

**Remarks by Khalid A. Al-Falih,  
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**Resetting the Energy Conversation:  
The Need for Realism**

Your Excellencies, distinguished guests, ladies and gentlemen: good morning. It is a great pleasure to speak to you today, and a tremendous privilege to participate in this inaugural conference at the King Abdullah Petroleum Studies and Research Center. This is an institution of great promise and importance both to the Kingdom and the wider world, and I wish the Center, its staff and its partner institutions every success in their future endeavors. I would also like to note with appreciation the unwavering support and personal interest of the Custodian of the Two Holy Mosques, King Abdullah ibn Abdulaziz Al Sa'ud, for the Center that bears his name.

Ladies and gentlemen, this Energy Dialogue comes at an opportune moment: a moment when the global conversation about energy in general, and petroleum in particular, needs to be reset in light of several far-reaching new realities. I strongly believe that if we are to blaze a path to an optimum energy future, our collective analysis must be more rigorous and our discussion more pragmatic—but also more inclusive and progressive than in the past.

We all know that the world of energy is in a state of constant flux, given that gyrating markets, groundbreaking technologies, and fresh and exciting commercial opportunities are central features of our business environment. But while change is

nothing new for our industry, recently there have been four major developments—or what I call sweeping new realities—which in my view call for a reexamination of energy priorities, and a more realistic approach to the energy challenges and opportunities we face. Those four developments will be the focus of my remarks today.

The first of these new realities is the increasing abundance of oil and gas supplies, largely due to significant technological advances which are unlocking additional resources. A few years ago, much of the global energy debate was based on the premise of acute resource scarcity and its economic and political ramifications. Policy and investment choices have therefore largely been framed against a backdrop of constrained oil and gas resources and a need to transition with deliberate speed to one or more alternatives.

Today, talk of oil and gas scarcity has disappeared from both the energy press and the general media, to be replaced by news of increasingly plentiful supplies. In addition to abundant conventional petroleum reserves, vast resources of unconventional hydrocarbons have now been targeted for development around the world, and can be produced feasibly and economically.

Only five years ago, for example, observers spoke confidently of the need to build dozens of new LNG import terminals in the United States and of the overdependence of European consumers on Russian gas. Now, by contrast, the challenge is finding an “outlet” for the new production of shale gas, and downward pressure on natural gas prices. The positive impact of increased shale gas supplies on American petrochemicals manufacturing is already apparent, and given the vast shale gas resources and ramped-up production in the US, there are even plans to

convert existing LNG import terminals into export facilities. To get some sense of the scale of these changes, consider that the estimates of unconventional gas in place around the world are in the range of 35 *thousand* trillion cubic feet, compared to currently proven conventional gas reserves of 64 hundred TCF.

Abundance isn't limited to gas reserves, but is also the new headline when it comes to oil. Rather than supply scarcity, oil supplies remain at comfortable levels, even given rising demand from fast-growing nations like China and India. Well-established conventional suppliers will continue to account for most production, but there is also a great deal of excitement around untapped conventional resources in frontier areas like deep offshore and the Arctic. Last year, even as the world consumed nearly 30 billion barrels of oil, not only was the industry able to replace this production but global petroleum reserves actually increased by nearly seven billion barrels, as companies increasingly turned toward higher risk areas.

In addition, there is a new emphasis in the industry on unconventional liquids, and shale gas technologies are also being applied to shale oil. The massive heavy oil potential in both North and South America is drawing greater attention, and the future development of kerogen-based oil shales remains an enormous target. Some are even talking about an era of "energy independence" for the Americas, based on the immense conventional and unconventional hydrocarbon resources located there. While that might be stretching the point, it is clear that the abundance of resources and the more "balanced" geographical distribution of unconvensionals have reduced the much-hyped concerns over "energy security" which once served as the undercurrent driving energy policies and dominated the global energy debate.

