

Technology improves, but 'smart' cities still a hard sell

July 3 2013, by James Osborne

On the flat-screen monitor on the wall, a simulated college campus operates in seamless efficiency. Sensors pick up minor changes in temperature or humidity that could signal an air-conditioning unit malfunctioning. Motion sensors act as power switches. Building managers use their iPads to see if the lights were mistakenly left on in a lecture hall.

Once the realm of science fiction, automated computer systems controlling buildings and even whole cities are coming on the marketplace, offering efficiencies in everything from electricity to traffic flow.

Touring through his company's sales expo in Dallas recently, Jim Sandelin, a <u>senior vice president</u> with French energy conglomerate Schneider Electric, said the only problem is selling it.

"The adoption is slower than we would like," Sandelin said. "The technology is there. The platform and the analytics, which tell you how the building and the equipment is performing, it's really come on in the last three to four years, and it gets better and better all the time."

Soaring computing and data processing capabilities now make possible "<u>smart cities</u>," where office buildings, arenas, highways and apartment blocks are run through integrated computer networks that can track and reduce power use.



And while some companies and government agencies are embracing advances offered by contractors such as Schneider and German engineering giant Siemens Industry, the majority of building owners remain reluctant to invest in the technology, experts say.

In high-rent areas, it might take an energy-efficient building to attract corporate tenants with an eye on an environmentally friendly image, said John Dawson, regional director of engineering with Lincoln Property, which manages office buildings around the Dallas-Fort Worth area.

But many buildings operate on decades-old equipment, he said.

"A lot of investors don't want to hear it. They don't want to spend the money," Dawson said. "They figure the electric's pass-through, so why should they pay for it?"

In Dallas, where local governments' annual electricity bills run in the tens of millions of dollars, politicians have steadily upgraded buildings through a loan guarantee program paid for by reductions in electricity bills - if the upgrades don't produce a 30 percent savings, the system provider pays.

Courthouses, the Dallas Museum of Art, City Hall, parking garages and dozens of other structures have been upgraded in the past decade with modern climate-control systems, motion-controlled lighting and automated thermostats. Dallas County is projecting that combined with a new, cheaper electricity contract, it will cut a \$15 million-a-year electricity bill almost in half in the next two years. One facility's rooftop cooling system was so inefficient that maintenance workers had to spray it down with a hose to keep it from overheating.

"It's our own little mini-stimulus," Dallas County Judge Clay Jenkins said. "The only complaints I've gotten are from particularly lethargic



elected officials who say if they don't move for 15 minutes, the lights go out."

American cities have been slow to adopt the efficiencies, said Steven Moore, an architecture and planning professor at the University of Texas-Austin.

In many European countries, energy efficiencies are required by law, something U.S. politicians have been reluctant to do, Moore said. With so many of U.S. office buildings constructed in the 1950s and '60s, even ardent supporters admit the work to bring them up to modern standards will be costly.

"There are always early adopters. But by and large, most people are resistant to change (that) they don't see benefits them immediately," Moore said. "Change is coming, and there will be increasing incentives to get institutions and governments to adopt."

For those that do sign on, the realization quickly hits that keeping a building energy-efficient is not a one-time fix.

As cooling systems and other equipment ages, the building begins to bleed energy and electricity bills creep back up. Ten years after Dallas City Hall was overhauled for almost \$10 million, city politicians are considering a \$5 million upgrade to take advantage of new technology.

"If they pay back within five to seven years, that's our threshold," said Jesse Dillard, energy manager for the city of Dallas.

Sandelin, the Schneider Electric executive, admits that committing to keeping a building energy-efficient is like hopping on a hamster wheel - forever replacing aging equipment and chasing new technology.



"But what's the other choice?" he asked. "One thing is certain: Energy is not going to get any cheaper."

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