


Hydro Revisited

BY KATE ROWLAND

 **HYDROPOWER, THE UNITED STATES'** largest and arguable oldest renewable energy generator, is making a 21st-century comeback.

"We haven't seen this much interest in hydro in many years," says Jeff Leahey, senior manager of government and legal affairs for the National Hydropower Association.

On a global scale, hydropower accounts for slightly less than 20 percent of the world's electricity, or about 715,000 megawatts. In the United States, it is the country's largest renewable energy resource, and it accounts for more than 75 percent of the country's current renewable energy capacity. All told, the country's 2,300 hydropower projects generate about 8 percent of all U.S. electricity, according to Linda Church Ciocci, the NHA's executive director.

In the past, the focus of this 125-year-old industry was to build new dams. More recently, the focus has shifted to adding new capacity to existing dams to further increase hydroelectric potential, rather than launching new and even more costly construction. One of the most difficult tasks for the industry today, Ciocci says, is simply fighting the myth that U.S. dams are "tapped out."

In fact, the opposite is true. NHA figures show less than 3 percent of the 80,000 dams in the United States currently have hydro capabilities. The rising cost of natural gas, an increased legislative focus on decreasing the carbon footprint, and the clear cost savings of adding new hydropower at an existing dam, rather than building a new one, are all driving factors in the industry's new growth surge.

The Federal Energy Regulatory Commission shows about 10,000 megawatts of new hydro projects under licensing review, or what amounts to a 10 percent increase in U.S. hydro capacity, should all of the projects be approved. As well, Ciocci says, another 9,000 megawatts' worth of hydro projects are in the pre-filing state.

One of the companies with a number of new hydro projects on the go is American Municipal Power-Ohio. This nonprofit owns and operates electric facilities and also provides generation, transmission and distribution of electric power and energy to its 123 public power member communities in Ohio, Pennsylvania, Michigan, Virginia, West Virginia and Kentucky. AMP-Ohio president and CEO Marc

Gerken says his company actively sought out hydro projects with existing FERC permits with an eye to acquiring them.

"We took a really aggressive approach. We went out and commissioned MWH to go and rate these projects for the top 10, based on economics and the ability to secure the permits," Gerken says. AMP-Ohio then went out and tied up five of MWH's top picks, the projects it was most likely to be able to develop effectively.

Gerken says expanding hydropower in the company's energy portfolio was a cost-effective renewable energy choice in today's increasingly carbon-constricted environment. AMP-Ohio already owned four wind turbines in Ohio. However, with estimated replacement costs for hydro power coming in a lot lower than that of wind power, the choice was obvious, Gerken says: "All of our planning said, 'Go get this hydro.' We are in the right place, the Midwest. We can get more megawatts of zero-percent carbon than we can get wind here."

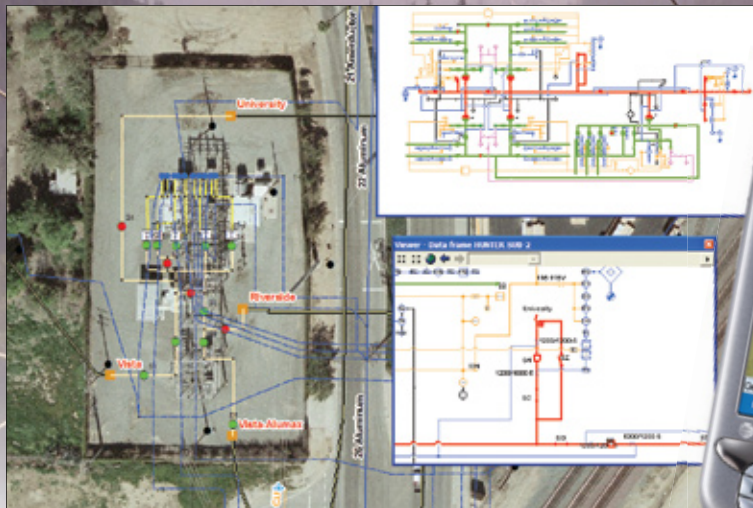
Ramp-up to production, however, is slower than wind, even once all the permits are approved. "It's very capital cost intensive, from \$4,000 per kilowatt hour to \$4,500 per kilowatt-hour," Gerken says, compared with coal at about \$3,000 per kilowatt-hour or wind at about \$2,500 per kilowatt-hour. However, he says, new hydro has definite advantages to both: It doesn't have the carbon footprint of coal, and its availability, at 55 percent to 65 percent, is much higher than Ohio wind. "This is one of the key drivers," he says.

AMP-Ohio is currently developing five new projects, ranging in size from 35 megawatts to 105 megawatts, for a total of 344 megawatts of new generation from existing dams on the Ohio River. Other utilities across the country are following suit, according to the NHA, both on powered and nonpowered dams. "A lot of our members are doing feasibility studies," Ciocci says, adding that turbine manufacturers are seeing an increase of 20 to 50 percent in their business as a result.

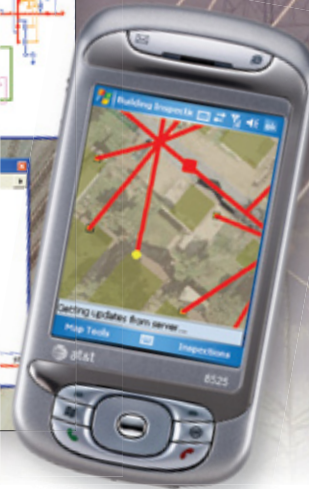
A March 2007 report by the Electric Power Research Institute supports this renewed focus on growing the hydropower industry. It notes a potential capacity increase of 23,000 megawatts by 2025, a combination of conventional and new waterpower technology potential.

With renewable portfolio standards driving the growth at a state level, and a natural synergy with wind and solar renewables, Ciocci says hydro is an obvious clean energy choice. "There are tremendous growth opportunities here." ☞

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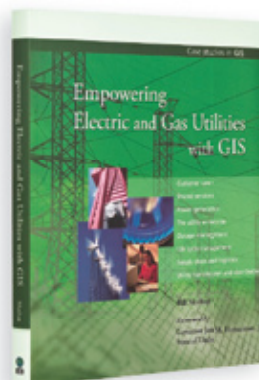
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