

## Case History No. 5

**Pioneering the use of gas energy to heat water to sterilizing temperatures for dishmachines.**



**I**magine opening your utility bills knowing the monthly totals exceed \$360,000.00. That's the mail David Furr receives as Utilities Coordinator of Salem-Keizer Public Schools in Salem, Oregon. Providing power, heat and lighting for 40,000 students, their computers, teachers and staff in 64 school buildings plus 10 administration buildings runs close to \$5 million a year says Furr, who

According to Furr, state funds allow for energy efficient upgrades, enabling schools to enter into projects that replace older and costly to operate equipment with newer technology. "We looked at what upgrades would produce the greatest amount of savings to reduce our power consumption."

## **PowerMax™ Gas Boosters for Dishmachines Deliver Energy Savings, Provide Chemical-Free Sanitizing of Schools' Dishware**



**Oregon's Salem-Keizer Public Schools replaced costly to operate electric boosters with compact, energy-efficient Vanguard PowerMax™ 200 gas booster heaters (shown at right) that reliably provide 180°F sterilizing rinse water to the kitchens' dishmachines.**

vigilantly monitors energy usage throughout the system, researching opportunities to conserve energy and lower costs. As a measure of his accomplishments he was named Energy Manager of the Year 2007 by the Association of Professional Energy Managers of Oregon. "We're especially proud to be recognized for being fiscally and environmentally responsible," he says.

"At \$2.5 million a year, electric service is the major utility expenditure for us. Lights, computers, kitchen operations, as you can imagine, reducing the electric load wherever possible is a high priority, he adds."

David Furr describes an ongoing initiative to cut energy spending: "Many of the schools generated hot water by boiler systems that provided the heat for the buildings. In the warmer months we were running the boilers just so we would have the hot water for the kitchens, which was very inefficient. The answer, of

**"Energy savings can be as much as 70% with Vanguard PowerMax™ gas boosters as compared to electric units."**

course, was to decouple those kitchen operations from the central heating plants."

Some of the schools' kitchens had been decoupled years earlier, notes Furr, but were operating power-hungry electric booster heaters for their dishmachines. Over time, many of those electric boosters were failing, requiring frequent and costly service. Also, drawing about 54 KW of power, they were

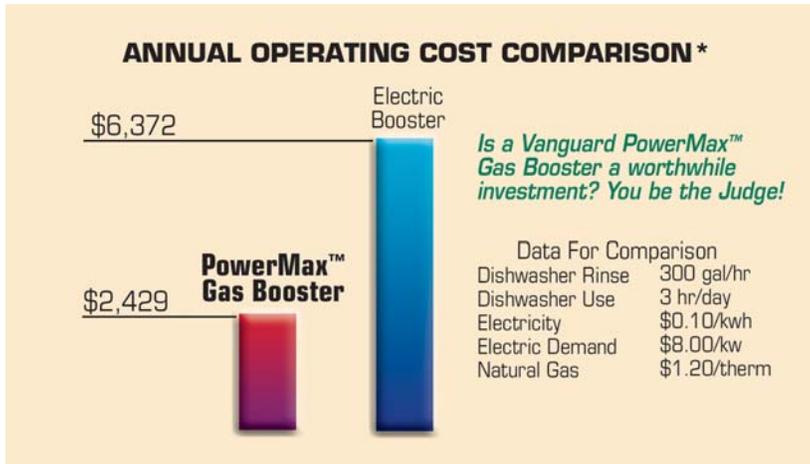
expensive to operate, at about \$500.00 per month per unit. "In the summer months when there's no school they would still be operating. It made sense to remove them from our electrical load – saving demand and capacity charges – and switch over to gas, which is cheaper by the BTU," he says. "Our gas provider suggested we examine the PowerMax™ booster heaters manufactured by Vanguard Technology Inc."

"Vanguard provided us with quite an education on the benefits and energy efficiency of their gas booster heaters," says Furr. "The PowerMax™ has such a wide

*(continued over)*

# Salem-Keizer Public Schools

(continued from front)



**\* With a PowerMax™ high-efficiency gas booster heater. While utility prices may vary, gas is generally 50% to 70% less expensive than electricity.**

operating range we can use the schools' regular hot water supply (125°F) and the unit can easily boost the water to over 180°F."

Steve Kujawa, president of Vanguard Technology Inc., explains that dishware sanitization is accomplished with 180°F sanitizing rinse water. Energy-efficient PowerMax™ gas booster heaters can operate with commercial dishwashers of all sizes to provide this sanitizing rinse at great savings for the operator. Vanguard gas boosters are utilized in schools and institutional operations as well as restaurants, hotels, resorts and clubs to increase a facility's regular hot water supply up to the required 180°F.

Kujawa continues, "At 180°F, dishware is sanitized without the need for harsh and costly chemicals, prolonging the lives of the dishwasher, china, silver and glassware. Dishware also dries faster, with a much cleaner result. Chemical sanitizers can leave a residue on dishware and glasses that may transmit an unappetizing chlorine taste," he says. "And no one likes to see chemicals go into the waste water."

**"Our maintenance crew loves the PowerMax's™ reliability because they never have to work on them."**

In addition to PowerMax's™ reputation for reliability, Kujawa says energy savings can be as much as 70% compared to electric units. "In this tough economic climate school administrators are searching for whatever savings they can wring from their budgets. Switching to gas boosters helps reduce costs significantly and is environmentally beneficial."

"PowerMax™ units are exceptionally versatile," says Kujawa. Entirely self-contained, they install easily under the dish table or can be placed elsewhere in a kitchen or even in another room if it's more convenient. They have flexibility in venting – they can vent through the dishwasher ventilation system, eliminating the need for a separate roof penetration.

Vanguard gas boosters are constructed with an all stainless steel welded frame, cabinet and tank and feature a patented water flow and temperature regulating heat transfer unit. A rugged, high-efficiency infrared woven ceramic fabric burner with excellent thermal properties and resistance to mechanical impact permits lower combustion temperatures and reduced NOx emissions while operating at approximately 90% efficiency. Microprocessor controlled ignition and temperature control and factory installed pressure relief and regulating valves assure accuracy and consistency. Front access for service and

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single point electric, water and gas connection provide for fast, easy installation and servicing. All PowerMax™ gas boosters are hand-built and fire-tested before shipment.

David Furr outlines an upcoming project to save energy and maintenance expenses in one of the older Salem-Keizer high schools: "The entire building's hot water temperature is fixed at 160°F, suitable for the kitchen's use but much too hot for the rest of the school, requiring the placement of numerous temperature control valves throughout the building to allow for more temperate water. Having to deal with repairs to these valves plus heating water to the higher temperature is wasteful. We're looking to put the kitchen on its own system with a PowerMax™ booster heater so we can run cooler water throughout the building," he says.

"The PowerMax™ is an excellent performer – it's been a win-win," says Furr. "We're saving by having our stored hot water at lower temperature. We're saving by generating the sanitizing rinse water only when we need it. And our maintenance crew loves the reliability of the PowerMax™ boosters because they never have to work on them."



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Vanguard Technology, Inc. also manufactures high-efficiency production water heaters.