Impact of low oil prices on investment

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Ladies and gentlemen,

The International Energy Agency was formed by importing countries more than 40 years ago, in response to disruptions in oil supply. But that was 1974, and the world has changed dramatically since then.

New players are providing energy supplies; evolving technologies are allowing a more diverse fuel mix; and while IEA members once accounted for around three-quarters of global demand, they now account for less than half. For every single barrel of oil that is saved in OECD member countries due to energy efficiency measures, two barrels are consumed in the developing world.

Clearly our global energy system is going through a period of transition, and one aspect of this transition made headlines in 2014, with oil prices plunging to five-year lows. Newspapers revelled in the opportunity to print doomsday headlines such as “the casualties of cheap oil” and “uncertain economic fortunes in a world of cheap oil.”

Yet the world has not ended. In fact such swoons are not unprecedented, and we have come to expect them every ten years or so. The volatility of fossil fuel prices is a signature of the energy sector, and a natural reflection of basic economics. However, one of the things that makes this time different, at a fundamental level, is that it has happened in a time of the energy transition.
Of course energy transition can mean different things depending on whom you talk to, and indeed it’s almost meaningless insofar as the energy sector has always been changing, adapting and evolving. For some of you here in this room, energy transition may conjure images of strengthening regional energy security in a time of geopolitical instability. For others, it may signal a seismic shift in the global energy landscape towards Asia. Or the first thing you may think of is a transition to a sustainable, low-carbon energy system. Yet no matter how you define the energy transition, the drop in oil prices has had an effect. Indeed this drop has led many to question the changing dynamics of the market, the inevitable knock-on effects on energy security and future progress on meeting climate targets.

More fundamentally, it has led many businesses and governments to question the investments that are necessary to meet future demand – in terms of both fossil fuels and renewable energy.

In terms of oil, what we are seeing today is a rebalancing of the market. The result of this rebalancing will be a market that looks different from the market of yesterday. Both demand and supply patterns have shifted. By unlocking light tight oil – a vast resource that long seemed off-limits – the United States has changed the rules of the game and effectively become a new swing producer. Oil supply from outside of OPEC is becoming far more price-elastic than in the past, while demand becomes significantly less so.

But of course, weak demand should come as no surprise. For one thing, the world economy remains relatively weak itself, and overall oil intensity is also decreasing – that is, countries are experiencing economic growth with less oil, relatively speaking, than they were previously. These factors are part of the reason prices fell in the first place, and make it less likely that lower prices will in and of themselves fuel a large increase in demand. This is not to say that demand growth will not gain momentum as the global economy slowly improves. But it will do so more slowly than had been expected, in line with the IMF forecast of underlying economic growth.

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You’ll agree that there are quite a few economic benefits to be expected from lower prices. These can include higher household disposable income, and lower industry production costs. However these benefits may be partly offset by deflation in some OECD economies. Outside of the OECD, relatively weak currencies mean that lower prices in US dollars will not necessarily seem that much lower to end-users in domestic currencies. This will be compounded by the fact that many governments are rightfully seizing the opportunity of lower prices to dismantle their costly and ineffective subsidy programs.

Rightfully, because low oil prices represent an opportunity make smart decisions on subsidies, specifically those that result in prices paid by end-users being reduced to below international benchmarks. For example, in Saudi Arabia, gasoline prices at the pump are one-eighth what they are in London. These are known as fossil fuel consumption subsidies, and are an extremely inefficient means of achieving their stated objective, which is typically to help the poor.

In 2013, governments around the world spent USD 548 billion on such fossil-fuel consumption subsidies. This is more than five times the level of support that went to renewable energy. It is also twice as much as actual investment into renewables in 2014.

Ten countries account for almost three-quarters of this sum, and five of them are in the Middle East and North Africa. In fact, more than one-third of electricity in the Middle East is generated using subsidised oil. In the absence of these subsidies, almost all renewable energy technologies, including nuclear, would be competitive with oil-fired power plants.

