

The need to train the innovators of tomorrow

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The men and women of the energy industry have a long and proud history of overcoming challenges all over the world.

For more than 100 years, our industry has pioneered technological innovations that have unlocked new supplies of energy, increased safety and energy efficiency, and reduced environmental impacts. The result of these extraordinary advances has been an unparalleled contribution to global progress and prosperity.

As we look to the future, our industry's scientific and technological breakthroughs will continue to be essential to meeting the world's energy challenges. But we must remember that tomorrow's innovations will not simply happen by themselves. They will require creative thinking, new ideas, and a bold and relentless commitment to scientific research and development.

In fact, it is no exaggeration to say that the future of our industry – and the aspirations of billions of people in developed and developing economies – will depend on the ingenuity and innovation of tomorrow's scientists, engineers, and technology entrepreneurs as we seek to develop new sources of energy and new levels of energy efficiency.

That is why one of the most significant challenges we face as an industry is in working to increase the number of students pursuing degrees in science, technology, engineering, and mathematics (STEM).

At ExxonMobil, we believe now is the time for leaders from business and government to come together to promote education in these critical fields, so we can increase economic opportunity and the potential for progress in the future. Simply put, education today is the key to energy tomorrow.

The challenges of the future

The urgent case for new efforts to promote STEM education is clear when seen in the global context of the economic and energy challenges before us. In fact, as business and policymakers better understand the realities shaping our energy markets, it will become evident that we will need more citizens and workers who understand science and engineering than ever before.

While markets have been volatile in recent years, the fact remains that we are living in an era of tremendous economic development – development that is transforming nations and markets around the world. Reliable supplies of energy are needed to fuel this growth

– especially for progress in areas such as Asia, Latin America, India, and Africa.

Even now, in the year 2011, 1.4 bn people, 20 per cent of the world's population, live without access to electricity to heat their homes, cook their food, purify their drinking water, or power hospitals and schools in their area. For men, women, and children living in developing nations, the economic growth that flows from reliable energy supplies can be the difference between health and safety or sickness and death. For more developed nations, reliable energy enhances the robust trade, transportation, and technology that extend and enrich life.

This universal need for energy to support human progress is destined to drive energy demand for decades to come. Over the years 2010 to 2030, we project that global demand for energy will increase approximately 25 per cent.

Meeting this enormous demand will require human ingenuity, sustained investment, and teamwork to develop technological solutions that keep pace with our growing world.

Pivotal role of technology

Our industry can meet this challenge. We have proven it time and time again. With sound, unbiased, and reliable energy policies in place, all types of energy companies can engage in the long-term planning and make the disciplined investments that are needed. We have also proven that we can find and deploy integrated solutions that help us bring new supplies of energy to the market in a safe, secure, and environmentally responsible way.

But one lesson that is undeniable is that none of us can achieve these objectives alone. Over the last 30 years, our industry has proven the value of strong partnerships between national oil companies and international oil companies to recover the energy resources found in increasingly difficult-to-reach and remote places.

History also reminds us that new technologies require robust and sustained investment. This means in the years ahead we will need government leaders to play a role in establishing and sustaining energy policies that encourage investment, reward cooperation, and promote the rule of law.

And finally, as the importance of teamwork and technology increases we will need visionary leadership from business and government to build programmes that encourage the best and brightest in every nation to



pursue careers in science and engineering.

We cannot innovate without innovators.

The need for visionary leadership

Fortunately, there are proven ways to help encourage educational opportunity in mathematics and science.

Attendees at the World Petroleum Congress do not have to look far to see an example of what visionary leadership can accomplish in promoting education. Our host nation, the State of Qatar, is in the vanguard of such efforts.

In 2008, the Emir presented to his people the Qatar National Vision 2030 – a plan to transform his country into a knowledge-based economy, an educational leader, and a global technology pioneer. This commitment to the future is demonstrated by three particularly visible and significant projects – the creation of Qatar’s Education City by the Qatar Foundation, the establishment of the Qatar Science and Technology Park, and the construction of the world-class Sidra hospital complex.

Each one of these projects creates opportunities for Qataris to learn and excel, work and research. In addition, the Emir’s vision has provided a clear direction for government and business leaders to build long-range programmes that encourage the development of the next generation of scientists, engineers, and doctors.

At ExxonMobil, we are proud to be part of the Emir’s efforts to fully develop Qatar’s economic, social, environmental, and human potential. For the State of Qatar, the success of the National Vision is making the nation even more attractive to international business and investment.

The key to the Emir’s vision is its boldness and breadth. By involving both government and business, the National Vision supports science and engineering in schools and then helps graduates by providing a pro-investment climate that supports job creation.

In fact, such cooperation is a proven formula for success. Producing scientists and engineers requires discipline and time, so a comprehensive set of programmes are needed. Education in science and math must begin in primary schools and extend all the way to advanced degrees. In addition, business and academic institutions are valuable partners because their programmes can encourage government-run schools to use metrics to measure success, spread the use of proven curricula, and help teachers through training and scholarships.

As one example of what can be achieved through such partnerships, ExxonMobil in the United States is supporting two major programmes under the National Math and Science Initiative (NMSI). Through the UTeach programme, NMSI is working with universities to identify the most effective ways to recruit and support highly qualified teachers in mathematics and sciences. By encouraging teachers who have a mastery of these fields we can ensure more students are inspired by what science, math, and engineering have to offer.

A second and equally important part of NMSI is the Advanced Placement Training Incentive Programme. This is designed to dramatically increase the number of students taking and passing college-level exams in math, science, and English. Not only is this promoting STEM in US secondary schools, it also has a special focus on encouraging under-represented students to pursue these fields, which create tremendous career opportunities. Since their launch in 2007, the NMSI has helped US public school students and teachers achieve extraordinary results.

Conclusion

For more than a century, our industry has proven that we can meet the energy challenges of the future.

We have safely unlocked energy supplies beneath arctic tundra, ultra deepwater, and in remote locations across the globe. We have harnessed oil and natural gas resources – and then helped the world use them more efficiently. And as we look to the future, we see new technologies continuing to expand access to new supplies. A case in point is liquefied natural gas, which is helping enable abundant and affordable natural gas to be the fastest growing major fuel source in the world while its clean-burning properties also provide significant environmental advantages.

None of these milestones would have been possible without the creativity and ingenuity of scientists, engineers, and technology entrepreneurs.

As our industry meets at this year’s World Petroleum Congress, it is our duty to ensure that the world finds ways to develop new energy resources in a safe and secure way. It also falls to us to help the public and policymakers understand the importance of technology in achieving these goals and the role future generations of scientists and engineers will play in creating the innovations that will build a brighter future. ■