

The Bright Future of Florida's Energy Infrastructure: Toward a Smarter Grid

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The most significant achievement of the 20th Century¹ is getting old, very old. To be precise, 127 years old, if we choose to consider the legitimate birth of our national electric grid, September 4, 1882, the day of Thomas Edison's first attempt to distribute electricity in New York happened.

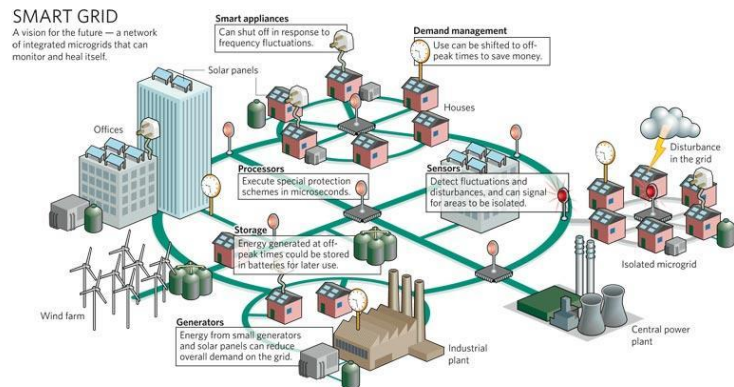
Like any old machine, our power grid is showing its age. It can no longer deliver the level of reliability and safety that we have grown accustomed to. Certainly, not up to 21st Century standards, when spectacular advances in telecommunications and information technology have relegated the once largest, most powerful, interconnected machine on earth to a catch up position in the advanced technology world.

More than ever, modern solutions to problems require the integration of technologies that, not so long ago, were treated independently. At a time when it is a reasonable expectation to be able to communicate with anybody located anywhere in the world in real time, and have data, video, and voice transmitted almost instantly, not too many people find it unusual that these advances are not systematically applied to the oversight of intelligent transmission, distribution, and metering of electric power. We are not surprised to see a utility employee walking house by house, visiting hundreds of them daily, collecting information from our meters.

The convergence of information technology and electric power has not happened fast enough.

Typical customers find out about their household energy consumption the day they receive the bill. In some cases, utilities find out about power outages when customers call to report them.

The question is: how long will it take us to convert an antiquated centralized system into an intelligent distributed multi-nodal grid? How long before we experience a multi-modal network capable of assimilating diverse types and sources of energy, and capable of storing excess energy for critical times?



¹ National Academy of Engineers celebrating the beginning of the 21st Century and identifying the single most important achievement of the 20th Century

The Smart Grid will dramatically increase efficiencies with superconductive transmission lines, limit the loss of energy, reduce carbon emissions, and contribute to a more sustainable environment. In this network, intelligent monitoring systems will keep track of all electricity flowing in its lines, smart meters will report consumption patterns, appliances will control how much energy they use, alternative energy sources independent of size will feed the network, and electricity stored in batteries will supply quick jolts of energy when and where needed.

There is not enough time to reflect on how well our electric grid has served our country. Not enough time to celebrate the world-class innovation that made this unthinkable complex mechanism a system that all Americans have trusted for generations with a level of reliability that very few countries in the world could count on. We just need to make it better.

The good news for Florida is that we have already started to make considerable progress and we are poised to become a leader in the implementation of energy-efficient solutions and innovation. We are addressing the complexities of technology integration and our utility companies are investing heavily to make this transformation possible.



On Oct. 27, while touring the nation's largest solar farm in Arcadia, FL, President Obama announced 100 grants, totaling \$3.4 billion, for smart-grid efforts. The winners included 9 Florida recipients: FPL, Progress Energy, Southern Company, Lakeland Electric, Jacksonville Electric Authority, City of Leesburg, City of Tallahassee, Talquin Electric Cooperative, Intellon Corporation, and Quincy.

What does this mean for Florida? First and most importantly, it means jobs. More than 1 billion dollars has been pledged to be spent on Florida's Smart Grid. [FPL, recipient of over \\$200 million in grants, estimates their endeavors will create over 6,000 jobs](#) over the next 3-5 years including meter installers, line workers, equipment manufacturers, and cyber-security/setup technicians. Second, it means a more robust grid with less waste, less power loss, and less down time, all of which translates to less burning of fossil fuels and a cleaner environment. Finally, it means money: Consumers will be able to monitor and understand their energy use and run high energy consumption devices, like hot water heaters and dryers, when prices are lower.

Florida desperately needs jobs for our unemployed workforce. This initiative, together with the development of more affordable solar solutions for residential use, will promote the infusion and integration of new technologies into building systems and create opportunities for the revitalization of the construction industry and the manufacturing and energy sectors.