

GE Power Systems on turbines, renewables, and nuclear power

GE Power Systems (GEPS) has transformed itself over the past few years by entering new power generation markets and through strategic acquisitions. Editor-in-Chief Dr. Robert Peltier recently met with John Rice, president and CEO of Atlanta-based GEPS, to get an inside look at GE's current and future activities in the power industry.



John Rice

Peltier: A key project for the future of GEPS is the Baglan Bay Power Station near Cardiff, South Wales, in the U.K. [see page TK]. Can you update us on the status of that project and the future of the H-technology it uses?

Rice: The Baglan Bay Project is unique for GE in several ways. What's perhaps most important about H-technology is that we didn't try to secure a number of orders prior to the launch of the product. We decided to prove the technology before taking orders. For that reason, we were reluctant to say much about Baglan Bay earlier. This project is a major step forward in gas turbine technology, and we have insisted the project be done right the first time. For example, we have instrumented the engine with over 7,000 sensors and more computers than the space shuttle during initial testing.

We expect that it will be three to five years before we sell reasonable quantities of H turbines, although the technology flow-down is already under way with the introduction of the 7FB and 9FB turbines.

I'm pleased to announce that the official launch of the Baglan Bay Project is scheduled for the September time frame. The unit generated 530 MW at 44°F during the validation tests, and we're currently replacing all of the instrumented hardware with full production components. So far, we're very pleased with the performance of the plant.

We also have a confirmed order from Tokyo Electric Power Co. [TEPCO] to supply three 9H systems for TEPCO's Futtsu Thermal Power Station Group 4 project in Japan, which is scheduled for startup in 2008. In addition, a 7H (60-Hz version) has been successfully tested at full-speed, no-load conditions at Greenville. We are continuing to look for the first 7H installation in the U.S.

Peltier: GE Hydro seems to have taken off since the acquisition of Kvaerner Thermal assets. How does GE Hydro fit into your power generation portfolio?

Rice: Since we consolidated Kvaerner, we have increased our global footprint in the hydroelectric segment by investing in China. In February, GE Power Systems acquired majority ownership of Kvaerner Power Equipment Co., Ltd. (Kvaerner Hangfa) of Hangzhou, China, one of the leading suppliers of hydropower generation equipment in China. The new company was named GE Hydro Asia Co., Ltd.

The primary growth in hydro in the U.S. is driven by the rehabilitation, modernization, and uprating of existing plants, and we expect the market to remain strong with

pany from Enron just over a year ago. I'd assume you're bullish on renewables, since GE seems to be making sizable investments in the technology.

Rice: You're right. We see wind power as an area of significant growth both here in the U.S. and internationally and expect our revenue to grow from 25% to 50% a year for the next couple of years. Wind is the fastest growing segment of the global power industry, with much of that activity in Europe, which has nearly three-quarters of the world's installed wind power capacity. Our first year's annualized results were about \$500 million following the acquisition from Enron in May 2002 and will grow to about \$1 billion this year.

Wind power is still a relatively immature industry from a manufacturing point of view. If you look at the basic components of a wind generator you see composites, aerodynamics, gearing, transmissions, and generators. Each of those areas is a technical strength of GE, so the synergies were obvious to us from the start. We have applied those strengths to develop new wind generating products such as our 3.6-MW machine designed for offshore appli-

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solid growth prospects. Hydro will continue to be an important part of our customers' portfolios as pressure to reduce greenhouse gases increases—especially in places like California, where the legislature has mandated that investor-owned utilities generate 20% of their power from renewables by 2017. We'll do around \$400 million this year in hydro projects and related activities.

Peltier: Likewise, GE Wind has really taken off since your acquisition of the com-

panies. This prototype is operating in Spain and producing power for the grid. We are also working on other sizes for onshore and offshore applications.

Peltier: In May of this year, GE acquired Jenbacher and placed the product in GE Aero Engine Products. How does GE Jenbacher fit into your plans?

Rice: GE has been a distributor of Jenbacher products in the U.S. for some time. Gas engines and distributed generation give us

another platform to grow, especially in the environmentally responsible segment of landfill gas. We see good growth potential in this market, although it is a small segment within GEPS, around \$250 million.

Peltier: F-Class Frame turbines are still GEPS's bread and butter. How's this year going? How do you see the future of the frame turbine market?

Rice: Overall, the F technology just passed 7.5 million operating hours, and the 9FB is coming on-line in early 2004. That's the good news.

The bad news is the bottom began falling out of the U.S. turbine market perhaps a year earlier than we predicted two years ago; we now expect it to bottom in 2004. Shipments from Greenville in 2004 will be about 30% of shipments in 2003. Our focus now is restructuring to reduce costs over the next couple of years. [Editor's note: *The Greenville News* reported on June 16 that orders for frame turbines are estimated to

drop from the record of 284 turbines in 2001 to 36 turbines for 2004, down from an earlier estimate of 50.]

In the 50-Hz market, there never really was a bubble, and we have seen continuous, albeit moderate, growth. For example, we recently received an order for thirteen 9F turbines from China. The total buy was 23 turbines. The PRC typically qualifies the suppliers and then bundles the purchase. Future bids to the PRC are expected to come only from those that participated in the first projects, so we're excited about our future prospects.

Development of future projects will most likely be paced by natural gas distribution and transmission/distribution infrastructure improvements. We will be competing for a second order from the PRC by the end of 2004.

Peltier: From your viewpoint, what is it going to take for a renaissance of nuclear power in the U.S.?

Rice: There's a lot of latent interest in resurrecting nuclear power. But I think three key issues will have to be resolved before another nuclear power plant can be constructed here. The first, of course, has to do with nuclear's waste storage and transportation. The second is the industry's need for a supportive administration over a long period of time. Last but not least, the technology's risks and rewards have to be thoroughly understood by the investing community. We've made considerable progress in each of these areas over the past few years, especially in the energy bill under debate. We are cautiously optimistic about the prospect of new nuclear plants in the foreseeable future.