Fueling the World's Industry Growth: An Increasingly Important Role for the Middle East Harry J. Longwell Director and Executive Vice President Exxon Mobil Corporation

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Thank you, Nasser (Al-Jaidah), for that kind introduction. I am delighted to be here once again in this beautiful country and especially welcome this opportunity to be with so many good friends and associates. This is truly a world-class conference, for which I am pleased to add my compliments and thanks to the organizers, exhibitors, and presenters.

Your Highness, Sheikh Khalifa Bin Salman Al Khalifa, Prime Minister of the Kingdom of Bahrain; Your Excellency, Sheikh Isa Bin Ali AL Khalifa, Minister of Oil; Your Excellencies, Sheikhs, and Ministers; Distinguished guests, panelists, and delegates:

It is certainly fitting that we meet today in The Kingdom of Bahrain – universally recognized as one of the world's important centers of energy, commerce, and international trade. From the annals of earlier times, we are told that Dilmun – as Bahrain was called by the ancients – was heralded as "the land of immortality." The Sumerians chronicled its fame in The Epic of Gilgamesh, written fully 1,500 years before Homer. Today, scholars of antiquity still treasure it among the oldest and most important stories in human history.

Bahrain's strategic location and vibrant culture long ago established it as a vital hub for international trade and as fertile ground on which to sow and develop new ideas, exchange scientific innovations, and facilitate commerce throughout the far-flung reaches of early civilization. But it is modern-day Bahrain, some 70 years since its first oil was discovered, that continues to attract and captivate us – its commercial, business, and cultural achievements bearing witness to the talents of its people, the enduring strength of its institutions, and a future brimming with great promise.

In such a setting, any discussions about technology solutions for the oil and gas business are likely to be fruitful, even for those among us for whom a Middle East focus is anything but new. As King Hamad bin Isa Al Khalifa recently observed, "new oil exploration, privatization, and more foreign investment are all being encouraged to boost the economy and, along with it, people's living standards." Such partnerships – and the trust inherent in them – are rapidly becoming critical markers for success in the world's energy markets.

This is not a new experience for an industry whose storied past includes countless partnerships where risks and rewards were shared and where even the most important business was done on a handshake. In a very real sense, – and as recent developments around the globe have vividly demonstrated – we are living in an age of unprecedented change, where the certitudes of the past no longer hold sway over the future. Indeed, events in the world today are nothing short of momentous. And for the energy business in particular, the changes have been profound.

Today, I will discuss some of these changes and focus particular attention on the role that evolving market forces and new technologies will play as our industry manages its future challenges and responds to new opportunities across the globe, and particularly in the Middle East.

I will also touch upon the ways in which our shared interests – those of state-owned enterprises, international oil companies, governments, and other parties – can be managed and reinvigorated for the mutual benefit of all participants in the petroleum business. Of course, from my perspective, I would like to emphasize the role of international oil companies in the growth of the Middle East economy and the benefits that can be realized from participation by companies like ExxonMobil.

There should be no doubt among the participants at this distinguished gathering that our industry's best years lie ahead – surpassing even the greatest achievements of the century gone by – a future in which our people continue to bring capital, technology, innovation, performance, and integrity as the absolute prerequisites for success in our partnerships. Moreover, the quickening pace of advances in energy-related technologies continues to raise our expectations for what the future might hold. This is true even as we delve more deeply into scientific questions or tackle engineering challenges that once stood as seemingly insurmountable barriers to continued progress.

The 20th Century was truly one of the most remarkable periods in human history. Perhaps the most significant achievement was that, for the first time, large numbers of people – not just the privileged few – were able to enjoy a standard of living that went beyond meeting life's bare necessities. Behind that transformation were technological developments and economies built on the availability of affordable energy.

In the recent past, access to our products has been essential to creating and sustaining modern economies. In the future, every country will have access to affordable energy and the countless products it makes possible. And because of those products, people will improve their lives through education, discovery, and commerce. Our success in finding, refining, and marketing oil and gas will alter some of the old ways that have gone unchanged for centuries.

