

# PLANET- PROFIT REPORT

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## **From the bottom up: The future of renewables**

### **An Idaho energy policy conference focuses on the consumer**

*By Joan Melcher*

Whether you want to call it consumer-driven, a bottoms-up approach, or using demand as a resource, much of the policy talk at the recent 11th annual Harvesting Renewable Energy conference in Boise, Idaho, centered on sustainability being propelled by the end user.

In two plenary sessions of the conference, the news from diverse quarters pivoted on a theme that the consumer is central to what's happening with renewables — from demanding sustainably produced goods to providing a hot water tank for energy storage to taking companies to task for not embracing energy efficiency.

Haven Baker, vice president of New Market Initiatives for JR Simplot Co., a food and agribusiness company, spoke of his company's approach to energy efficiency. Simplot actively seeks ideas from employees for saving energy, calling it "bottoms up ideas."

He said the company realized in the early 2000s that there could be more than \$100 million in potential savings "if we just had someone to chase these projects." Simplot created a business plan, put a man in charge of projects, dedicated resources to it and "went after the low-hanging fruit," Haven said.

Between the top-down commitment and ideas and initiatives put forth by employees, the company has saved 1.3 trillion Btus of energy since the program began about five years ago and about 95 thousand metric tons of CO<sub>2</sub>, he said. The goal is to reduce energy intensity of Simplot food processing plants by 25 percent over 10 years. "Four to five years into it, nine of 16 plants have already made the goal," Haven said.

In a twist not often considered in the labor efficiency equation, Haven noted: "It looks like sustainability, particularly energy savings, is correlated with labor utilization and regulatory efficiency. And that's important."

Donald Schriver, a dairy industry consultant who works with the Innovation Center for U.S. Dairy, spoke about the efforts the recently formed group is undertaking. Noting that dairy producers have long understood the importance of sustainable practices, he said in recent years the need for upping the ante has increased with rising energy costs.

The opportunities for innovation and efficiencies in agriculture are “huge,” he said. “The bottom line is consumers care about sustainability and they’re the ones who buy all the things that we produce. The retailers are asking what we’re doing in agriculture — dairy in particular — to provide better use of resources.”

A study by the Innovation Center of best practices in dairies nationwide has shown that \$238 million could be saved by dairymen by 2020 if the practices are put in place. Among them are ideas outlined in the Dairy Fleet Smart section: restricting the amount of gasoline available in trucks that only go on short runs (to limit the weight of stored gasoline), taking out the passenger seat on trucks that do short runs, and limiting the weight of the person driving the truck. “If you’re a 350-pound guy who likes his beer and sausages, you probably won’t be driving one of these trucks,” Schriver said.

Ken Dragon, senior resource analyst for the Northwest Power and Conservation Council, a quasi-government organization that serves the Northwest region, gave a recap of the surprising growth of wind in the region — from none in 1998 to 6,000 megawatts installed at the end of this year, about 6 percent of the region’s electricity. Then he compared it to Denmark, which garners 20 percent of its electricity from wind and is targeting 50 percent by 2020.

He spoke of a recent trip to Denmark: “I met with the executive director of the national laboratory and he said they’re moving from a power system where supply responds to demand to a system where demand responds to supply.” Dragon said an example is district heating systems where waste heat from power plants is stored in huge hot water tanks that can be tapped to supply electricity when its needed. “The storage capacity of those tanks is equivalent to [battery storage] of a quarter of a million electric vehicles,” he said.

Speaking of hot water storage, Peter Christiansen, commercialization manager at the Pacific Northwest National Laboratory, wants consumers to look at their residential water heaters — and eventually their electric cars — as mini regulators of the electrical grid. “We can take advantage of the fact that both of these devices store energy — and adjust the rate at which we charge these devices,” he said.

Christiansen has worked in the smart grid and transmission field for several years and believes incorporating computer devices in appliances that monitor and react to the grid will allow balancing supply with demand and provide an answer to peak loads and intermittency problems associated with wind and solar power.

In a sense, residential appliances, particularly water heaters, could be part of a widespread frequency regulation service, Christiansen said, adding, “It’s all driven by customers — autonomously.”

He said he and other researchers at the lab analyzed a few projects on the East Coast that used appliances outfitted with the computer interface to rate “the value of this regulation service.” He said, “In some areas it’s as high as \$155 per water heater per year.”

Christiansen said the technology is available today that would turn residential appliances into mini-regulators, but the policy to make it happen lags behind, partly because several levels of stakeholders are involved and it has to be determined how each will benefit. “Demand response technology enables the use of demand as a resource,” he said, adding, “There’s an enormous potential value for all stakeholders.”