And indeed in 2014 we saw significant initiatives to tackle subsidies in Jordan, Morocco and Egypt. Jordan removed fossil fuel subsidies early last year and raised electricity prices the following summer. Morocco has been reducing subsidies progressively on both diesel and gasoline since the beginning of 2014. Egypt has raised the price of residential gas supplies, gasoline and diesel. This could reduce Egypt’s subsidy bill by about one third – that’s USD 5 billion.
Outside of the Middle East, we have seen promising moves to dismantle subsidies in Indonesia, starting with gasoline, while diesel prices in India have been deregulated and tax reforms in China are limiting the benefit of lower oil prices for consumers.

These are wise and prudent measures to be taken, especially at a time when the future of oil supply in the Middle East and across OPEC is being questioned. The move by the group’s core Gulf members last November not to cut production in defence of prices was only the first step in a plan that includes actually ramping up output and aggressively investing in future production capacity – even as their non-OPEC counterparts keep tightening their belt.

But despite OPEC’s stated policy of defending market share, it is expected to contribute only roughly one-third of global capacity growth to 2020. It will succeed in regaining a larger market share in terms of global supply, but only up to a point. OPEC’s share of global production will grow, but it will not revisit the higher levels reached before the financial crisis of 2008.

Of course this assumes that everything goes right with OPEC production, and this is perhaps a risky assumption. If we sidestep for now the discussion on possible removal of Iranian sanctions, nearly 90% of OPEC capacity growth through 2020 will come from a single country, Iraq. The list of challenges facing this country grew longer last year with the campaign waged by the Islamic State of Iraq and the Levant and the price collapse. But this has yet to derail its medium-term production outlook. As recently as December 2014, Iraq’s production surged to a monthly average of 3.7 million barrels per day, a 35-year high.

Iraq is a good example of how the effects of low prices can be doubled-edged. On the one hand, the price drop makes production both more difficult to finance and less profitable. On the other hand, it is an incentive to raise production volumes to make up for the loss of revenue, and to quickly resolve problems that had been holding down production.

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The outlook for other OPEC countries looks dimmer. Venezuela and Nigeria will both feel the impact of low prices, leading to tighter budgets and cuts in social spending. Gulf countries may also miss their economic targets, though they have the advantage of higher buffers. Countries like Angola and Ecuador face serious difficulty.

Outside of OPEC, Russia’s conventional production faces a perfect storm of collapsing prices, international sanctions and currency depreciation. But while the country is expected to see production contract by 560,000 barrels per day over the period 2014 to 2020, in immediate term Russian oil companies seem to be coping surprisingly well, thanks to a flexible tax regime that lightens their fiscal burden as prices drop and to steep cuts in production costs that came courtesy of the rouble’s depreciation. In April, Russian production jumped by a steep 185 kb/d year-on-year, according to the Oil Market Report the IEA released this morning.

These oil prices have also had an effect on gas supplies.

LNG plays a critical role in maintaining gas supply security. LNG investment is very capital-intensive and routinely relies on project financing. Very often the projects are facilitated by export credits for the liquefaction equipment which is the most expensive part.

Last year we saw a collapse of LNG prices due to supply demand developments as well as the pass-through effect of low oil prices into long-term LNG contracts. In the next couple of years this is likely to persist due to a wave of new supply coming online from Australia and the United States. A more diversified, more competitive and less geopolitically risky supply structure could be a major benefit for consumers.

There are concerns about the long-term sustainability of supply. The Australian and US projects under construction will be absorbed by growing demand by 2020 to 2025, given the five to eight years of lead
time for a major LNG project. If the current market environment leads to delays and cancellations, then future market tightness, supply security concerns and a boom and bust cycle are a real risk.

Policy efforts to enhance LNG market efficiency should continue but attention needs to be paid to the capital intensity and financing needs of the LNG industry.