The flip side of that coin is the second new reality underscoring the need for greater pragmatism in our energy discussions: the faltering pace of renewables and other alternatives.

Just a few years ago, the assertion was that the costs of renewables would decline rapidly as their technical performance improved, making them economic without the need for subsidies. As it turns out, progress has been slow, in part because of continued technical difficulties, and in part because of the much more favorable economics of proven energy sources which compete directly with many modern renewables. When the economics of hydrocarbon sources shift, this impacts the fortunes of alternatives, so as prices for natural gas in the US halved with the advent of shale gas supplies, the comparative economics of alternative renewables weakened significantly.

This could easily have been foreseen, and in fact at Saudi Aramco we voiced concern a few years ago over the formation of “green bubbles.” At the time we noted that overly optimistic targets and accelerated development plans for renewables would end up hurting those very industries if they were unable to deliver. And as we know, once investors and the public lose confidence in a sector, it is very difficult to attract additional capital and regain popular support. We have recently witnessed the bankruptcies of some notable companies in the renewable energy sector around the world, and unfortunately there may be further failures to come.

As I said, this current contraction should not come as any great shock. We all recall government policies which helped direct private sector investments toward a “hydrogen economy” which has not panned out. Then we witnessed what I call the

“biofuels bonanza,” which siphoned off taxpayer monies into subsidies for an unsustainable energy source, while also impacting food prices. Then it was thought that cellulosic biofuels—which could be produced without diverting food crops from the family table to the fuel tank—would quickly become economically competitive with established sources. Today though, forecasts of biofuels production are much less bullish, and even the more realistic production targets are being pushed farther into the future.

There have also been changes in the situation of nuclear energy, which we believe can play an important role in meeting the world’s rapidly rising electric power demand. Unfortunately, its prospects have taken a serious hit due to the Fukushima incident, associated with the tragic earthquake and tsunami in Japan. As a result, a number of existing plants around the world are being wound down and some planned construction has been halted, which will negatively impact the volume of installed nuclear capacity in the short run. However, it is our earnest hope that the impact of Fukushima will not be long lasting.

In short, given the technical, economic, environmental and consumer acceptance barriers which must still be overcome, the significant adoption of various alternative fuels and new technologies at a global scale still seems some way off. Furthermore, government attempts to “pick winners” among alternatives—even before the contenders are in the starting gate—have proven ineffectual, and in my opinion counterproductive. What *is* certain is that there is a great deal of *uncertainty* which surrounds the future of various renewable sources and alternative technologies—particularly in light of the new abundance of oil and gas resources.

That is *not* to say that we should turn our backs on renewables—rather, the opposite is true. In fact, we’re investing in them at Saudi Aramco, with a particular emphasis on solar. We believe that alternatives can and will make a greater contribution to global energy supplies than they do at present, and we welcome that growth. But the expansion of renewables and alternative energy technologies should be rational and gradual, and tied to their economic, environmental and technical performance.

That is one reason I place such emphasis on the exciting developments in conventional and unconventional oil and gas, and the fact that these sources will play a much bigger role in meeting global demand for a much longer time than many once believed. In my opinion, this new reality is just what we need for the realistic development and deployment of renewables. Because of these additional oil and gas resources, the world now has the time it needs to develop alternatives in a pragmatic and sustainable fashion, rather than rushing headlong toward an unproven and more expensive energy mix—and that is a cause for optimism.

Let me turn now to the third reality which must be factored into a new, more pragmatic energy discussion: the global economic turbulence of the last few years is persisting, indicating structural issues and fundamental changes in the character of the world economy and how it functions, as opposed to this being a short-term phenomenon.

Considering the pressing need to rebalance the global economy, to jump-start the economies of most advanced nations, and to create new employment opportunities in both the developed and developing world, there is frankly no appetite for massive investments in expensive, ill-thought-out energy policies and pet projects.

