



## Stanford eCorner

### Unleashing the Clean Energy Revolution

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Video URL: <http://ecorner.stanford.edu/videos/2763/Unleashing-the-Clean-Energy-Revolution>

Aneesh Chopra, Chief Technology Officer of the United States, describes a number of areas where innovation can help to power a clean energy revolution. Areas of particular interest include improvements to energy grid efficiency and reliability, the development of new energy standards, and improving consumer access to usage data. Chopra also advocates for greater instrumentation in the collection of energy data.



#### Transcript

Earlier this morning, I gave a lecture at the Connectivity Week to talk about importance to achieve the President's objective of 80 percent of our energy source is coming from renewable energy by 2035. We need a modernized electrical grid that would allow us to incorporate these renewables. So the President has called for a modernized smart grid and we need entrepreneurs who can come in and help turn this modernized grid into more energy efficiency, more grid reliability, and the ability to integrate these new renewable sources. Now, I'll give you an example. Again, in the spirit of research and development, we're investing an ARPA-E on the entrepreneur called GeneSiC in Northern Virginia. They're going to shrink today's transformer from 8,000 pound beast with no intelligence in terms of smart electronics, to a 100 pounds suitcase with modern sensors so that is can start being an intelligent part of the network. Now hopefully these prototypes, if you will, will demonstrate their efficacy and will start to enter the market in scale. But it's also about opening up new standards. Standards for how you and I as consumers can grab hold of energy data. Just on this campus, Tina, on my walk here I ran into these two high school students that came to visit me in Washington about a month and a half ago.

These two students live here in Northern California and they asked their school system if they could invest a few thousand dollars to pull out the energy data in real time so they could see what they're consuming and when. And Tina, the gym would have the air-conditioning go on at 2AM and to their knowledge, there weren't a lot of students in school at 2AM in the gym. By finding out that the control systems weren't quite working the way were intended, they were able to adjust their HVAC, saving the school system \$30,000 in a year. How many opportunities are we leaving on the table because we lacked the knowledge of what's happening. How do you and I know our energy performance? We get a bill in the mail at the end of the month, and that's the degree to which we instrument our energy consumption. Ask Google and Facebook how much information they have on you right now. A little bit more than one piece of data a month; they're instrumenting your social graph. We need to instrument the energy sector, the health care sector, the education sector. And by doing so, open up opportunities for you as entrepreneurs and innovators to build the algorithms, the apps, the tools that would allow us to solve these challenges. And move out of a political stalemate that has played Washington to a new model that allows us to achieve our objectives in the spirit of entrepreneurship by harnessing the power of technology, data and innovation.