; and the extensive underground distribution piping system going to remote buildings were causing extensive energy loss. Comfort was also a problem. Residents kept the windows open in winter because the centrally controlled heat system created such a heat wave, and hot water temperatures bounced from one extreme to the other.

In 2011 the NHA initiated an energy management and energy improvement program through Constellation Energy. Refinancing in 2013 freed up an additional $3.5 million in cost savings, allowing an overhaul of the central plant's piping at Stephen Crane Village.

JOB PROFILE

Location:
Newark, New Jersey

Completion:
2017

Owner:
Housing Authority of the City of Newark

Contractor/Engineer:
Constellation Energy

ENERVEX Rep:
UEP and Miller & Chitty

THE SOLUTION

NHA engaged Constellation Energy and ENERVEX — together with two of our reps at UEP and Miller & Chitty — to execute on what is the largest energy conservation program undertaken by a public housing authority in New Jersey, and the third-largest in the U.S.

ENERVEX's experience with difficult venting challenges and our integrated line of waste heat recovery products meant that NHA could get an effective solution in place faster, with reliable engineering support for the entire system — and begin saving immediately.

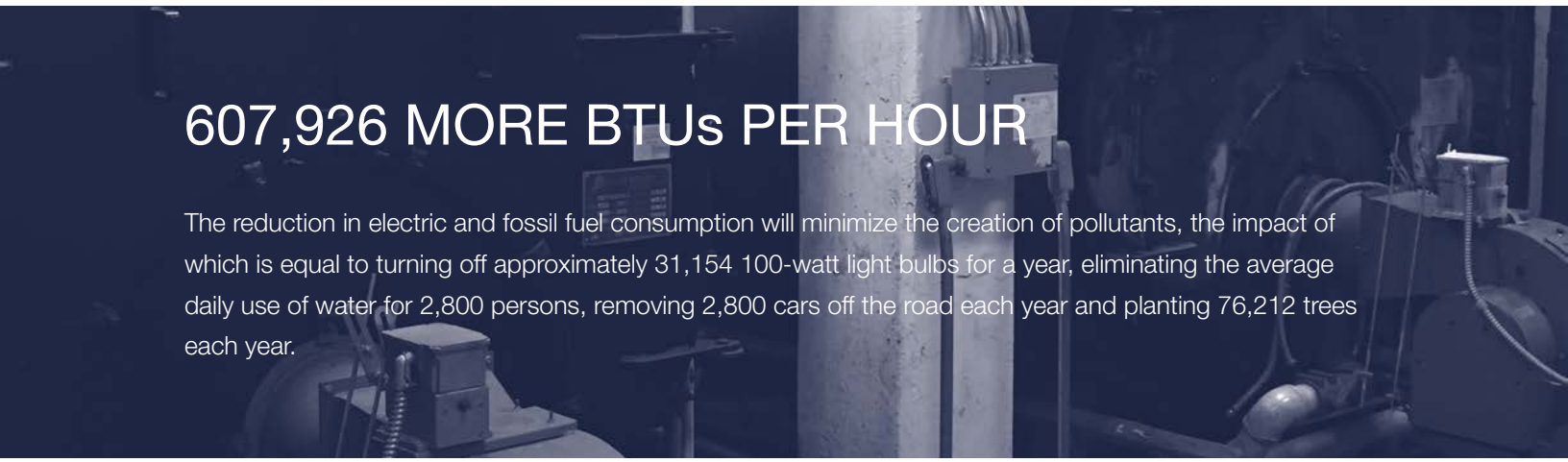
This integrated, high-efficiency economizer and waste heat recovery solution maximizes BTU recovery, translating to an annual savings of $35,000.

The VHX single row economizer takes the sensible heat from the exhaust and latent heat from the water vapor contained in the exhaust and transfers it to water that can be used for domestic purposes, such as showering and kitchen use. Both measures reduce energy consumption and indirectly lower emissions.

The economizer controller eliminates much of the heat loss associated with buildings overheating in winter. We added zone-control valves, outdoor air temperature sensors, and indoor rate thermostats to reduce steam delivered to heating units and prevent unnecessary energy consumption.

THE RESULT

Newark Housing Authority's massive energy-saving project with Constellation Energy and ENERVEX will reduce 100 million gallons of water used and 16,000 metric tons of CO_2



607,926 MORE BTUs PER HOUR

The reduction in electric and fossil fuel consumption will minimize the creation of pollutants, the impact of which is equal to turning off approximately 31,154 100-watt light bulbs for a year, eliminating the average daily use of water for 2,800 persons, removing 2,800 cars off the road each year and planting 76,212 trees each year.

ENERVEX®
VENTING DESIGN SOLUTIONS

Stephen Crane Building, Newark, N.J.

An installed VHX economizer (wrapped in insulation)

produced each year. The broader program will save more than $80 million over the next 15 years ($35,000 annually from the ENERVEX economizer solution alone). Payback is guaranteed by the contractor — making this a huge success for NHA, its residents AND the environment.

Impact on the customer:

- Annual savings of $35,621 with no upfront capital expense & immediate payback
- Heat saved with VHX economizer - 607,926 BTUs per hr
- New boiler efficiency - 86.4%
- Improved pressure control
- Eliminated overheating problems
- Operational cost savings to accrue long after hardware installation

Impact on the environment:

In the first year, this solution eliminates more than:

- 109 million gallons of water
- 7.5 million kWh of electricity
- 1.2 million Therms
- Total carbon footprint reduction: 16,000+ metric tons of CO2 per year

Impact on building occupants:

- Better control over room temperatures
- No more extreme hot water temperatures
- Ability to stay in homes during retrofit project

VHX single row economizer

ENERVEX products installed:

- VHX single row economizer and heat exchanger
- HRC80 economizer controller
- EBC31 modulating pressure control
- IPVB inline boiler exhaust fan

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