Looking longer term on oil, there are other potential problems around the corner.

The IEA World Energy Outlook, which models scenarios of how the global energy system may evolve, suggests that only a few parts of the world will show significant growth in supply over the coming 25 years: the United States, Canada, Brazil and the Middle East.

Tight oil production is making the United States the largest oil producer in the world – and it stays that way until the late 2020s. After that, US production could start to fall back and by 2040 output is back to where it is today. Instead, it is the oil sands in Canada that take over as the main source of North American supply growth.

The other major non-OPEC source of supply growth is Brazil. You can see how these suppliers do a lot to satisfy growing demand over the period to 2020. But after this, there is a large and growing gap in the market.

This is the gap that needs to be filled by the Middle East. There is no shortage of resources to meet this challenge. But there is a real concern about a shortfall in investment. Some may argue that there is plenty of time to sort this out: extra supply from the Middle East is needed only in the early 2020s. But this would be a mistake: to produce extra barrels in the early 2020s, there needs to be investment today.
Yet let us take a moment to consider that investment is not only about price, supply and demand. In many countries investment into large oil and gas projects can be driven by political and social pressures, including labour market pressures and popular opinion. These are challenges that should also not be overlooked.

But as always in life, challenges present opportunities.

This is where we come back to renewable energy, and ask to what degree these prices will affect investment in this sector?

The short and simple answer is: not much, if we are careful. As I have said countless times, and I will continue to say, it is the stability and predictability of policy and market frameworks that matters for investment into capital-intensive renewable energy. It is not necessarily price. But of course the answer is more nuanced than that, and depends to some degree on what sector we are talking about.

Part of the reason that low oil prices are not a particular worry is because the focus of renewable energy is far and away on electricity generation, whereas oil is generally destined for transport. Only 5% of global electricity production is based on oil, representing some 9% of global oil production. While the economics of renewables generation may be affected in regions where oil is a significant source of generation, this is a relatively limited case. Gas, however, does compete with renewables for electricity generation, and as I have just noted there are a number of jurisdictions where gas prices are linked to oil prices.

However even in these cases, the outlook for renewables remains positive. Renewable electricity production costs have been falling rapidly in recent years, especially for wind and solar PV. These drops have been driven not only by falling system prices – as shown in the graph – but also increasing investor confidence, which has the effect of reducing financing costs. In fact, our recent analysis shows that

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renewable generation can be broadly competitive for new fossil fuel generation, at least where conditions are favourable.

There have been a number of cases within the G20, for example, where very low prices have been obtained or offered where the resource is good – that is, plenty of wind or sunny days – and the appropriate regulatory or market frameworks are in place. These include Brazil, China and Germany for onshore wind, and Chile, India, and South Africa for utility-scale solar PV.

These jurisdictions have managed to encourage such investment through frameworks that provide revenue certainty through long-term contracts. These contracts can mitigate risk for capital-intensive technologies while encouraging competition and innovation.

A recent example is Dubai Electricity & Water Authority’s awarding a contract for 200 megawatts of PV capacity – through a competitive process – at a price of below USD 60 per megawatt-hour. This is a world record! Egypt is concluding an auction process for large wind farm projects that would offer, again, record-breaking low prices of around USD 40 per megawatt-hour. Such prices are made possible not simply due to an excellent resource, but combined with low equipment costs and – let me say this one more time – very favourable financing terms enabled by long-term power purchase agreements.

**Ignoring the numbers for a moment, the message you should take away is this: under the right conditions, renewables can compete with gas for electricity generation today.**

In addition, with renewable power generation, generation costs are determined over the project lifetime by the initial capital and financing costs. The capital costs for wind and solar PV are likely to continue to decline in future years. Meanwhile, the costs of gas and oil generation are largely determined by the fuel costs. To remain competitive with renewables, oil and gas costs would have to remain close to – or below – today’s levels not just in the short term, but for the coming 20-25 years. Given historical trends, ladies and gentlemen, this seems unlikely.
An often overlooked topic in the energy sector, particularly when discussing renewable energy, is heating.

