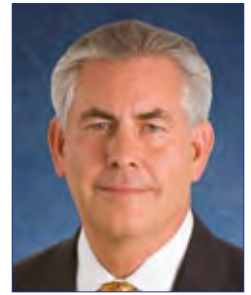


Unlocking opportunity with innovation and cooperation

By Rex Tillerson

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The 2014 World Petroleum Congress is an excellent opportunity to consider the energy challenges facing a dynamic and changing world. Through dialogue and international cooperation, leaders from our industry can help shape the decisions made by government, industry, and society, so the world can safely and responsibly meet our shared energy challenges. Understanding these challenges begins with recognising the universal need for energy. Global progress requires people everywhere to understand that there is a humanitarian dimension to the global efforts to expand supplies.

Today, approximately 1.3 billion people around the world lack access to electricity for basic needs like clean water, cooking, sanitation, light, and safe storage for food and medicine. Whether an economy is developed or developing, there is a shared need for energy to drive growth and power technological advancement.

Understanding the challenges of the future also requires the public and policymakers to acknowledge that the global need for energy will grow in the years ahead – and it will grow significantly. Population growth, rising urbanisation, and economic expansion will increase global energy demand by about 30 per cent by the year 2040. To meet this growing need, the world will need to pursue all sources of energy – wherever they are economically competitive. The world will also need to develop and deploy technologies that expand supplies, increase efficiency, and reduce the environmental effects associated with increased energy use.

In spite of these pressing challenges, there is reason for confidence and even optimism. Time and again the energy industry has proven that the world can meet these challenges safely and responsibly. We can achieve society's shared goals with ingenuity and cooperation, with disciplined investment and effective risk management, and by developing and applying new innovations. In recent decades, national and international energy companies have pioneered technologies and techniques to take on increasingly daunting challenges. These include production in deepwater and ultra-deepwater, production in the Arctic, as well as the development of shale gas and tight oil in North America.

To deliver the energy that enables global progress, the world must build on past successes and apply proven technologies and risk-management techniques to new and promising resources. Two areas, in particular,

show great potential for expanding world supplies through the application of innovation and cooperation.

The Arctic: Successes past and potential

The Arctic represents the world's largest remaining region of undiscovered conventional oil and natural gas. In the decades ahead, the Arctic will play an increasingly critical role in meeting global energy needs. As activity expands in this region, industry leaders must communicate to the public and policymakers that the Arctic is not unfamiliar territory. It has been a major oil and natural gas producer for nearly a century.

Ninety years ago, ExxonMobil was the first to operate in the Arctic at Norman Wells in Canada. In the ensuing decades, we have pioneered new technologies and best practices all across the energy chain – from Prudhoe Bay to the construction of the Trans-Alaska pipeline, from polar bear radar detection to the first iceberg-resistant gravity-based structure at Hibernia. More recently, ExxonMobil's joint operations with Rosneft in Sakhalin have shown that industry can safely and responsibly produce energy in extreme and Arctic-like conditions using advanced technologies – such as land-based directional drilling – while adhering to the highest standards of safety and operational integrity.

ExxonMobil is working to build on these successes at Sakhalin-1. Through a historic partnership with Rosneft, we will unlock new supplies of energy in Russia's Kara Sea, in Western Siberia, and beyond. As these achievements show, the key to every success in the energy industry is – and will always be – innovation and cooperation. That is why ExxonMobil is committed to making sustained and disciplined investments in research and development to create technologies that improve exploration, risk management, and emergency response. It is also the reason Rosneft and ExxonMobil have established a joint Arctic Research Centre in Russia as well as an over-arching technology sharing agreement to support our joint ventures worldwide.

Shale gas & tight oil: A global opportunity

There is a second area where the global energy industry will need to build on our past achievements, and that is in the development of shale gas and tight oil.

Less than a decade ago, few could have anticipated the far-reaching impact of innovation on the production of shale gas and tight oil. Yet, today, the energy industry



can point to extraordinary examples of how the integrated use of technology is bringing both economic and environmental benefits.

In North America, the industry can now recover oil and natural gas from extremely dense shale and tight rock. The result has been vast, new supplies of energy. Since early 2011 alone, US oil production has jumped nearly 50 per cent – from 5.4 million barrels per day (b/d) to the current daily production rate of 8.2 million barrels. That is an increase of 2.8 million barrels produced in the United States every day. And the US Energy Information Administration predicts that US production will continue to expand to approximately 9.4 million b/d by the end of 2015.

Just as significant has been the impact of this new economic supply of natural gas, which is spurring economic growth, increasing manufacturing competitiveness, and supporting millions of jobs as well as billions of dollars in government revenues. The impact of the new abundance of natural gas is going beyond US borders by strengthening the flexibility and diversity of the entire global energy portfolio.

In addition to these economic benefits, abundant and reliable natural gas has already begun to yield significant emission reductions by displacing coal in power generation. According to the US Department of Energy, the shift to natural gas has helped to reduce carbon dioxide emissions in the US to levels not seen since the mid-1990s. Even more remarkably, these gains have been achieved in an economy that is 60 per cent larger than in the 1990s with 50 million more energy consumers.

Sound policy: Roles and responsibilities

The benefits of this energy revolution need not be limited to North America. There is significant potential to further expand supplies by applying hydraulic fracturing, horizontal drilling, and proven risk-management techniques to other parts of the world. But to expand the global supplies of energy, whether in North America, South America, Africa, Asia, or Europe, we must understand the respective roles of government and industry in delivering technological and environmental progress.

The world will need to find ways to enable investment, innovation and technological advancement. Government can help most by providing access and

by putting in place sound and stable policies – policies that enable investment, continuous operational improvement and effective risk management. When policymakers provide such a foundation, the energy industry will respond to such incentives with long-term planning, research, and the development of new technologies, techniques, and ventures.

Government policymakers can also help by creating a clear regulatory roadmap for permitting, compliance, and accountability. Only government can maintain a level playing field for all competitors as well as promote free trade among nations.

The energy revolution in North America and beyond has proven that industry can expand supplies and help reduce CO₂ emissions. In particular, as new technologies unlock cleaner-burning natural gas around the world, developed and developing economies can meet growing power generation needs while reducing greenhouse gas emissions.

The challenges ahead will not be easy. But success in the global energy industry has never been easy. Fortunately, history has shown that our industry's successes transform the world. Reliable and affordable energy has been – and will be – instrumental in alleviating poverty, raising living standards, and creating economic opportunity for billions of people around the world. With sound policy, sustained investment, and international cooperation, the energy industry can discover and deploy new technologies and unlock new supplies of energy in a safe and responsible way, building progress and prosperity in every nation. ■

The Orlan platform of the Sakhalin-1 project

