STATE: Oregon

PROGRAM: Rural Energy for America Program (REAP, formerly the Section 9006, Renewable Resources & Energy Efficiency Improvements Program)

OUTLINE OF NEED: It's not cheap to heat 167 greenhouses during an Oregon winter, and the cold temperatures in early 2008 drove heating costs especially high. "We were looking at a six-figure energy bill for March 2008 alone," said Doug Hart of Harts Nursery in Jefferson, Oregon.

The nursery began exploring energy projects about four years ago by meeting with the Energy Trust of Oregon, an organization that provides cash incentives for certain energy efficiency measures. The nursery then scheduled a professional energy audit. "The audit identified 8 to 10 items that we could do," explains John Becker, Maintenance and Electrical Manager for Harts Nursery. "One of the items was using bottom heat in the greenhouses. We decided that's where we wanted to go."

HOW RURAL DEVELOPMENT HELPED: The nursery began using bottom heat in its propagation greenhouse. During the heating system installation, the nursery replaced two boilers with two high-efficiency condensing boilers. The new boilers heat water that flows through finned tubing under the benches in the propagation greenhouse. Heat goes directly to plants and plant roots where it is needed, rather than rising to the greenhouse ceiling.

In addition, the nursery irrigates from two wells using two pumps. Both pumps are equipped with variable speed drives (VSDs). The variable speed drives ensure that the pumps only operate at the speed necessary to maintain pressure, rather than running at full speed all the time.

The $170,000 project (the boilers and pumps) was financed with funds from several incentive programs and owners' equity. The Energy Trust of Oregon provided incentives for the heating system conversion. The system qualified for Oregon's Business Energy Tax Credit, which is available for a variety of energy efficiency and renewable projects. And, Harts successfully applied through a competitive process for a USDA Rural Development Energy Efficiency Grant ($35,000) and received a loan guarantee (for a conventional loan of $35,000) through the same USDA program.

THE RESULTS: Chris Guntermann of Horticultural Services Inc who has worked with the nursery to install several energy efficiency measures emphasizes, "It's often much cheaper to install efficiency measures than it is to put in a renewable energy system. In addition, if you first reduce your energy demand, then any renewable system you install can be sized to match that smaller energy demand."

With Harts' facing rate increases from both its electric and natural gas utilities, their efficiency measures will pay back faster than ever. John Becker emphasizes that they will continue to search for efficiency opportunities. "We are evaluating every possible opportunity to maximize the value of the energy we use."