Videoconferencing: The World's Best Green Technology?

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SAP (SAP) adopts solar, LED lights, electric cars, videoconferencing and DC data centers in Palo Alto. Guess which one saves the most?

Fluctuating energy prices, new regulations, employee satisfaction and market opportunities are prompting large and small businesses to adopt green technologies.

But where do you get the most bang for your buck?

At the Palo Alto campus of SAP, the answer turns out to be videoconferencing. The company, as part of an overall energy retrofit, installed three telepresence systems from Cisco Systems (CSCO) in Palo Alto for a cost of $300,000. The units will save $300,000 in reduced travel costs in the first year alone. Besides that, they boost productivity.

"No one wants to fly every few weeks to Germany," said Rami Branitzky, the managing director of SAP Labs North America. SAP has 28 installed worldwide and more could follow.

Solid state lighting came in second place. SAP installed 337 LED fixtures from Lunera and connected them through a network from Redwood Systems. Total cost: $434,000. Annual savings: $80,000.

"It is the best business case except telepresence," said Peter Graf, SAP's chief sustainability officer.

Retrofitting the data center to run on DC power came in fourth place, right behind a $1.2 million solar array, but the best part has yet to come for DC. The retrofit -- which largely revolved around installing a rectifier that can convert high voltage AC power from the grid into high voltage DC to run computers and storage equipment -- cost $128,000 and saves $24,000 a year. (DC rectifiers save power by reducing the number of times power gets converted from AC to DC and vice versa before it powers a server -- we're huge fans of DC power these days).

That's a 5.3-year payback. Overall, the DC data center reduces power consumption in the data center by 15 to 20 percent, said Branitzky.

Graf, however, added that SAP will study ways to deliver power from the solar array at the campus straight to the data center. Solar panels directly produce DC power. A roof-

to-computer rack could thus eliminate two more AC-DC conversions: solar DC power wouldn't have to go through an inverter to become AC and the AC-DC rectifier at the data center gate could take a nap.

Such a system could reduce power consumed by the data center by a total of 30 to 40 percent. SAP also installed technology from Sentilla and OSISoft in its data center to curb power.

Meanwhile, a fleet of EVs and 16 chargers cost $250,000 and saves $21,000, reaping a somewhat protracted 12-year payback.

The retrofit -- shown off at an open house for customers, partners and reporters -- helps SAP cut its own operating costs, but more importantly, it will serve as a test bed to show what the company can accomplish for its customers. Like rivals IBM (IBM) and Oracle (ORCL), SAP wants to provide software and services that will help large corporations better manage their operations.

For years, SAP's software mostly focused on parameters like factory productivity, cost-per-unit, etc. Now, the idea is to highlight building energy consumption, fuel costs and other direct and indirect factors tied to energy and resources. Right now, large companies largely estimate those figures through extrapolation. But in the future, soft drink managers will, ideally, be able to more easily mine data on changes to the water or fuel footprint of a canned soda over different energy pricing scenarios.

Regulations and rising energy costs are prompting large companies to try to better track resources. But price volatility is also a huge concern. In the last decade, commodity pricing has been 40 percent more volatile than it was in the previous decade, Graf noted. The uncertain future surrounding China's exports of rare earth elements underscores the problem.

A number of startups participated in the retrofit: Lunera, Redwood Systems, Coloumb Technologies (car charging), and Sentilla. Will these companies partner with SAP on larger corporate deals? Are they possible acquisition targets?

Don't read too much into it, Graf cautioned me. Most of these companies make technologies that directly impact operations: their software helps control lights or manage data centers. SAP typically makes software that manages these management systems.

Still, SAP, like Oracle, IBM and Cisco, is a serial acquirer, so keep your eyes peeled.

Results like the ones achieved through this initiative will vary with the circumstances. SAP is a multinational with an aggressive sales culture. It probably has more execs on the road in a given month than the U.S. military has people combing the ground in the Tora Bora region. Not everyone will see those kinds of results. (Cisco has dodged hundreds of millions in travel costs through video.) By contrast, anyone can benefit from solar. Still, the figures underscore that energy strategies can be fluid and unpredictable.