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Mr. Metcalfe, Meet Mr. Tesla

Merging IT with electrical transmission will power New York through the 21st century

By John J. Gilbert III

Chicago's World's Fair in 1893 gave the world a glimpse of what the American urban lifestyle would become: Shining cities with Olmstedian parks and fountains, active waterfronts, high-rise office and apartment towers powered by this new concept of distributed electricity connecting all of us via copper wire. This new invention allowed us to quickly move vertically on elevators and run appliances that would cook our food, cool and heat our homes and wash our clothes. This amazing vision would greatly influence architecture, the arts and American industrial optimism. It changed the skyline of every American city. It unleashed the creative energy of generations to come.

At this singular event, Walt Disney's father witnessed the world's first Ferris Wheel and become involved in amusement parks; a guy named Hershey introduced chocolate-covered caramels; and Nikola Tesla's alternating-current electrical

system beat out Thomas Edison's direct-current system as the most efficient and economical way to distribute electricity to the masses. Our country showed the world for the first time what we were to become, and it was all based on the revolutionary new concept of "lighting" up our urban areas with electricity. The world and its cities would never be the same.

The challenges and opportunities of today revolve around a similar question: How do we use our precious energy more efficiently? How do we make our buildings more sustainable, and how do we empower the consumers of these resources with the tools they need to make intelligent energy decisions? We need to find ways to use less and make more of these finite resources. We need to remember and apply the First Law of Thermodynamics, that energy cannot be created nor destroyed but only



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transformed. We need to understand that the economic engine that will lead us out of the Great Recession is applying American technology and ingenuity to make our cities and country more energy independent and our buildings more sustainable.

The same innovation that was on display in Chicago more than 100 years ago needs to be tapped today to find new ways to decrease the number of BTUs we consume, decrease our carbon footprint and decrease the amount of money we send to foreign sources for carbon-based fuel. Buildings owners—rightly or wrongly—are and will continue to be held responsible for monitoring, measuring and managing the electrical load of our customers. What we need to do is to give our customers the tools to "see" their own consumption patterns and thereby allow them to influence their behavior. Creating intel-

ligence within the electrical grid is the new Holy Grail.

We believe the next big thing is how we, the real estate industry, begin the process of integrating our IT networks with the electrical grid—in other words, to push and pull data to and from electrical appliances such as meters, pumps, fans, lighting, sensors, stoves and washing and vending machines to servers and routers that can extrapolate this data into useful graphical interfaces. We need to enable our BlackBerries and iPhones to control our electrical consumption and make smart decisions about buying electrons. A common set of infrastructure standards needs to be established to allow a building-wide network that is both wired and wireless, one that can measure and manage anything that is plugged into it. We need to introduce Robert Metcalfe, the creator of Ethernet, to the spirit of Nikola Tesla and Thomas Edison and create interoperability between these two inventions. Put another way, we need to allow

photons of light from our information-technology (IT) networks to influence electrons of electricity in our electrical-transmission (ET) network.

This merger of IT and ET will be an economic juggernaut that will allow cities like New York to expand their economic base and serve as a model for the rest of the world. This concept can and will have the same impact on the imagination of today's young innovators as the 1893 Chicago World's Fair did by allowing software and middleware developers to create applications that can be plugged into and adapted to this infrastructure. Con Edison's Smart Grid Demonstration Project is crucial to this endeavor, as is Mayor Bloomberg's efforts to create an Urban Technology Innovation Center. The time is now to merge Metcalfe's and Tesla's visions in order to change our world forever.

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