We see weak economic performance and poor jobs numbers in the US, the mounting sovereign debt in a number of Eurozone economies, continued worries about the exposure of major banks around the world to this sovereign debt, and the specter of a double-dip global recession. All that makes spending on aggressive energy programs unlikely—which in turn invalidates the basic assumptions of many energy transformation scenarios.

Therefore, I argue that our energy discussion needs to take greater account of economic realities, and place much greater emphasis on the *affordability* of energy. That prerequisite should always have been factored into the global energy equation, and I think it's a measure of just how unrealistic many of our energy conversations have become that people were banking on governments spending trillions of dollars over time in support of renewables, biofuels, and other unproven alternative energy technologies through subsidies, direct support, and the imposition of taxes and tariffs on conventional energy.

The economic headwinds of recent years have underscored the fact that neither the public sector nor businesses and consumers have the resources or resolve to pay for idealistic but unrealistic energy or environmental policies, particularly when the projected returns are so questionable and so dependent on unsustainable governmental programs or subsidies. In other words, theory at the academic or policy level is one thing and implementation on the ground is quite another.

One problem with more exotic and more expensive energy solutions is the resulting rise in energy prices, which makes it more costly to perform such mundane activities as heating homes or moving people and goods, and acts as a brake on economic growth. And if energy policies become increasingly

impractical while taxes of various types also rise in order to shore up budgets, offset deficits and pay for these excesses, the entire approach would run counter to the goal of creating much-needed jobs, given that economies would become less competitive and price themselves out of the market.

But it is also important to note that even as developed economies mull plans to switch from petroleum-based fuels to electric vehicles and set aggressive green-energy targets, about 1.4 billion people—roughly one in five individuals on the planet—still have no access to electricity. About twice that number rely on primitive biomass such as wood or agricultural and animal waste for cooking and heating. So aside from the impracticality of massive state spending on overly ambitious energy programs, any discussion of affordability must also recognize that energy poverty would inevitably be exacerbated by a short, sharp and impulsive rush away from proven sources and toward much more expensive alternatives.

This leads to my fourth point, which relates to environmental policy.

The new emphasis on economic recovery and growth is also changing the nature of the environmental debate around energy. Today, climate change has been eclipsed on the global agenda by the priorities of economic growth, job creation and fiscal discipline, particularly in the developed countries that were the strongest advocates of aggressive action to reduce greenhouse gas emissions just a few years ago. For developing countries striving to lift millions of their citizens out of poverty, strangling economic growth under the guise of environmental protection was never affordable or viable in the first place.

So in contrast to the emotion surrounding the Copenhagen meeting of the United Nations Framework Convention on Climate Change back in 2009, there is relatively little public attention being given to the UNFCCC gathering to be convened in Durban next week. Where energy and the environment do intersect, recently the focus has been on localized impacts like offshore spills in the Gulf of Mexico, the South Pacific or Bohai Bay; the path of pipelines in the American Midwest; or the effects of hydraulic fracturing on groundwater. Global warming, by contrast, has moved some way down the global policy agenda.

My friends, the confluence of these four new realities—increasing supplies of oil and gas, the failure of alternatives to gain traction, the inability of economies to foot the bill for expensive energy agendas, and shifting environmental priorities—have turned the terms of the global energy dialogue upside down. Therefore, we must recast our discussion in light of actual conditions rather than wishful thinking.

We need a more practical and flexible approach that is better able to imagine and deal with future uncertainties, and I believe we need to expand the conversation to parts of the global community which have thus far been underrepresented. Voices from the developing world need to be heard alongside those of the advanced economies, we need to hear from producers and consumers alike, and there should be a more balanced participation in the discussion from all regions of the globe. We also need to maintain an optimistic spirit about our energy future, because I feel strongly that the greatest opportunities for our industry still lie ahead of us. Yet we must balance our enthusiasm with cold-eyed analysis and a healthy dose of skepticism when determining the best ways to seize the opportunities ahead.