But whatever the ultimate outcome, it will be the energy we produce that will power the economies of the world for many years to come. Having said that, however, much remains to be done. Some 85 percent of the world's population lives in developing countries, where GDP per capita is only six percent of that in the developed world. More than 1.5 billion people have no access to electricity, 18 percent lack access to safe drinking water, and 2.5 billion are without proper sanitation. We all have a tremendous opportunity to improve the quality of life for people the world over -- especially for those in developing countries.

In Chad and Cameroon, for example, ExxonMobil's oil development activities have generated more than \$230 million in economic activity in Chad and another \$300 million in Cameroon. We know what a difference we make everywhere – to the exporting economies of those with surplus resources that they produce and sell, and to the importing countries whose economies and way of life depend on the energy supplies and products we provide. As we look at the impact of continuing economic growth on energy demand, several important dynamics come into sharper focus.

First, it is abundantly clear that sustained economic growth is vital if we are to ensure and build a better future for tomorrow's generations. The experience of the last century showed beyond any doubt that economic growth is inextricably linked to the availability of reliable and affordable energy supplies. The global economy has grown at an average rate of about 3 percent per year since 1970.

We think growth will continue at that pace over the next two decades, with reduced rates of population growth offset by increases in per capita productivity and in the per capita energy consumption that will make that productivity possible. We expect that growth in energy demand will rise at a somewhat lower rate, reflecting significant but yet-to-be-achieved advances in energy technology and efficiency. At the same time, we see world demand for energy reaching nearly 300 million oil-equivalent barrels per day by 2020 – or about 40 percent more than today.

Wind and solar energy will continue to grow rapidly, but only due to government policies and subsidies, not market economics. To give this perspective, solar power can cost somewhere between \$100-250 per barrel of oil equivalent. Starting from such a low base today, wind and solar are unlikely to exceed a one-percent share of the world's energy needs by 2020, even with double-digit growth rates.

Thus, oil and gas – representing 60 percent of energy supplies today – will remain the dominant energy source in this century. This expectation underscores the significant size, complexity and capital intensity of the energy economy. It also recognizes the role and range of hydrocarbon energy today, including its enduring competitive advantages of safety, low cost, and ease of use in all applications.

Oil and gas will remain essential to economic growth – not only in the industrialized world, but also and especially in developing nations seeking to raise their standards of living. It is already clear where the greatest increase in energy demand will occur – with the economies of the Asia Pacific region being the fastest growing in the world. By 2020, the increase in GDP in the economy of the Asia Pacific region will be equal to about three-fourths of today's total U.S. economy.

These dynamics suggest that there will be fundamental changes in the regional distribution of energy demand, in the sources of supplies, and in the mix of fuels. While net oil imports to North America may grow by about 30 percent (three million barrels per day) over the next 20 years, Asia's net imports will grow by about 115 percent (15 million barrels per day).

Another notable change in the world energy market will be a substantial increase in the use of natural gas. Worldwide consumption currently represents about 20 percent of total energy demand. We think

natural gas will capture about one-third of all incremental energy growth between now and 2020 and will supply about one-quarter of global energy needs – second only to oil (35 to 40 percent).

The growing importance of gas will also affect the way it is marketed. Here, too, as traditional sources of supply decline, supplies will come increasingly from remote sources. By 2020, the expected shortfall between world demand and pipeline and LNG sources of supply could be as great as 100 billion cubic feet per day.

Fortunately, there are ample natural gas resources. Various estimates put the remaining gas resources worldwide at nearly 200 years' supply at today's consumption levels. The challenge will be to find innovative ways to develop new supplies from fields far from major markets and unconnected to current distribution networks at competitive costs. In meeting that challenge, we expect LNG usage to grow at least fourfold by 2020. New technology will be key to achieving that growth.

For some projects, long-term gas sales contracts will also be required to reduce volume risk and enable project financing. This need for a strong contractual linkage between end-users and producers means that successful development of energy projects depends on cooperation along the whole value chain. Thus, consuming countries need to recognize that they have an important role to play in facilitating timely energy development.

They can do this by relying on free competition and market solutions to create reasonable regulatory regimes that will allow facilities to be designed and built without undue delay or unnecessary cost.

New technologies have already significantly reduced costs and increased the competitive reach of LNG. Larger-capacity LNG trains and ships have reduced costs to make gas competitive into increasingly distant markets.

