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We are supposed to spend three hours discussing energy. If reason prevails, we might shorten it a little bit if we run out of steam. I am humbled to chair this panel, because I am not at all an energy specialist. However, it is interesting that in my capacity at the World Bank and for the past three years, energy has been central to many things I have been doing. It is one of the issues that is central to many things being discussed this year.

This is from the Conference on Financing for Development to Sustainable Development Goals and COP 21, which will be soon in Paris. It is particularly relevant that we are having this conversation today. Welcome to this workshop, entitled Energy Between Economics, Geopolitics and Technology. I am Bertrand Badré, I am French and I am Managing Director and CFO with the World Bank Group. I will be the Chair of this workshop and our conversation. I will introduce our guests later, but let me set the stage.

Energy is fundamental to economic growth and sustainable development. That is no news to you. Energy underpins progress in all areas of development. When countries lack reliable, sustainable sources of energy, people and economies suffer. You just need to travel in many developing countries and the top priority everywhere is electricity. 1.1 billion people still live without electricity and another 2.9 billion live without modern fuels for cooking and heating.

Recognising this gap is one thing, but having the working partnerships, monitoring tools and financing to close this gap is another matter. The good news is that many of the pieces are falling into place, slowly, but I expect surely. For instance, between 2010 and 2012, the global electrification rate increased from 83 to 85%, which is still modest but in the right direction. An estimated 220 million people got energy access for the first time.

Modern renewables, including wind, solar and geothermal, grew in terms of total global energy consumption from 8.4% in 2010 to 8.8 in 2012. Again, this is modest but in the right direction. At the same time, global energy intensity fell by more than 1.7% each year. As you can imagine given these figures, there is still a long way to go, and the challenges are quite enormous. The global energy landscape has always been transitionally evolving, going through significant changes in technology and consumer behaviour.

Now, with the decline in oil prices and the rise in alternative sources of energy, we are seeing deep structural changes getting underway. This was well introduced by Patrick Pouyanné yesterday, for those who were able to attend. With these deep structural changes, many developing countries face challenges in putting in place best practice policies, regulations and institutions. These are key to building investor confidence.

One of the responses to this challenge is to build a reliable pipeline of investment projects that are backed by the appropriate financing and derisking structures. At the World Bank, we think immediate action is needed in six key policy areas, if the world is to achieve this needed energy transition. The first is fixing the sector's fundamentals and the second is getting the incentives right for universal access. The third one is quite sensitive, and it is pricing energy right. The fourth is prioritising energy efficiency, the fifth is scaling up renewables and the sixth, last and certainly not least, is mobilising private capital. That is where the real money will ultimately come from.

Now let us take the six key policy areas necessary for energy transition and consider what we call the triple challenge for policy makers. The first challenge is meeting the growing demand for affordable and reliable energy. This requires strategic planning, large-scale investment, greater private-sector participation and expanded regional trade. There is growing demand for reliable and affordable energy. The second is ensuring that energy access is socially equitable. The 1.1 billion people without electricity and the 2.8 billion people using traditional cooking need access to modern energy services.

The third challenge is enhancing energy and environmental sustainability. It is estimated, and you all know this pretty well, that 80% of global greenhouse gas emissions are derived from energy production and use. Air pollution from

solid fuel stoves kills 4.3 million people each year. All of this just adds to a new landscape, but we are in an entirely new and constantly evolving energy world.

What are the factors that will have the biggest impact? Technological development and technology will be key in our conversation. In terms of this, solar, nuclear, carbon capture and storage technology will likely have a significant and profound impact on the future of energy systems. Declining technology costs have certainly helped foster the growth of renewable consumption. In particular, solar photovoltaics (PV) are rapidly declining in costs, with PV module prices halving between 2010 and 2012, and this is still going on.

Another issue that continues to garner attention due to low oil prices is fossil fuel subsidies. This is a big theme for the IMF and the World Bank. We will spend some time discussing this, because it is clear that removing subsidies will substantially boost clean energy developments. Some of the solutions to these challenges that I have briefly mentioned will include enhanced service delivery and governance, and governance is critical. There is scaled up renewable energy and an improved power generation mix, energy efficiency and improved efficiency of utilities. There is support for subsidy and sector reforms, which is not the easiest one, as you know.

Action in these areas means we must pool our knowledge, our innovation and our human and financial resources together. Only then can we achieve optimal results. This far exceeds the funds available from public sources, so private participation is vital. This year, we published a report jointly with the IMF, EIB and all the development banks. The figure has gone from billions to trillions and this was the message.

When you discuss public money, you are talking about billions, but it is trillions that are needed and the trillions will come in particular from better engagement with the private sector. To attract private investment, we have to get the energy sector fundamentals right at the country level. That means in particular an enabling environment in which contracts are honoured, regulations are enforced and competition is open and fair. This is true for infrastructure in general, but this is very true for energy and power in particular.

Thanks to lower oil prices, innovation and economies of scale in the renewable energy sector, the vision of ending energy poverty is far more within our reach than ever before. However, Governments, the private sector, civil society and international organisations will have to work together and here again, it is easier said than done. We need to learn to work together and to partner and go beyond the nice words, so let us partner and do things together.

This afternoon, we will focus on two broad questions that I hope will help frame this workshop. The first question is, what does a new oil and gas sector landscape look like, with the backdrop of low oil prices, increased production and emerging alternative energy sources? The second question is, what are the biggest global challenges of energy security and sustainability? Perhaps we will also have time, if we stay till the end of the three hours, to discuss what should come next. We will discuss what actions need to be taken to ensure the world overcomes the challenges I have briefly described.

To help us address these various questions, let me introduce our distinguished speakers. For the first segment, the question of what a new oil and gas sector landscape looks like, we have Olivier Appert, who is the Chairman of the French Committee of the World Energy Council. He is also a general delegate of the French Academy of Engineering and was previously Chairman and CEO of IFP Energies Nouvelles. Olivier will outline the main reasons for the drop in oil price and the imbalance between supply and demand. We also hope to hear about what he believes are the consequence for OPEC countries and the organisation's role.

Second, we have Masood Ahmed, who is Director of the IMF's Middle East and Central Asia Department. Before joining the IMF, he served as Director General for Policy and International Development in the UK Government's Department for International Development (DfID). Masood will focus on how the drop in oil prices will impact the oil producing countries of the Middle East and Central Asia and how they are likely to respond.

Third is Tatsuo Masuda, who is a professor at Nagoya University of Commerce and Business in Japan, and is a former Vice President of the Japan National Oil Corporation. Then fourth is Antoine Rostand, who is a senior advisor at Schlumberger, the world's leading oilfield service company. We need to be precise about this. He will focus on shale

gas and how shale gas supply has impacted markets and why, and shale oil growth and production decline. That is for the first segment.

In our second segment, when we look at the global challenges of security and sustainability, we will have Pierre Sigonney, Chief Economist at Total. We will have Nobuo Tanaka, who is President of the Sasakawa Peace Foundation and who was Executive Director of the International Energy Agency from 2007 to 2011. Lee Hye-Min is a G20 Sherpa and Ambassador for International Economic Affairs for the Republic of Korea. Welcome everyone, and I look forward to our conversation. I hope it will be lively and we will find some answers to all these difficult questions.