



CASE STUDY

U.S. DEPARTMENT OF ENERGY



CLIENT

**The U.S. Department of Energy
Office of Electricity Delivery & Energy Reliability**

PROJECT

The Smart Grid: *An Introduction*
48-page book on the state of our nation's electrical grid and the need for its modernization.

CHALLENGE

To convey, in layman's terms, to a wide range of stakeholders the absolute necessity of modernizing our nation's electric grid – while it is running full-tilt – by means of technologies, tools and techniques similar to those that gave rise to the internet.

SOLUTION

In tackling a topic rife with complexities, "The Smart Grid: *An Introduction*" keeps it simple, making it more accessible and meaningful to a broad audience which can perhaps speed Smart Grid adoption.

RESULTS

The good word is getting around. "The Smart Grid: *An Introduction*" was distributed to all attendees at GridWeek 2008 in Washington, DC. It has been posted on DOE's website and smartgrid.gov. And thousands of additional copies have been requested by interested companies and individuals.

"As the Director of Smart Grid Task Force, we have plenty of work ahead of us. Litos Strategic Communication has helped us reach a key milestone in developing *The Smart Grid: An Introduction*."

Eric Lightner, U.S. Department of Energy,
Office of Electricity Delivery & Energy Reliability
Director, Smart Grid Task Force



STRATEGIC COMMUNICATION

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COMPONENTS



The Smart Grid: An Introduction



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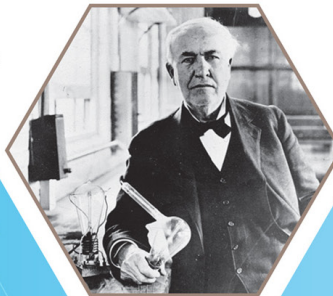


ADVANCEMENTS IN ELECTRICITY

There is a popular comparison that underscores the pace of change – or lack thereof – regarding our nation's grid.

SECTION TWO:

EDISON VS. GRAHAM BELL: THE CASE FOR REVITALIZATION.



The story goes like this:

If Alexander Graham Bell were somehow transported to the 21st century, he would not begin to recognize the components of modern telephony – cell phones, texting, cell towers, PDAs, etc. – while Thomas Edison, one of the grid's key early architects, would be totally familiar with the grid.

While this thought experiment speaks volumes about appearances, it is far from the whole story. Edison would be quite familiar with the grid's basic infrastructure and perhaps even an electromechanical connection or two, but he would be just as dazzled as Graham Bell with the technology behind the scenes.

Our century-old power grid is the largest interconnected machine on Earth, so massively complex and inextricably linked to human involvement and endeavor that it has alternately (and appropriately) been called an ecosystem. It consists of more than 9,200 electric generating units with more than 1,000,000 megawatts of generating capacity connected to more than 300,000 miles of transmission lines.

Given that the growth of the nation's global economic leadership over the past century has in many ways mirrored the trajectory of the grid's development, this choice is not surprising.

In many ways, the present grid works exceptionally well for what it was designed to do – for example, keeping costs down. Because electricity has to be used the moment it is generated, the grid represents the ultimate in just-in-time product delivery. Everything must work almost perfectly at all times – and does. Whenever an outage occurs in, say, Florida, there may well be repercussions up the Atlantic seaboard; however, due to the system's robustness and resultant reliability, very few outside the industry ever know about it.

POWER SYSTEM FACT

Today's electricity system is 99.97 percent reliable, yet still allows for power outages and interruptions that cost Americans at least \$150 billion each year – about \$500 for every man, woman and child.

In celebrating the beginning of the 21st century, the National Academy of Engineering set about identifying the single most important engineering achievement of the 20th century. The Academy compiled an estimable list of twenty accomplishments which have affected virtually everyone in the developed world. The internet took thirteenth place on this list, and "highways" eleventh. Sitting at the top of the list was electrification as made possible by the grid, "the most significant engineering achievement of the 20th Century."

Engineered and operated by dedicated professionals over decades, the grid remains our national engine. It continues to offer us among the highest levels of reliability in the world for electric power. Its importance to our economy, our national security, and to the lives of the hundreds of millions it serves cannot be overstated.

But we – all of us – have taken this marvelous machine for granted for far too long. As a result, our overburdened grid has begun to fail us more frequently and presents us with substantial risks.

ADVANCEMENTS IN TELECOMMUNICATIONS



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