

The Transformation of an Energy Company Through Governance and Technology

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The energy systems managed by today's energy companies rely heavily on fossil fuels, which put a severe burden on the environment. The transition to a world in which energy is provided on a carbon-free basis, however, cannot be done without the participation of those energy companies. After all, they are the entities with the best knowledge of how, when, where and to whom energy is provided, and how much. They also have the resources in place to generate energy and manage a complex infrastructure system that delivers it to their customers. But they also have been built on a carbon-based platform and use an old and inefficient infrastructure. What is more, the prevailing business model essentially has been to make energy available to the consumer whenever it is wanted regardless of the cost to the consumer. Or, as it has turned out, regardless of the cost to the environment.

Responsible energy companies, though, have realized that the way of the past is not the way of the future. They know that they have to wean themselves from a reliance on fossil fuels and reduce the use of fossil fuels by not only developing renewable sources of energy but also accelerating their implementation. From a business model perspective, reducing the use of fossil fuels while a transition to renewable sources is being done means that energy companies implies that they will want consumers to use less energy while at the same time compensating them for switching over to either less environmentally damaging fossil fuels (e.g., from oil to natural gas) or renewables (solar, wind and bio energy). One way to get consumers to use less energy is giving them more knowledge about and control over when they use energy and how much it costs them.

Doing these things requires a supportive governance structure and philosophy as well as the intelligent use of technology. A supportive governance structure and philosophy means that those who run the company - senior management and the Board of Directors - actively pursue strategies and actions that are planned to move the company to a low carbon energy future and accept the short and long term implications of this on the company's bottom line. Intelligent use of technology refers to (a) discovering ways to modernize the existing energy grid infrastructure, (b) determining how to integrate renewable sources of energy into the energy grid (while at the same time modernizing it), (c) learning more about where and when energy is used, (d) giving consumers information on their own use of energy so that they can manage it better, (e) developing ways that customer users of renewable energy can send energy back into the system, and (f) inventing ways to store energy created by solar and wind sources so that it can be used anytime, not just when the sun shines or the wind blows.

This paper is a case study of how one energy company - National Grid - is transforming itself into a provider of clean, green renewable energy for the next generation through the combined efforts of smart governance and an innovative use of technology.

This also means building a future network that is more resilient, smarter and has the ability to integrate distributed energy resources. The paper will describe how it is encouraging its customers to use less energy and giving them the tools to do so, detail its programs to encourage and expand the use of renewable energy sources, and discuss innovative solutions for providing safe and reliable energy to rural and urban areas.