In fact around 20% of global oil supply and 40% of gas is used to provide heat for industry and buildings, each providing some 30% and 20% of heat needs respectively. Coal is used to provide heat in energy-intensive industries such as steel, cement and ceramics. Of course oil used for heating purposes has dropped in price in with crude oil price changes, with specific costs depending on the type of fuel, location and taxation regime.

Renewable sources of heat – bioenergy, solar, and geothermal – can provide opportunities to replace these fossil fuels. Of course the opportunities and costs for producing renewable heat are also location specific, depending on the resource. Similar to what I said earlier about electricity generation, options such as biomass heating and solar heating can be cost-competitive under the right conditions, taking into account both capital costs and, in the case of biomass, fuel costs.

Unfortunately, even when it is economically attractive, deployment of renewable heat is often held back by non-economic barriers which need to be tackled by policy and regulation. Renewable heat policies are often not given as much attention as those for electricity and only around 50 countries have renewable heat policies in place, compared with more than 120 on electricity. Here there is a risk that sustained low oil prices may discourage policy action and deter investment decisions by private households as well as industry.
Finally, I’ll share a few words on the impact of low oil prices on biofuels.

Biofuels currently provide some 4% of road transport fuel needs, and 80% of this is bioethanol, with production and use concentrated in Brazil and the United States.

Conventional biofuels supply is determined by production costs, which are influenced by short-term feedstock dynamics, as well as investment in new plants and feedstock supply chains. In both Brazil and the United States, ethanol production is broadly competitive with gasoline even at today’s oil prices, though this relationship fluctuates with the short-term balance of feedstock and ethanol prices. This is because in recent years feedstock costs have fallen dramatically due to good harvests in key regions. Low oil prices also reduce fertiliser and harvesting and transport costs.

Nevertheless, longer-term supply growth in these markets will depend on continued investment in biofuel plants and feedstock supply. Such growth may be difficult in Brazil, for example, where the ethanol industry has struggled financially in the face of thin production margins, rising costs for labour and land, and competition versus regulated gasoline prices.

The demand for conventional biofuels – that is, ethanol and biodiesel made from sugar, corn and oil crops – is affected by the prices of gasoline and diesel substitutes, as well as blending mandates and structural factors, such as the evolution of the vehicle fleet.

In terms of advanced biofuels – which in the longer term are necessary to reduce the overall carbon footprint of the transport sector – there has been good progress in the last few years. A number of commercial plants have started operation, demonstrating that production at scale is feasible.

The output from these first plants is not yet financially competitive with fossil-based transport fuels nor conventional biofuels. However the industry is confident that if such plants could be replicated some 20 times, costs could be reduced through learning. The resulting output would be competitive with oil products at a crude oil price of around USD 70 per barrel. Progress therefore depends on a supportive policy framework that allows the next generation of plants to be built and operated. However a
prolonged period of low oil prices could reduce the policy motivation to bring forward this family of technologies, delay positive measures and lead to the abandoning of projects.

So where does this leave us? It comes back to the two words with which I began this speech – energy transition.

The shift to a low-carbon energy system is in many ways inevitable. Of course it will come much, much faster in some jurisdictions than in others. Indeed there are still low-efficiency coal plants being built across Asia as we speak, and it would be unrealistic to expect these countries to simply agree to a moratorium on coal investment. But the benefits of sustainable, affordable, predictable and secure energy cannot be denied.

But this transition will not take place automatically. Investments are necessary today. For business there is money to be made. For government, there is energy supply to be secured. And in those places with the right policies and frameworks in place, there are rewards there for the taking. The successful low-carbon energy transition depends on us taking advantage of those opportunities, and collectively enjoying the benefits.

Thank you.