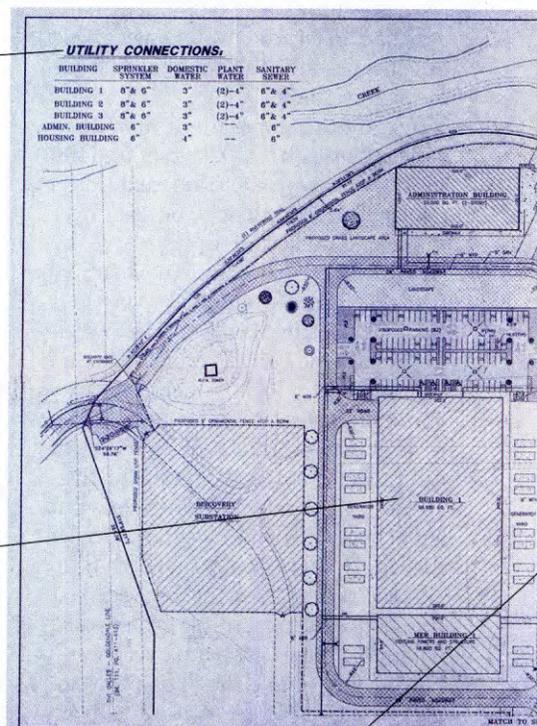


KEYWORD

Google's addiction to cheap

"Don't be evil," the motto of Google, is tailored to the popular image of the company—and the information economy itself—as a clean, green twenty-first-century antidote to the toxic excesses of the past century's industries. The firm's plan to develop a gigawatt of new renewable energy recently caused a blip in its stock price and was greeted by the press as a curious act of benevolence. But the move is part of a campaign to compensate for the company's own excesses, which can be observed on the banks of the Columbia River, where Google and its rivals are raising server farms to tap into some of the cheapest electricity in North America. The blueprints depicting Google's data center at The Dalles, Oregon, are proof that the Web is no ethereal store of ideas, shimmering over our heads like the aurora borealis. It is a new heavy industry, an energy glutton that is only growing hungrier.

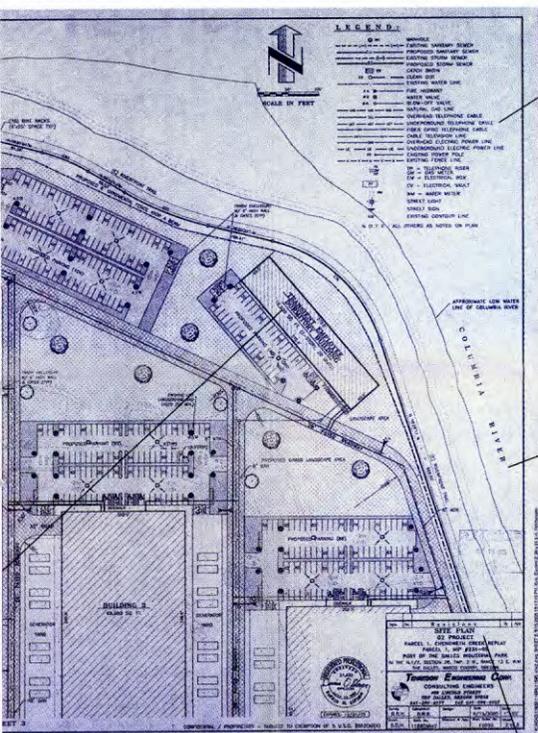
Every time someone clicks the "Google Search" button, thousands of servers, like those Google will amass inside these three projected 68,680-square-foot storage buildings, reel into action. (Only two of the buildings have been constructed so far; the company is tight-lipped about how many servers it owns, but current estimates run as high as a million.) A query for *American Idol*, the top search on Google News in 2007, trolls through petabytes of data, using tens of billions of CPU cycles. Velcroed together, stacked in racks, and lined up in back-to-back rows, the servers require a half-watt in cooling for every watt they use in processing, and Google leads the field in squeezing more servers into less space. Based on a projected industry standard of 500 watts per square foot in 2011, the Dalles plant can be expected to demand about 103 megawatts of electricity—enough to power 82,000 homes, or a city the size of Tacoma, Washington.



