

Power-slurping signs

April 26 2011, By Sandy Bauers

Every eight seconds, the message changed. Drivers whizzing by on I-95 in Northeast Philadelphia might have seen an ad for American Idol, which then flashed to ones for a Sixers game, a Target sale, 95.7 Ben-FM, and a Lenovo laptop - "so fast it's obscene!"

But Greg Young wasn't tempted by any of this. Standing in front of the sign and frowning slightly, he was thinking about electricity and how many watts were coursing through the wires of this new gizmo.

The sign was a digital billboard, a new breed of outdoor advertising that is growing in both the region and the nation.

The problem for Young, a Philadelphia architect, is that they're energy guzzlers, compared with other signage. In a recent report, he found that the largest of them can use 30 times what a typical household consumes.

The report - funded by an independent grant but done under the auspices of an advocacy group that opposes the signs - concludes that as Philadelphia strives to become the nation's greenest city, a proliferation of digital signs might not be sending the right message.

Digital billboards resemble giant TV screens, the picture an array of tiny lights. Indeed, critics disparage them as "TV on a stick."

They are also one of the fastest-growing areas of outdoor advertising. The Outdoor Advertising Association of America says that among 450,000 billboards nationwide, about 2,000 are digital, with several

hundred a year being added.

They're big in urban centers - Times Square, the national diva. A Maryland company offers space on a digital "seaboard" that cruises the beachfront on a boat.

In the region, digital billboards are sprouting up along I-95. ClearChannel, an Arizona company that is one of the market leaders, has 20 in the region, a spokesman said.

They're growing in popularity because they're vivid; they grab attention.

Messages can be changed offsite, instantaneously. Digital signs have been used for FBI crime bulletins and missing-children alerts, although those also appear on government electric highway signs.

Critics have focused on aesthetics - visual pollution - and highway safety. Whether they distract drivers has been the topic of ferocious debate.

Young studied a new issue.

Most digital billboards use LED technology - the acronym stands for light-emitting diodes - which is highly energy efficient for applications like indoor lighting.

But billboards are another matter. While traditional billboards are lit only at night, and only by a few bulbs, digital billboards are lit 24 hours a day by thousands of diodes - the LED version of a bulb. A typical billboard measuring 14 feet by 48 feet can have from 900 to 10,000 diodes, Young found.

Digital signs also have "players" - computers, essentially - needing to be

cooled by air conditioners or fans. All of which uses more juice.

Basing his information on actual readings, manufacturer specs, advocacy group data and other research, Young determined that a digital sign can use as much as 323,773 kilowatt hours a year.

That's about 46 times the power use of a typical billboard lit by four halide lamps, he said. It's almost 30 times the energy used by the average U.S. home.

Young noted that peak energy use of a digital billboard comes at an inopportune time - midday in summer, when electricity demand is already at its highest. For the signs, this is when the lights have to be brighter to be seen and the cooling equipment must work harder.

A ClearChannel spokesman said the sign in Northeast Philadelphia along I-95 used less than one-third the power Young cited as the maximum.

The outdoor advertising association says digital signs are improving. They use one-quarter the power required six years ago, and "we expect another 25 percent decrease" this year, according to an e-mail from the association.

But neither would give specific figures. One company's spokeswoman said the information was proprietary.

Among new technologies to lessen power drain are sensors that dim the displays when ambient light dims.

Young, a "LEED" architect - a national sustainability accreditation - who now works at the firm H2L2, had just completed a graduate degree in urban design at the University of Pennsylvania when he began the study last summer.

His work was funded by a \$6,000 Samuel S. Fels Fund grant, awarded through the Philadelphia nonprofit SCRUB - Society Created to Reduce Urban Blight.

Its executive director, Mary Tracy, is also president of Scenic America, a national nonprofit that advocates preserving the visual character of communities and landscapes.

Tracy said she became concerned about two years ago, when ClearChannel applied to the city to convert a static sign to digital, and received permission "over the counter" - which suggested to her insufficient scrutiny.

The issue has echoed in other cities. Is converting to digital merely a face change, or something more?

Because the technology is so new, many cities lack regulations addressing where digital billboards may be placed and how bright they may be.

The industry group said that illumination levels are arbitrary when applied to an entire city, and that self-imposed industry standards have been adequate.

Some cities like Denver aren't waiting and have moved to ban digital billboards.

Young studied Philadelphia's code and concluded that it fell short, partly because it did not address energy use or brightness.

Philadelphia's sustainability director, Katherine Gajewski, referred questions to Eva Gladstein, executive director of the city's Zoning Code Commission, which is modernizing the city's codes.

Gladstein said Young's report adds "an interesting angle to the conversation."

In the current code, references to signs are scattered throughout; they were written at different times and "need a lot of work," she said. And there are no specific references to digital [billboards](#).

The commission plans to deliver an update of the code to City Council in May, but won't undertake a revision of the sign controls until later this year.

She added that the commission "worked very hard to weave sustainability" into the new code, so it is "certainly one of the factors we're looking at in the other sections."

Scenic America's Tracy maintains there's a disconnect when it comes to Philadelphia's greening efforts and the city's growing digital signage.

"Our carbon footprint is becoming more of an issue," she said. "But this sign is the sign that keeps on costing."

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Citation: Power-slurping signs (2011, April 26) retrieved 18 April 2024 from <https://phys.org/news/2011-04-power-slurping.html>

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