So I am very excited about the King Abdullah Petroleum Studies and Research Center, and the role it will play not only in helping to clarify domestic and international energy issues, but also in developing a strong policy framework in which to tackle them. In addition to its own independent studies, the Center also provides an ideal venue for wide-ranging discussions of petroleum-related topics, and creates a new forum for global energy stakeholders to exchange views.

That's important, because until now most energy-oriented think tanks engaged in petroleum-related issues were found in industrialized, consumer countries. This institution, by contrast, is located in a producing country, a nation which has consistently and continuously played a central role in providing much needed stability to the global energy market and which has taken a leading role in promoting consumer-producer dialogue. It is also a country that is still developing, but has experienced phenomenal economic growth and prosperity over the last half-century. The Center adds a new and distinct but I believe welcome voice in the global conversation about energy and sustainability, and we have high expectations of the Center, its staff and its scholars.

My friends, regardless of the ways in which energy policy options have been debated and determined in the past, what is most important at this point is where we go from here in these economically austere times. Therefore, I would like to close my remarks by inviting all stakeholders—and when it comes to energy, *everyone* is an interested party—to refocus on *specific* policy changes to help create a more pragmatic and affordable energy future. I'll be very candid here.

- First, adopt more sensible, market-driven energy policies, rather than selectively subsidizing alternatives or applying unrealistic regulatory and

fiscal constraints on proven energy sources. These more balanced policies should leverage the comparative advantages and complementary nature of various energy sources around the world.

- Second, given that hydrocarbons will be with us for the long run and are so critical to the world's economic future, I call for much greater collaboration among various entities in joint R&D programs aimed at improving their environmental as well as economic performance, whether in transportation, petrochemicals or the creation of advanced futuristic materials. This includes carbon capture from *mobile* sources, including its management through various means. I strongly believe that significant additional resources need to be devoted to these R&D programs.
- Third, concentrate worldwide on the lowest hanging fruit of efficiency improvement. As an example, simply increasing mileage efficiency of vehicles from 30 to 60 miles per gallon can cut emissions in 2050 by a billion tons of carbon dioxide per year, based on typical assumptions applied to a global fleet of two billion vehicles. Emissions from buildings can also be slashed by half, and there are many other opportunities available to lower our carbon intensity.
- Fourth, considering the increased supplies of natural gas, its lower carbon content and emissions as compared to coal, and the greater efficiencies of natural gas plants, move increasingly to gas-based electricity generation. As a result, in fifty years we could be emitting *one* billion tons of carbon per year using natural gas, instead of *two* billion tons annually from coal-based power plants.
- Fifth, apply carbon capture and sequestration to large power and industrial plants, while research is undertaken into new commercial uses of carbon. Coal-burning power plants produce about a quarter of the world's carbon

emissions, and CCS could be applied to perhaps a thousand large coal power plants in the next 50 years.

- Sixth and finally, pursue a rational environmental agenda using an objective analysis of costs and benefits, including the need to balance the twin imperatives of economic and social development on the one hand, and environmental stewardship on the other. And as I mentioned earlier, it is vital that environmental programs concentrate on *environmental* objectives, rather than advancing other agendas under the pretext of protecting our natural world.

Ladies and gentlemen, as I have outlined this morning, recent transformations have significantly altered the energy landscape, particularly when it comes to petroleum. Mistaken assumptions that once dominated the debate have been exposed as unrealistic and impractical—and that provides us with a valuable opportunity to recast our collective conversation about energy and to conduct the discussion on a much more realistic basis.

For me, a more pragmatic and more productive conversation about energy must recognize the four new realities I have described today, and focus on the six key policy action items I just laid out. I hope I have provided you with sufficient food for thought, and look forward to participating in such a dialogue with you and with others. I also look forward with great anticipation to the constructive role that the King Abdullah Petroleum Studies and Research Center will play in those exchanges.

Ladies and gentlemen, I appreciate your attention this morning, and I thank the Center for giving me the opportunity to share my views with such a distinguished group. Thank you.