
Inflection Point: Committing to an Energy Transition

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THE TENETS OF A COGENT ENERGY POLICY FOR FUTURE GENERATIONS

The development of a comprehensive and effective global energy policy for future generations is one of the greatest challenges of our time. Many have recognized the complex factors that create impediments to adoption of a cogent approach to energy policy: rapid price volatility of fuels, powerful stakeholder groups, rotating political decision makers, and the disconnection between immediate and long-term impacts of climate change. However, we are now entering a period of disequilibrium in the energy sector due to changes in technology, geopolitics, investment risk, and a profound recognition that choices made today will impact generations to come. When taken together, this confluence creates an inflection point, which provides an unprecedented opportunity to unpack the complex layers of global energy politics and to develop an approach to energy that addresses price, reliability, infrastructure development, and

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climate change in an integrated manner that can alter energy paradigms in the future.

From a consumer perspective, reliable energy delivery allows households and businesses to be assured of supply and access. On a national level, reliability encompasses energy security. Consumer nations favor receiving supply at the lowest cost possible and with little short-term volatility. In certain parts of the globe, the impacts of global warming already threaten the environment; elsewhere, they appear to be a concern for the future, but are not so immediately compelling. Paying for mitigation of these effects represents both a societal value and a cost proposition that developed countries are slowly accepting, while adaptation costs are borne unevenly among economic haves and have-nots.

On the supply side, reliability means assured access to resources on reasonable development terms. Suppliers must earn a viable rate of return above a break-even point, without volatility in demand that complicates

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investment planning. Energy projects are immensely capital-intensive, requiring financial models that are often tied to multiple regulatory approvals, and the ability to adjust production to various demand situations. The climate variable adds further complexity to energy project considerations and depends upon the impact of the fossil fuel, end uses, and mitigation costs.

Nonetheless, given the science and the impacts to society, as well as the growing global groundswell for accountability, a resource's role in global warming will become a risk factor in development, no matter the long-term forecast for the fossil fuel economy.

Given these challenges, how do we define our watershed moment, when we are positioned to change our environmental and energy paradigm?

First, we are at a technological inflection point, on both the large and small scale. We are seeing iconic U.S. companies such as Google and Apple invest in solar and wind projects to produce the energy that runs their factories and data farms. Google has invested USD 200 million in the Spinning Spur wind farm in Texas, its fifteenth renewable investment.¹ States like California and Massachusetts have developed far-reaching programs for consumers to utilize solar to power their homes, offices, and factories, and have spurred programs in energy efficiency. Technology

companies are working on battery storage and automobile companies are improving electric vehicles and, like Tesla, providing innovative sales strategies to enter the marketplace. On a larger scale, the future could include geoengineering: technologies that deliberately intervene in nature to counter the severe impacts of global warming—impacts that are assured if we do not act in time. While controversial, the science exists to begin the study of intentionally changing our climate to mitigate the effects of human-produced greenhouse gases.

Second, we are at a moral crossroads, as shown by the September 2014 climate march in New York City, which accompanied the UN Climate Summit called by UN Secretary General Ban Ki Moon. The People’s Climate March was the largest climate march in U.S. history, bringing over 300,000 people and 1,500 organizations to the streets of New York. Organizers of the march presented the UN with 2.1 million signatures from citizens demanding urgent action on climate change. Further, Tim Cook, the CEO of Apple—the first U.S. company to achieve a USD 700 billion market capitalization—has combined the business imperative with the moral one through a USD 850 million investment in a solar farm to fully power Apple’s California operations by 2016. Mr. Cook has said, “We know at Apple that climate change is real. The time for talk is past. The time for action is now.”²²

Finally, we are at a political inflection point, particularly at the international level. We have seen the positive impact of the 2014 U.S.-China climate agreement in terms of prodding domestic activism on climate change, and encouraging signs from the Lima Conference of the Parties, during which a climate framework was agreed upon for discussion at the 2015 UN Climate Change Conference in Paris. There is a qualified optimism for Paris 2015, with an attempt to structure a more flexible international agreement that better comports with domestic policies. Separately, the European Union continues to support measures to limit greenhouse gas emissions, although individual countries face challenges in meeting renewable energy use targets, and coal continues to play a major role in some nations.

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MOVING FORWARD TO CHANGE OUTCOMES

Hard decisions lie ahead. In the United States, where to build new energy production facilities remains a huge impediment, and a BANANA (“Build Absolutely Nothing Anywhere Near Anyone”) mindset continues to impact both renewable and fossil fuels. To bring wind into populated areas, transmission lines will need to be built. Natural gas may be needed to stabilize intermittent renewables. Strict building codes will have to reinforce energy efficiency measures. Importantly, incumbency needs to be challenged in order to level the playing field for new entrants and to bring new technologies into the energy mix. Our U.S. energy regulatory system protects the status quo, and it is enormously expensive to challenge it, with little promise of success. The biggest national challenge is growing the political will to put a cost on carbon, whether through a tax or a cap and trade mechanism. In the meantime, state and regional approaches, like the Regional Greenhouse Gas Initiative (RGGI), serve as exemplary but limited approaches to a greater national solution.

Even with energy’s global and geopolitical aspects, there is a growing recognition that subnational activities, too, are critical in creating meaningful change. For the United States, this means that transformation must occur at the state level, where utilities, generators, and regulators play a major role. These players operate closest to the customer, who needs information about real-time prices and the environmental impact of his or her energy choices. Changing technologies at the generation, grid, and meter level will accelerate these opportunities, along with market design, and eventually regulatory paradigm shifts. The Environmental Protection Agency’s focus on 111D of the Clean Air Act is an approach that uses a federal law to attempt change at the local level.

FINAL THOUGHTS

As a global community, we know what has to be done to begin transforming our energy system. And we actually have aspects of the requisite technology available, with the capability to make investments in the future. We also can identify the vested interests that are preventing transformation and the role that stakeholders on all sides play to resist solutions. Agreeing to transition to a new paradigm where current players have changing roles is a first step.

There is a concrete role for governments in shaping the rules, providing regulatory certainty, and including stakeholders in all parts of the

policy process. It is the market players—investors, multinational corporations, energy developers, and technology companies—that will take the risk, create new energy products and services, and innovate, to change how and when energy is produced and consumed. Multinational organizations and NGOs will provide the moral imperative and communicate the urgency for action as well. That is why we are at a moment of opportunity—of shifting supply patterns, of potentially dynamic consumption patterns, of investment opportunities that can enhance both wealth and welfare—and with a climate disaster looming in our future. The challenge is to first commit to real actions that over time will change our global energy system and to take the even more difficult next step of implementing those changes, recognizing that the transition will be dynamic and extraordinarily challenging, but possible. *f*

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ENDNOTES

- 1 “A New Wind Investment in Texas,” Google Official Blog, January 14, 2014, <<http://googleblog.blogspot.com/2014/01/a-new-wind-investment-in-texas.html>>.
- 2 Brian X. Chen, “Apple Building Solar Farm to Power California Operations,” *The New York Times*, February 10, 2015, <<http://bits.blogs.nytimes.com/2015/02/10/apple-to-build-california-solar-farm/>>.