



▶ 17 Schools with 12,500 students

▶ Natural gas booster water heaters

▶ Reduce school district operating & energy costs

▶ Reduce electric peak demand

▶ Rockwall County, Texas

Gas Booster Water Heaters Earn High Marks During In-School Test

Rockwall County, Texas, located just 20 miles east and northeast of Dallas, is the fastest growing county in the state and one of the fastest growing counties in the country. With that kind of growth comes all the challenges of providing good schools for young and growing families in the communities served by Rockwall Independent School District (ISD).

With the student population of Rockwall ISD growing at an annual rate of 10%, the district opened two new schools for the 2007-2008 school year, just to keep up with that growth. This expansion brings the count up to 17 schools that provide Early Headstart to 12th grade education in 12 elementary (K-6) schools, two middle (7-8) schools, two high schools and an alternative high school. Each day, most of the 12,500 students visit the cafeterias and lunchrooms, many to begin the day with meals provided under the federal School Breakfast Program.

"With the on-going utility cost savings we expect with the gas booster water heaters and the cash rebate we will get from Oncor, the local electric distribution company, the payback from switching to gas booster water heaters will be less than one school year," says Julie Farris, Director of Child Nutrition, Rockwall ISD.

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17 Schools, 17 Dishrooms

Julie Farris, SNS (School Nutrition Specialist) has been the Director of Child Nutrition for Rockwall ISD for nine years and is a 16-year veteran of school foodservice. Like most school foodservice professionals, she has had to do more with less — upgrade the nutritional value of school meals while safeguarding the health and safety of her young clientele. She has overall responsibility for menu development, food and equipment purchasing, staffing, and kitchen operations including energy costs and conservation efforts.

Each of the 17 schools has a kitchen and dishroom where all the trays, dishes, glassware and flatware are cleaned and sanitized for the next school day. Some dishrooms had high temperature dish machines that relied on an electric heated hot water booster heater to deliver the 180°F water needed for effective dish cleaning and sanitizing; six schools had dual-use high temp/chemical dish machines that rely on sanitizing chemicals to ensure dishware is food-safe.

Reducing energy usage and utility costs are part of Julie's mandate, and she has allies at District that helped pave the way for the introduction of new energy-saving natural gas technology in the district kitchens.

Serious Savings with Gas Technology

Rockwall ISD takes energy saving seriously. It has embraced the latest monitoring and control systems that allow regulation of individual room temperatures at all the schools, from the district office of Randy Talley, Jr., Facilities Use & Energy Management Coordinator. Talley and James Crow, Rockwall's Director of Maintenance, had already evaluated on-demand, gas-heated tankless boilers for general water heating and had recently replaced two old gas boilers with eight high-efficiency natural gas tankless water heaters in one school.

Based on these experiences, Crow and Talley were supportive when Greg Anderson, Commercial Marketing Manager for Atmos Energy approached Julie Farris about using natural gas booster water heaters in their kitchens. Atmos Energy provides gas to Rockwall ISD and is America's largest natural-gas-only utility.

Gas Boosters Pass In-School Test

"After hearing Greg's presentation on the gas booster water heaters, we decided to do a test in one of our school kitchens that was equipped with an old electric booster heater," says Farris. "Greg helped coordinate the equipment test at the Doris Cullins-Lake Pointe Elementary School and presented the results for our review."

The existing 54-kW floor-mounted water booster heater was metered and monitored during 20 school days of actual use. Then a PrecisionTemp Model PT-200, 199,000 BTU/hr. booster water heater was wall-mounted in place of the old electric heater and both energy use and costs were monitored and compared for a similar 20-day period of use.

Initial analysis showed a savings of \$31.63 in utility costs for the gas unit during the 20-day trial period. While a "nice" savings that would deliver a three year payback (ROI) on the full cost of the gas booster heater, it was discovered that the old electric booster had only two of six elements working. This not only greatly understated its actual energy use and cost, it also impaired its ability to deliver the 180°F hot water necessary to properly sanitize dishware.

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Greg Anderson, Commercial Marketing Manager for Atmos Energy, shakes hands with Julie Farris, Director of Child Nutrition for Rockwall ISD, after a successful test of gas booster water heating technology. The gas booster saved \$200 over a 20-day period.

“With all elements working, the actual savings from the switch to the gas booster would be over \$200 for the 20-day test period,” says Anderson.

During this test other advantages of gas booster water heaters were quite apparent. Because of its weight and design, the old electric water heater was positioned on the floor, near the dishmachine, where it was exposed to water and corrosive cleaning chemicals. It required a dedicated 208-volt, three-phase line and breaker panel in the dishroom. The gas booster model only weighs 105 pounds and can be wall-mounted, well away from cleaning chemicals and wet floors. Electric boosters are also subject to heating element failures that are difficult to detect and can impair performance of those units.

Switch to Gas Gives Fast Payback

In the face of rapid population growth, rising energy costs and environmental concerns, the Texas State Legislature and the Public Utility Commission (PUC) has challenged utility companies to reduce energy usage growth rates with specific target goals. As a result, utility companies, including Oncor®, the local electric distribution company, are offering demand-side management (DSM) programs with cash rebates of \$150 per kilowatt, for reducing electric demand. This means they would provide a rebate of \$8,100 for the replacement of that 54-kW electric booster heater, which would cover the gas unit’s first-cost, in most cases.

“With the on-going utility cost savings we expect with PrecisionTemp gas booster water heaters and the cash rebate we will get from Oncor, the payback from switching from electric to gas booster water heaters will be less than one school year. The conversion to gas is pretty much a no-brainer,” says Farris.

Plans for More Gas Booster Heaters

Gas booster water heaters are specified and being installed in the two new Rockwall ISD schools. Plans call for replacement of four more existing electric booster heaters under this program.

“Six of our campuses have old dual-use dish machines currently operating as low-temp chemical machines. These kitchens also are wired with 480-volt power. I don’t really like chemical (low temperature) dish machines,” says Farris. “We can convert these machines to high-temp washers with the addition of gas booster water heaters and we don’t need to rewire those kitchens to make the change. Conversion to natural gas booster heaters is good for Rockwall ISD, area taxpayers, and the environment.”

For more information visit: www.gfen.info



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