

Global Energy Markets in Transition

IEA Executive Director Fatih Birol Analysis Meeting on International Finance and Economy

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Dear Prime Minister Abe, dear Ministers,

I am most grateful for the honour of being invited to address this distinguished group.

Let me start by expressing my sincere condolences for all those affected by the recent Kumamoto earthquake. Our thoughts are with the people of Japan during this difficult period.

The work you are doing here in this committee is of crucial importance for the future of not only the Japanese economy, but indeed the global economy. It will provide valuable inputs to the upcoming G7 Summit at Ise-Shima.

Of course your primary focus is the economy, while my specialty – as the Executive Director of the International Energy Agency – is of course energy. But these two topics are inextricably linked.

For energy is the force that drives the global economy.

It is vital to human welfare. Uninterrupted access to energy resources – at reasonable prices – is the bedrock of economic stability. And so energy choices made by policy makers such as you can have profound implications. On long-term economic performance. On energy security. And of course, on climate change.

Today I hope to share with you some insights on these issues, and contribute to the critical work you are undertaking.

One of the most important topics in energy is oil. Oil is the most valuable internationally traded commodity. Yet in 2015 the value of oil traded stood at USD 770 billion, nearly USD 1 trillion lower than the all-time peak values seen just three or four years ago.

You are all aware of today's reality – prices are low and markets are well supplied. But how will markets evolve in the coming years?

Low oil prices did stimulate demand in 2015, and the volume growth of 1.8 mb/d was one of the highest in the past 15 years. However, such strong growth is not expected to be repeated again this year and, in the interests of improving energy efficiency, it is not desirable. From 2016 to 2021 we expect demand to

rise by around 1.2 million barrels per day – slightly higher than the trend seen in the past decade – and it will cross the symbolic level of 100 mb/d in 2019 or 2020.

On the supply side, low oil prices have started to put a brake on non-OPEC producers, US light tight oil in particular. Non-OPEC production is expected to decline by 700 000 barrels per day in 2016. This would be its largest annual decline since 1992. However US light tight oil production will recover and we expect the United States to be the largest contributor to supply growth during our forecast period to 2021. Supply from other non-OPEC producers, including Russia, China, Mexico and Colombia will decrease throughout the period due to lack of new investments.

With the fall in non-OPEC production we are seeing, we can expect the market to come back to balance in 2017. From 2018 onwards there will be stock draws, leading to a gradual increase in price levels.

Current oil market conditions should not disguise potential risks to energy security.

This is because the oil and gas industry reacted to the 2015 price collapse with a historically unprecedented wave of investment cuts. Companies are substantially cutting upstream capital expenditure, laying off tens of thousands of personnel, and cancelling or postponing projects.

Indeed upstream investment fell by 24% in 2015 and is set to fall by 18% in 2016. This would be the first time upstream investment has fallen for two consecutive years since the 1980s.

The results of these cuts will be felt everywhere.

An annual USD 630 billion in worldwide upstream oil and gas investment is required just to compensate for declining production at existing fields. This simply keeps future output flat, at today's levels. Investment reductions of the magnitude that we estimate for 2016 and 2017 will reduce spending to a level below what we need to maintain supply. Of course this will create an environment where a recovery of prices is more likely, but the longer the downturn persists, the more difficult it will be for the industry to respond rapidly.

Additionally, as the fall in upstream investment is particularly focused in high-cost regions, such as North America and Brazil, this raises the prospect of increasing reliance on the Middle East in the future.

The effects of low prices have also had been felt in the producer countries. The ability of exporting nations to balance budgets and invest in future supply has, in almost all cases, been severely constrained. The impact varies country by country, depending on the importance of oil and gas revenues in the economy and whether or not they have “rainy day” funds or reserves to draw down. For the OPEC economies, their revenues from oil exports fell from a recent peak in 2012 of USD 1.2 trillion to USD 500 billion in 2015.

For the Middle East producers, on average, oil revenues were the equivalent of 30% of regional GDP in 2014. Even countries with large reserves have been cutting public expenditure. Those without any buffer

have seen even sharper reductions in domestic spending. While low prices have revealed the urgency of broader, structural reform in many sectors, the ability to implement reforms effectively has been diminished by the absence of revenue.

Of course there is another side to the equation – the benefits of lower prices to importing countries. This has meant that globally, the price decline had a positive economic impact in terms of global GDP growth outlook. The biggest beneficiaries have been the large importing economies with current-account challenges and moderate inflation, such as India. But all net importing countries have seen a sharp decline in their import bills. Japan's savings are also extremely large – its spending on oil imports was nearly USD 100 billion lower in 2015 than the average of the period 2010-2013.

Just as with oil, concerns about gas supply security will also increase if prices stay too low to generate the necessary investment in additional supply.