Google's server farm represents a new phase in the transformation of the Columbia River over the past half-century. Completed in 1957, The Dalles Dam obliterated the area's famous salmon runs by drowning nearby Celilo Falls, a Native American trading site with a peak water volume ten times that of Niagara Falls. The Bonneville Power Administration (BPA), a federal agency that sells electricity from thirty-one dams and one nuclear power plant, then lured aluminum smelters to the region. Across the street from the Google data center is an idle Northwest Aluminum smelter that once used 85 megawatts. In 2000, when energy prices soared, it was decommissioned, and it now is being dismantled for scrap. As the products on which the river's economy depends—fish, metal, bytes—have dematerialized, so has the demand for labor. Northwest and its sibling smelter, Goldendale, employed 1,100 people; Google says it will bring 100 to 200 jobs to the region. And like the vanished salmon, the workers who live in this twenty-unit, faux-rustic transient-employee dorm will merely be passing through.

RD: EVIL

electricity, by Ginger Strand



If any acts of charity figured in Google's arrival at The Dalles, they were the handouts extended to the company by local officials. The real estate deal, announced in February 2005, was delayed six months by Google's conditions—a tax exemption, assurance of cheap energy from the BPA, and the city-built fiber-optic ring indicated here. The state tax breaks and the fiber-optic ring were in place by April, but bargain power could not be guaranteed. With energy prices soaring, the Bush Administration had floated the idea of privatizing the BPA, which would raise the cost of its electricity to market rates. After a conference call between Google, the BPA, and Representative Greg Walden (R., Ore.), the congressman pledged to the press that privatization would be blocked. That August, President Bush signed the Energy Policy Act of 2005, which included an estimated \$85 billion in subsidies and tax breaks for the energy business and left the BPA alone. Four days later, Google closed on the land. Thus, through city infrastructure, state givebacks, and federally subsidized power, YouTube is bankrolled by us.

Google's infrastructure buildup has triggered an arms race. Microsoft, Yahoo, and Ask.com are also building data centers on the Columbia River. As they compete to offer software, music, and movies over the Web in the coming era of "cloud computing," they will need more servers running faster and hotter. This way upstream, in Quincy, Washington, Microsoft and Yahoo have contracted for a combined 90 megawatts of electricity—more than the World Trade Center humming at peak power on a hot summer day. The EPA estimates that by 2011, U.S. data-center power use will double, but a quirk in its accounting excluded Google from the study. Even if Google offsets its own energy use with green power or carbon credits, it cannot guarantee that its competitors will do the same. The company's motto is perhaps due for an addendum: "Lead others not into temptation."

In 2006 American data centers consumed more power than American televisions. Google—whose zeal for secrecy is evident here in the data center's code name, O2 PROJECT—and its rivals now head abroad for cheaper, often dirtier power. Microsoft has announced plans for a data center in Siberia, AT&T has built two in Shanghai, and Dublin has attracted Google and Microsoft. In all three locations, as in the United States, the burning of fossil fuels accounts for a majority of the electricity. Google is negotiating for a new site in Lithuania, disingenuously described as being near a hydroelectric dam. But no matter where the data center is located, Google will be tapping into Lithuania's power grid, which is 0.5 percent hydroelectric and 78 percent nuclear. As the functions long performed by personal computers come to be executed at these far-flung data centers, the technology industry has rapturously rebranded the Internet as "the cloud." The metaphor is apt, both for our foggy notions of a green Web and for the storm that awaits a culture that squanders its resources. ■

Ginger Strand is the author of *Inventing Niagara: Beauty, Power, and Lies*, to be published this spring by Simon & Schuster.