From So Last Century to So This Century

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WHEN THE NATIONAL ACADEMY of Engineering was asked to pick the greatest engineering feat of the 20th century, they could have chosen an especially challenging bridge, or towering skyscraper, or even one of the astonishing space launches that took astronauts to the moon and allowed us to peer back at the earliest moments of the universe.

Instead, they chose the electric grid—that collection of switching stations, transformers, and thousands of miles of wire that connected a nation to a new era. It may not be as spectacular as Neil Armstrong's moonwalk nor as soaring or graceful as the Golden Gate Bridge, but as the Academy understood, it powers all the daily miracles that make modern life possible. Pretty amazing.

But does that mean the electric grid is "so last century"? Not at all. In fact, the latest revolution underway in the electric grid will prove just as essential to humanity's next 100 years. Nowhere is that more likely to be true than here in California. Indeed, building a 21st century grid is the key to realizing the clean energy solutions we need to continue expanding our economy and improving our quality of life, while reducing our carbon footprint.

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Instead of the one-way delivery of electricity, the 21st century energy grid will be a dynamic, all-points exchange able to absorb electrons made from sun, wind, and water by virtually anyone; store and distribute them according to demand; and do so cleanly, affordably, and safely, without disruption.

Without a 21st century grid, it's hard to imagine how the innovations now being unleashed by technology will ever fulfill their potential to improve our lives at home, at work, and at play.

Californians are embracing new energy solutions faster than people anywhere else, from solar rooftops and other renewables to energy storage and electric vehicles. More advances are on the way as clean-tech firms in Silicon Valley continue to push the limits of what we can achieve, let alone imagine.

But just as personal computers turned out to be far more powerful when connected to the Internet, today's emerging energy innovations will deliver far greater benefits if they are able to operate together as part of a bigger ecosystem of grid-connected technologies.

For example, as California continues to develop its tremendous solar and wind resources, often in remote areas, it is relying on utility power lines to bring that energy into population centers. Transmission towers and cables extending into neighboring states also allow California to sell excess renewable energy during periods when we can't use it all. Without that ability, clean energy producers would be shut out of distant markets.

PG&E is working to build a smarter electric grid to deliver clean energy solutions and continue to strengthen our growing economy and quality of life.

Even the expansion of rooftop solar requires a robust electric grid. No grid—no power at night or solar customers selling energy during the day.

Likewise, new energy storage technologies work by enhancing the grid, not replacing it. Rather than luring people to leave the grid, storage will increasingly contribute to making that shared infrastructure more reliable by smoothing the fluctuations of wind and solar energy.

California policy makers and utility companies have shown a strong commitment to grid modernization, from smart meters to intelligent sensors and switches on power lines. We need to continue supporting these investments.

If the last 100 years are any indication, the coming changes will dwarf those of the previous century, while bringing enormous benefit to California's citizens, to our economy, and to a healthy environment.

When the question is asked decades from today about the greatest engineering feat of the 21st century, we should not be surprised if the electric grid once again comes out on top.

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