Why Gore and Pickens Have Energy Backwards (and Kevin Costner Had It Right)

by Alex Yu Zheng - Sept. 2008

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Al Gore and T. Boone Pickens are just two of the famous Americans who have recently called for a national energy policy (see links below). Like so many others, they realize that our inability to formulate a consistent national policy is allowing other countries to pass us by.

But like so many others, they have things backward. They acknowledge the need for a Smart Grid, but they treat it as an afterthought. Yes, it will need to be taken care of. But someday. By someone.

At the beginning of the last century, nobody suggested that every American should first buy a telephone and then hope that someday someone would string the wires. At the beginning of the 1990s, nobody suggested everybody should first buy a computer and Web browser and then hope that someday someone would build an Internet.

Yet that's what we are hearing from Gore and Pickens and so many others. Their motto: "If they come, somebody will build it."

Wrong. Kevin Costner had it right in the movie *Field of Dreams* when he heard the voice saying "If you build it, they will come." If we modernize our electric power infrastructure, new industries and new opportunities will appear that will renew America's competitive advantage.

The Blessing of Infrastructure

By investing in the foundations of a national infrastructure, policymakers open markets with the volume to build international-scale industries. This "invest-in-the-future" thinking led Benjamin Franklin to propose the Post Office, President Eisenhower to establish the interstate highway system, President Kennedy to launch the Apollo Project, and the Department of Defense to fund ARPANET, the precursor to the Internet. It led to the transcontinental railroad, the Panama Canal, the national airport system, and many other infrastructure advantages that kept America at the top. The America that invested in the future did these things not because they were easy, but because they were hard, and challenged the rest of the world to keep up.

Our failure to take this step with the grid is costing us dearly. Western Europe, Brazil, Japan, and South Korea are taking over crucial industries such as wind turbines, solar photovoltaic, ethanol, deepwater drilling, and many others. They understand the need to invest in a smarter electric power grid, high speed fiber optic internet networks, continent-wide wireless data networks, and research and development programs for the future.

The Burden of "Infra-stoppage"

Today's federal government lacks the invest-in-infrastructure thinking that originally established America as an industrial powerhouse. Indeed, investment in the grid virtually stopped for the last three decades of the last century.

Although state and local governments are experimenting with new policies, without a consistent national policy those markets remain regional. One example is renewable portfolio standards. They have encouraged renewable energy development in certain states. But they pose burdens for utilities and manufacturers because each state has different standards.

Another example is advanced metering, which has caught on in some states but not at a national level. Compare this to Italy, to name just one example, which installed smart meters for everyone several years ago.

You Can't Get There from Here

The recent energy plans from prominent national figures further underscores the need for a renewed national grid. Al Gore has a 10-year plan to use all renewables for electricity. The plan is impossible to implement with today's grid. He admits the grid is inadequate, noting that "At present we do not have a unified national grid sufficiently advanced to link the areas where the sun shines and the wind blows to the cities in the East and the West that need the electricity." Yet his plan fails to call for urgent national action to fix the problem.

T. Boone Pickens calls for 22% of power to be from wind. The wind is supposed to replace the 22% of electric power generated from natural gas, which in turn is supposed to power transportation. He believes this can be accomplished in 10 years or less. Yet, as with Al Gore's plan, it can't be done without a Smart Grid to replace the vital load-following function of natural gas power plants.

Roadblocks in the Way

Barriers stand in the way of renewing the U.S. grid:

- Regulatory and permitting waits that stretch into years
- Skyrocketing construction and materials costs
- Long wait times for crucial equipment from manufacturers
- Construction times of many years (and a shortage of skilled firms)
- Regulatory uncertainty regarding price incentives

Even with similar barriers, other countries have pressed ahead to renovate their electricity infrastructures. The key difference: *They have a coordinated national policy.* Consider the three areas below, which illustrate our need for a national policy and the dangers of doing without one.

1. Advanced metering. While China and European countries deploy vast networks of advanced meters, the United States lags behind. Advanced metering is the gateway to demand management. The U.S. must deal with unwarranted "big brother" concerns (which do not exist in many Asian and European countries) brought on by the deployment programs of individual utilities. The U.S. needs national deployment of advanced metering with appropriate government oversight and third party auditing.

2. Smart grid research and deployment. The federal government allocates about $120M per year to grid research. The European Union allocates $1.32B, over 10 times as much. The lack of national coordination threatens to put the United States even further behind.

3. Renewables integration. Denmark has already reached beyond 20% renewables, and Spain is charging forward as well. A recent report by the US Department of Energy says that 20% wind power by 2030 is feasible, yet it cites two grid-related challenges as the largest barriers: "investment in the nation's transmission system", and "developing larger electric load balancing areas, in tandem with better regional planning." Everyone is calling for more wind, yet no one is addressing those two hurdles.

Planning Our Way Forward

The solution is not, as some would support, to abandon the new system and revert to 20th century thinking.

Nor is it to rip out the old grid and replace it with something brand new. The answer is to renovate the old infrastructure until it can support our 21st century needs. The grid must be modernized to deal with the demands of our information and service-based economy, which has drastically different expectations for electric power.

A Smart Grid is the foundation of our future prosperity. It provides:

- Interoperability for new kinds of power generation
- Interoperability for new ways to reduce and regulate demand
- Transparency at all levels to decrease market abuses
- Reliability to support 21st century power needs
- Increased support for energy storage and arbitrage to build a stronger market that mimics other commodities markets
- Trading and power transfer at all levels for higher market flexibility
- Easier market access for new technologies
- Easier inclusion of environmental impact in decision making

Increasing the functionality of the electricity market with the Smart Grid will provide new opportunities for entrepreneurs and create new jobs. New industries that begin in our national market will compete overseas, and become international industries that help to restore America's economic strength.

You can't renovate a high-rise without plan. You can't build a transcontinental railroad without deciding where and how to meet up in the middle. And America can't renew its grid without a coordinated national policy. With that in place, we can begin work on different sections with the
If we build it, they will come – the entrepreneurs, the innovators, the next generation of new businesses. And when they come, they will lead us to a new era of prosperity and global leadership.

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Wind Energy by 2030 US Department of Energy

The Sad State of Grid R&D S. Pullins, *Smart Grid Newsletter,* May 2008

Profiling and Mapping of Intelligent Grid R&D Programs EDF / EPRI / DOE. December 2006.

Al Gore's Energy Plan

The Pickens Plan