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Stimulus funds for smart grid projects are coming to a close, and industry experts are questioning whether electric grid enhancements will continue. The answer is a resounding yes.

Stimulus funds for smart grid projects are coming to a close, and industry experts are questioning whether electric grid enhancements will continue. The answer is a resounding yes.

Over the next 10 to 20 years, the electric grid in this country should see a dramatic improvement in efficiency and functionality. Technologies exist to drive those gains and create an electric grid that will be key to our energy future and that will enable transformational advances in our lives. And although the American Recovery and Reinvestment Act funding has run its course, this industry is positioned for impressive grid advances, and government funding is not needed.

The electric utility industry has spent most of the last 40 years focused on investing in electricity-generating assets. Today, we have a generation fleet in this country that has seen dramatic improvements in heat rates, operating efficiency and costs, and significant reductions in environmental emissions.

Although these power-generation gains have been impressive, future improvements will come more slowly. From the current level, heat rate improvements will be harder to achieve and will not be as dramatic. Emission reductions of defined pollutants have been good, but the new public enemy No. 1 is carbon, and a large scale, economic solution to carbon does not appear to be close.

On renewables, low-cost natural gas makes the cost differential hard for consumers to bear, and a lack of technologies like large-scale storage make wind and solar hard to dispatch if they become too large of a component in the generation mix.

While generation advances are slowing, the prospects for improvements in the nation's electricity grid have never been brighter. This outlook is driven by four primary factors. First, the system has seen a lack of attention and new technology during the last few decades and needs

investment. Second, technology advances in recent years will enable functionality on the grid that was not previously possible. Third, efficiency gains and demand-side management tools are needed to help reduce demand growth and take some pressure off of new generation. Fourth, an industry that has spent much of its capital on generating plants is likely to allocate a larger portion of capital dollars for grid improvements.

At the end of the 20th century, the National Institute of Engineering voted the electric grid the most significant engineering development of the century. Nothing else has had as much impact on our economic development and our standard of living. Yet the electric grid has not seen significant deployment of new technologies over the last 20 to 30 years. In order to continue to be a catalyst for advancement, the grid needs investment to maintain aging infrastructure and to deploy new technologies that will upgrade its capability and functionality. Technology advances in areas such as microprocessing and telecommunication will enable functionality not possible in the past.

When it comes to the electric grid, innovation has been made through pilot projects and investments in small-scale projects to put technology on the grid. Those small-scale projects got a further boost in 2009 with the passage of ARRA, which spurred even more demonstrations of what technology could do for the grid. A few companies decided to sidestep the demonstration projects and opted instead for broader deployment to bring the benefits of new technologies to all customers.

At Oncor, we have seen outages identified and restored faster than ever before by the recent synchronization of our advanced metering system and outage management system. Smart switches and distribution automation now automatically sense faults and respond to isolate and shorten outages.

Advanced meters eliminate the need to send employees to perform more than 4 million service orders that can be done remotely, saving us more than 14 million truck miles annually. Dynamic line rating increases transmission line capacity, thus improving system reliability and optimizing grid utilization. Static Var compensators, of which Oncor has the fastest and largest cluster in the world, provide zero-emissions voltage stabilization during electrical disturbances and allow generation facilities to be located in areas that are remote to major metropolitan areas.

Many other technologies will have similar transformational impact. Today, we are able to monitor and detect problems on the grid better than ever before, improving the operation and security of the grid.

Another driver for grid advancement is to enable consumers and expand demand-side management capabilities. Consumers have never had sufficiently timely and useful information to allow them to use electricity more efficiently. It is the equivalent of shopping for groceries without any prices and getting a bill once a month that provides no detail. That is how we pay for electricity.

Studies show that awareness alone will reduce consumption five to 10 percent. Other pricing incentives will drive greater efficiencies. Let's use energy smarter before we build more power plants. Just a five to 10 percent reduction in consumption would save billions of dollars in annual energy costs and would significantly reduce emissions.

An advanced grid also enables a wide range of consumer applications, including smart appliances, electric vehicles and distributed generation. As an example, the combination of improving car battery technology and the ability to recharge car batteries using excess capacity off-peak at marginal pricing will enable dramatic changes over the next decade. A serious market penetration by electric vehicles will change energy, environmental and national security policy in this country.

The U.S. Energy Information Administration estimates that \$500 billion will be invested in the U.S. electric grid over the next 10 years. The cost impact on consumers will not be significant, but the benefits will be. Much of the investment will be funded through existing tariffs and through efficiency and energy savings.

New capital to finance grid expansion has never been a problem. Transparent regulatory structure and recovery mechanisms make fundraising a non-issue for the utility sector. The market is deep for investments in high-quality infrastructure. Government grants and incentives are far better used elsewhere. In fact, government funding is a disincentive to utilities. There is no good business case for utilities to take construction and operating risk without the incentive of earning a return on invested capital.

So, goodbye to ARRA funding. We appreciate the thought. Just give us a transparent regulatory framework, and we will build the 21st century grid.

Bob Shapard is Oncor chairman and chief executive officer and the chairman of the GridWise Alliance.

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