

Building a truly sustainable energy system



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The world's economy is undergoing several fundamental transitions at the same time, from a rebalancing of political and economic influence, to the digital revolution, to massive urbanisation. Underlying all these changes is the drive to ensure an energy system that enables economic growth for the planet's growing population with sharp reductions in carbon intensity.

The public debate over this is often sterile and facile, characterised by false choices that obscure the overarching truth: simultaneous action is needed on a number of fronts. Charting a path to a sustainable energy future depends on five key tracks: (1) innovation, (2) efficiency, (3) consumer engagement, (4) public policy, and (5) financial market reform.

Energy companies that create strategies based on this model will be best positioned for a world in which carbon-intensive energy becomes more expensive and less politically acceptable. Companies that fail to make this shift may find themselves on the wrong side of this great transition, risking social and political opposition that could be hard to overcome, and relying on products and technologies that may no longer be viable. Several leading energy companies are actively investing in exactly this kind of comprehensive approach, although greater acceleration is needed to achieve anything like the goals established by many countries in recent years.

Innovation: New forms of energy are clearly needed if the engine of economic growth is to continue, and continue sustainably. Unconventional oil is receiving much attention inside in the industry, and renewables are considered essential to a low-carbon future. And while unconventional have a role to play, the overall mix will only change if renewables gain more market share. One key to making this happen is innovation.

It is clear that the energy mix will need to change to achieve both economic and environmental objectives, and innovation will be a big part of this story. The way this innovation happens is as noteworthy as the innovation itself. One of the unique features of innovation in the 21st century is how "co-creation" of innovative solutions is growing more important – and more widespread. In recent years, we have seen some non-traditional partners join forces to drive innovation faster, further. Examples range from Shell and Cosan's new biofuels venture, Raizen, and Total's purchase of SunPower, a leading solar energy producer, as well as many others. There remains

scepticism about how committed industry incumbents are in following through on these investments. Given the industry's long history of joint ventures and cost-sharing, it is positioned very well to embrace the era of collaborative innovation, so long as these efforts are directed towards cleaner forms of energy.

Efficiency: The energy industry has also made great strides in efficiency. While many sustainability strategies are presented as "win-win" solutions when in fact they may not be, efficiency is undeniably beneficial both economically and environmentally. In 2009, McKinsey & Co. released a well-received study that estimated that the United States alone could save US\$1.2 trillion by 2020 through reasonable energy efficiency measures, with 40 per cent of these savings available from industrial operations. This survey, and many others like it, asserts that as much as 35 per cent of energy produced in the United States is wasted, with smaller, but still substantial amounts wasted in other economies. Industry observers agree, with ExxonMobil for example saying that efficiency "is one of the largest and lowest cost ways to extend our world's energy supplies and reduce greenhouse gas emissions." Indeed, the IEA estimates that 80 per cent of reductions in carbon emissions through 2030 can be achieved through efficiency measures.

This is why companies like Petrobras have invested in efficiency measures that it estimates to have reduced carbon emissions per unit of energy consumed by 20 per cent, according to IPIECA (the International Petroleum Industry Environmental Conservation Association). Chevron reports an overall increase of 33 per cent in energy efficiency in its global operations since 1992. More is needed, and the phase-out of flaring is one step that the industry can accelerate to achieve even greater efficiency gains.

Consumer engagement

The other aspect of efficiency that receives little attention, but is quite interesting, is how leading companies encourage consumers to use less. Chevron's "Will You Join Us" campaign and Shell's "Let's Go" campaign have blazed a trail with the general public to get them to use less of these companies' core product – an unusual but highly valuable effort to moderate sales of a core product.

The importance of public campaigns to reduce energy use is crucial. With mature economies facing an era of economic stagnation, and rising economies straining to maintain growth without incurring economic or environmental



collapse, finding new ways to enable consumer efficiency is absolutely necessary, especially in rising economies where millions of “new consumers” enter the marketplace every year. It is therefore essential to shift from a sterile debate about more or less consumption, to one that promotes better ways of delivering value to more and more people across the globe. Doing this also requires investment in infrastructure in smart buildings, smart meters, and new pricing and taxation schemes to enable and incentivise smarter behaviour that saves consumers money.

Public policy

Virtually everyone walked away from recent United Nations climate summits disappointed, and disagreement between governments on whether and how to address climate remains intense. While some see this discord as being in the interest of business, in fact, the failure of policymakers to reach agreement introduces very unwelcome instability into the energy system. Policies are inconsistent both conceptually and in application. Policymakers in mature economies seem more often to respond to telegenic accidents than long-term needs. Leaders of rising economies prioritise economic growth, and seek technology and financial transfers. These positions may well be negotiating stances more than anything, but they have so far locked the global system in stasis.

Business has an interest in promoting long-term thinking in government, something that has been sorely lacking on energy and climate. To do this, business needs to resist the temptation to maximise every single dollar today, in an effort to create a more predictable and wise framework for tomorrow. There are good examples to build on, such as the promotion of regulatory frameworks and disclosure rules for hydraulic fracturing, now being developed in the United States, Europe and elsewhere, the US Climate Action Partnership, and “Combat Climate Change.” Energy companies can also play a role here by encouraging mandates for efficient buildings and transportation systems, which reduce energy demand. And at the end of the day, this also means support for market-based systems that lead to a steady reduction of carbon intensity. Business should embrace such efforts, since they provide the market certainty needed to support investments in innovation.

Reforming financial markets

Finally, one of the fundamental changes needed to enable further gains in CO₂ reduction is the reform of financial

markets. Changes in listing requirements for publicly-traded companies would do a great deal to unlock greater potential for the innovation and efficiency efforts already underway.

There are three specific changes that, if adopted, would enable companies to compete on the basis of the long-term shift to a lower-carbon future. First, companies should report on their strategies to address climate risks. This effort is already underway, with the US Securities and Exchange Commission deciding in 2009 to begin considering rules doing exactly that. Second, companies can support the ongoing integration of financial and sustainability reporting, as a way of promoting greater awareness both with investors and within their own companies of the links between investments today in a lower-carbon future and a competitive future. Finally, companies in the energy sector can join efforts to puncture the view that short-term shareholder advantage is the sole way to define fiduciary responsibility.

This agenda is a broad one. The energy industry’s future rests on its ability to develop energy in more technologically complex, environmentally sensitive, and politically challenging environments. But all of the technological prowess in the world won’t get the job done without an equal commitment to addressing these “soft” aspects of the overall energy system. Companies embracing the five dimensions presented here will strengthen their ability to proceed with their core business, and will also be the ones that shape a future that delivers on the vision of sustainable energy the world needs to achieve comfortable and dignified lives for all. ■