A case in point is our work with Qatar Petroleum to bring gas from the North Field into new, longdistance markets. This experience has shown that increasing the scale of LNG trains – as compared with those constructed in the late 1990s – has yielded cost savings of more than 30 percent. Additional economies of scale will enable even wider distribution of gas produced from large, remote accumulations.

Outside of those projects delivering gas to remote markets via LNG, several more conventional pipeline projects are in various planning phases to develop large, remote gas resources to serve new and existing markets with declining gas resources. Future projects in Alaska, Canada, China, Russia, and the Caspian will satisfy needs in North America, Europe and Asia. Here in the Middle East, new gas-pipeline-infrastructure development is planned to serve markets here in Bahrain, Kuwait, Abu Dhabi and potentially other nearby countries with the extensive gas reserves in the region.

Existing energy consumers in this growing regional economy – many of whom are increasing their use of natural gas for electricity generation and desalination – will benefit from such a regional gas pipeline grid. For this to become a reality, however, timely intergovernmental support and new legal and regulatory frameworks will be required. Energy interdependence in the Gulf region is an excellent vehicle for economic cooperation and should be strongly encouraged to ensure the most efficient regional energy industry. Such projects advance both economic and political cooperation, and I am confident that the region will overcome current obstacles to advance these projects.

Having considered the growing demand for oil and gas – and the shift to more-remote resources during the coming decades – it is important to focus on the unique importance of the Middle East in the supply picture.

All told, this region holds nearly two-thirds of the world's conventional crude and condensate reserves, produces nearly a third of the world's oil, and contributes more than half of the world's exports. Thus, the Middle East will remain the largest and most important supplier of oil for decades to come.

Our projections indicate a 50-percent increase in Middle East liquids production by 2020 – up nearly 12 million barrels per day from current levels. This growth is in addition to the capacity required to replace the decline of existing production in the region. Such growth is vital to satisfying future global demand and relies on three key elements: the effective use of appropriate technology, substantial investment, and government policies that facilitate activities necessary to grow production capacity.

Recognizing the broad range of industry participants and governments in the Middle East, three factors are essential to all.

First, technology. As the theme of this conference suggests, the effective development and use of new technologies – the lifeblood of our business – are key components of any Middle East production growth scenario. We are witnessing a period of unprecedented demand for expertise, experience, and new technology. At the same time, however, we are also seeing emerging trends that make meeting that demand an especially daunting challenge. Service industries are consolidating, many in our industry are reducing fundamental research, and changing industry demographics are presenting new obstacles that must be mastered in order to ensure future supply growth.

How will resource rich countries be assured of access to the right technology, at the right time, and in the right place?

I believe that this is an area where international oil companies can provide significant value to Middle East countries. Taking the company I know best, at ExxonMobil, we bring a global, functionally based organization with worldwide experience and expertise to each of our operations.

Complementing the broad capabilities resident in our organization, this global experience and suite of proprietary technologies enable us to address virtually any upstream, downstream or chemicals issue and achieve solutions that maximize the value of the asset. In addition, we place a premium on the training and the development of our employees and host-country nationals. We are currently building a new, 100,000-square-foot, state-of-the-art upstream training facility at our research center in Houston to further expand and enhance these capabilities.

We also support these activities with an investment in research totaling more than \$600 million each year. This industry-leading research effort has resulted in breakthroughs such as 3D seismic, sequence stratigraphy, digital reservoir simulation, synthetic rubber, and catalytic cracking.

Today, we are developing new technologies that are continuing to lower the cost of LNG and Gas-to-Liquids technology and infrastructure, directly detect hydrocarbons in advance of drilling, dramatically increase recovery in heavy oil reservoirs, and recover gas in previously uneconomic tight gas reservoirs – to cite only a few examples.

In joint ventures where objectives are properly aligned, international oil companies can add considerable value at each and every stage of the oil and gas business by developing and applying the technologies best suited to the circumstances. Investment in Middle East infrastructure is another critical element in building production capacity for the future. By some estimates, trillions of dollars in new investment will be needed during the next two decades worldwide to build additional capacity and to replace production capacity lost to field declines.

Given the sometimes-risky and remote nature of many these projects, significant competition will likely exist for available capital. Here again, international oil companies can make a substantial contribution to the growth of Middle East production capacity and enable more of host government budgets to be directed towards other priorities. However, only those companies with impeccable reputations and truly world-class financial resources will be able to participate in these substantial future projects and deliver up to expectations – both in the quality and scope of execution, and along optimal timelines.

