



The Water-Industrial Complex

William Pentland, May 14, 2008

In 2001, a water shortage in America's Pacific Northwest wiped out nearly a third of the U.S. aluminum industry. Low precipitation levels in the Cascade Mountains during the preceding winter robbed local reservoirs of the water needed to turn the massive turbines inside the region's main hydroelectric power plant, the Bonneville Power Administration. Electricity prices skyrocketed. Over the course of a few months, roughly a dozen aluminum plants closed. Nearly a decade later, only one has reopened.

Like oil, water is an essential part of doing business in almost every industry, and unexpected shortages can trigger potentially catastrophic consequences. The trouble for investors: Companies disclose very little if any information about their exposure to water-related risks.

"This is not an area that companies like to discuss quite frankly," says Marc Levinson, an economist at J.P. Morgan and the principal author of the recent report *Watching Water: A Guide to Corporate Risk in a Thirsty World*. "They don't want to call attention to a vulnerability and that applies very much to the water scarcity issue. Investors in general know very little about what is going on in companies' supply chains."

The water risks are most obvious in the food and beverage sector. Together, Nestlé, Unilever (nyse: UN - news - people), Coca-Cola (nyse: KO - news - people), Anheuser-Busch (nyse: BUD - news - people) and Danone consume an estimated 575 billion liters of water every year, or roughly the amount of water needed to meet the basic daily needs of every person on the planet.

But "watery," as some are now calling it, is a very big deal for all industries. In the U.S., industry uses more water than agriculture thanks to its use in power generation. The industrial sector uses an estimated 45% of water in the United States, agriculture accounts for 42% and domestic uses, like drinking and sanitation, account for a mere 13%. Worldwide, agriculture uses about 70% of all water.

To understand how dependent industry is on water, look no further than the southeast U.S. Last summer, a severe drought in the region forced a nuclear power plant, Browns Ferry, to shut down one of three reactors for a week. The incident passed largely unnoticed because the third reactor had only recently returned to service after years of sitting idle.

But the region gets roughly 30% of its electricity from nuclear power plants, and each plant needs prodigious amounts of water. Nearly a quarter of the 104 nuclear reactors in

the United States are in areas experiencing severe levels of drought. Similar incidents this summer could raise electricity prices dramatically.

"Water is the nuclear industry's Achilles heel," Jim Warren, executive director of N.C. Waste Awareness and Reduction Network, told the Associated Press in January. "You need a lot of water to operate nuclear plants."

Other energy sources are just as water-intensive. Hydroelectric power uses about 39% of all fresh water in the United States annually. New clean energy legislation promises new shortages. A liter of corn ethanol requires nearly 2,000 liters of fresh water to produce. Similarly, solar thermal energy--which harnesses the heat of the sun to generate steam-powered turbines--consumes more than 2,600 liters of water per megawatt hour, 200 liters more than coal-powered generation needs to produce the same energy.

And while much of the water used for energy can be somewhat recycled, scarcity has already spawned informal water markets in parts of Texas and Mexico. The prospect of shortages has attracted a growing number of venture capital firms and investment funds to place big bets on technologies aimed at replenishing water supplies. Meanwhile, several logistics and information technology start-ups like PurFresh and Nova Analytics are implementing new systems to help executives manage potential water-shortage crises more effectively.

"Sooner or later, the way in which the world adapts to shortages is with price," says Levinson. "So my expectation is that water is going to become increasingly costly as an input for all kinds of purposes, and when that happens you'll see a lot more interest in conserving water."