Today's gas market is well supplied, with many new LNG projects coming online – particularly in Australia and the United States – but this is no reason for complacency. A lack of investments in new gas projects today could lead to a new period of tightness after 2020.

Recent history has taught us that the threats to the security of supply come in unexpected ways. Human conflict, geopolitical crises, terrorist attacks and natural disasters can take large parts of energy distribution networks offline.

Collective efforts to mitigate these threats to supply security are in all of our best interests.

IEA member governments strongly support such work. At the IEA Ministerial meeting last November we were given a new mandate to work on enhancing gas security. We are holding ongoing consultations with key stakeholders and industry experts and look forward to presenting some of the early results as one of our inputs to Japan's Presidency of the G7.

To a certain extent, the decline of upstream investment in oil and gas is a natural market reaction to excess production, as would be an investment upswing in response to rising prices. However, the volatility of the cycle matters from the macroeconomic and energy security point of view and governments could contribute to smoothing it by implementing appropriate policies. Let me give you some examples:

- Now is an opportune moment to reinforce policies to promote vehicle efficiency and electric cars as well as public transport. Such measures would mitigate the demand increases that would normally be triggered by low prices.
- Unconventional oil and gas resources can play a critical role in rebalancing markets and contributing to energy security. However, for this to happen, governments need to ensure policies are in place to address the legitimate public concerns about the associated environmental and social impacts of developing such resources.

- The oil and gas industry is losing human capital at an alarming rate, and this will make it more difficult to undertake complex projects in the future. Governments can mitigate this through education and retraining programs as well as with active labour market policies.
- Finally, a continuing focus is needed to improve market transparency, as this will help build confidence for investors in the energy sector. The IEA intends to continue to contribute to this through our publications such as the [Oil Market Report](#), the [World Energy Outlook](#) and others. The IEA is also planning to start publishing a regular annual investment report, to be launched in the fall of this year.

Thankfully the G7 is also paying attention to another threat to energy security: climate change.

On this point, we cannot understate the challenge we face. The transition to a low-carbon energy system will require a massive amount of investment and capital reallocation away from oil, gas and coal investment towards low-carbon production and efficiency.

But make no mistake, these traditional fuels will still be important. In 2040 conventional fuels still account for 60% of global primary demand in a world compatible with a 2° rise in global temperature. As such, full divestment away from oil and gas companies is unnecessary – and could seriously jeopardise energy security by threatening the financing ability of the industry.

Rather, we warn companies that they will need to be ready to justify their investments and strategies against risks arising from climate change. Also they must be aware: their returns will be hit if they do not take climate and energy policies seriously.

If we wish to achieve the 2° target, a peak in global energy-related greenhouse gas emissions will have to be reached quickly. Our best way to get there is through renewables and energy efficiency as well as other forms of clean energy like nuclear power and carbon capture and storage.

Related to this, recent IEA analysis shows that emissions of carbon dioxide from energy consumption stood still in 2015 for a second year in a row. While this is exciting news, there is an important message for energy policy makers. That message is that now is not the time for complacency. Much of the progress over the last decade in moving to a low-carbon energy economy was driven by persistently high fossil fuel prices. There is a serious risk that the current downturn in prices – if it continues – could derail further progress. There is therefore a major responsibility on your shoulders as policy makers to ensure that appropriate responses are put in place to ensure this does not happen.

Greater investment in high-quality energy infrastructure will be needed to meet our climate objectives. The bulk of this will have to be made in the power sector, particularly in renewables, nuclear and other low-carbon options. Renewable costs have declined drastically, and in many regions of the world renewables have become competitive against coal and gas without any subsidies. So what is crucial for renewable deployment in such regions is no longer just subsidies such as feed-in tariffs, but system integration. In most countries including here in Japan there is a regional disparity between the wind and

solar potential and the large demand centres. A strong transmission system is needed to enable a larger-scale integration of often very cost-efficient renewable resources as different weather patterns balance out.

The ability of demand to respond to changes in the system is another key component of a clean and secure energy system. Japan is a leading investor in smart metering. Together with well-designed retail markets, this enables demand to respond to changes in clean energy production. Electricity storage will also need to play a greater role going forward. While Japanese companies are technology leaders in this field, regulatory measures to facilitate deployment still need to be improved. Linking supply and end-use infrastructure is necessary to ensure a reliable and cost-effective energy system, and efforts should be stepped up to link the two, such as through smart electric vehicle charging infrastructure or through combined heat and power and district heating and cooling systems.

The question is, can we make both sets of investments – for those conventional fuels that we are trying to move away from, but still need for growth and security and at the same time for those new, low-carbon technologies that will define our future?

Balancing these choices with today's need to keep our economies healthy and growing, while maintaining secure and affordable access to energy for everyone, is a significant challenge to say the least. The IEA stands ready to offer its advice and assistance to help its member countries – and others – respond to this challenge and build a cleaner, safer, and more prosperous world for us all.