Downstream investment in refining, chemicals, electricity, desalination, and other projects related to oil and gas development will add billions more in this time frame. Foreign investment brought to the table by international oil companies helps stimulate non-public-sector employment growth while also expanding and strengthening relationships worldwide. Here in the Middle East, the multiplier effect and benefits to local economies can range from \$2 to \$3 for every dollar invested. Such benefits further underscore my optimism about the future for IOC investment opportunities in the region.

ExxonMobil's current position as the largest foreign investor in Saudi Arabia and Qatar – and our substantial investments in many other Middle Eastern countries – keeps us on track to grow substantially over the coming years, with major projects now under construction or moving ahead in the planning stages. We expect that around 20 percent of our worldwide upstream capital expenditures will be in the Middle East through the end of this decade, and this could be larger, with potential new openings.

Finally, allow me to say a word about the essential roles that governments and national oil companies can play in encouraging and facilitating the growth in Middle East capacity that will be crucial to

satisfying the world's demand for energy over the coming decades. Governments that take the lead in encouraging investment will reap the substantial benefits that accrue from it.

Forward-looking countries can foster an environment that encourages the very large, long-term investments needed by our industry. Such an environment requires a predictable tax structure, sanctity of contracts, an impartial court system, respect for intellectual property, elimination of duties, enhanced transparency in government procurement – and last, but certainly not least – workforce security.

The most important element in this environment is trust – trust in one another and trust in each other's capabilities. Mutual trust enables us to work collaboratively and with confidence that we can find solutions to even the most-difficult problems – especially the unforeseen ones that arise during a project. In countries where we have maintained operations over many years, environments based on trust among the government, our national oil company partner, and ExxonMobil have delivered great benefits for all parties. Such trust will be especially important as the Iraqi people set about the task of selecting their new leaders and forming a new government.

Technology, investment, and a stable legal and fiscal environment will also be vital factors in Iraq's long-term recovery and development. We believe that an orderly approach based on international standards and processes – within a transparent and competitive framework – will result in the development of an Iraqi industry that will thrive for years to come and provide a lasting source of revenue, employment, and prosperity for the Iraqi people.

This approach will also create investment opportunities that will be internationally competitive and attract the most-qualified companies to become involved in the task ahead. Such a process will ensure that the companies selected to develop the country's energy resources are those best able to provide the technology, capital, and industry experience to maximize its value for the Iraqi people.

Throughout the Middle East, you are setting the standards high for the companies you consider as partners in different ventures. Just as we are the stewards for our shareholders, you are the stewards for your country and the well-being of your fellow citizens. That is true today – just as it will be for

generations to come – as it should be. In the end, we believe that these considerations are important in your selection of a preferred partner – or partner of choice, as we like to call it.

The future of our industry is certain to hold many more exciting opportunities – opportunities we have not even considered as yet. I am confident that in the future, as was true in the past, success in realizing those opportunities will come down to the quality of the people in our business.

We never give up and are relentless and unyielding in our commitment to succeed. This has always been our industry's edge – organizations brimming with talent, initiative, and vision. The petroleum industry has never been richer in people with the determination to succeed and the skills to realize this objective.

I truly believe that ours is one of the greatest – if not <u>the</u> greatest – industries in the history of mankind. We have brought immeasurable benefits to humanity – through the breakthroughs we have achieved in science and engineering, through our contributions in raising living standards for the world's people, and through the countless consumer products we make that have improved their lives.

But even with all this, we have not yet seen our best days. Time and again, history shows that those companies that have people with talent, initiative, and determination will be the winners. It has been said that every great advance in science has issued from a new audacity of imagination. I have every confidence that our industry's best years lie ahead, and that the Middle East will play an increasingly important role in that future.

Working as partners, the states within the region and international oil companies will forge everstronger ties. In so doing, we will meet the world's continuing need for energy and help improve the lives of people everywhere.

As we assume that great responsibility, let us be audacious in our imagining of what great possibilities and achievements await us. And as we look to the future, let us be equal to any challenge, prepared for any opportunity, and tireless in continuing to build upon and improve the great legacy that is the oil and gas industry.

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