Good afternoon, ladies and gentlemen.

It is a pleasure to be here in Tokyo. I would like to thank both METI and APERC for co-hosting this event, and for their invitation to speak to you.

As the only option for intercontinental gas trade, LNG is the critical link to globalising gas markets, and to the spread of the benefits of gas.

But there is no global gas market as there is for oil, mainly due to the capital intensity of its infrastructure. That certainly applies to LNG, and industry will have to mobilize very large investments to maintain supply security.

At the same time, gas markets are in flux. Between unconventional gas, questions over nuclear, and varied renewables policies, the entire business model is in transition.

This is the precisely time then for cooperative producer-consumer dialogue, and so we fully embrace the Japanese government’s support for this forum.

Today I would like to contribute to that dialogue by discussing the Asian LNG market and its prospects for increased integration, efficiency, and growth.
But first a word on the role of natural gas in the overall story, which is the tectonic economic shift toward emerging markets, particularly in Asia.

The IEA has spoken of a golden age of gas, and for good reason. We see a growing and positive contribution of gas to global energy supply. But while Asia is arguably the most important region of the world economy today, gas in Asia is still far behind coal. With important exceptions like Japan and Korea,— the mix looks much like Europe and North America 60 years ago. Coal is dominant in the energy mix of both China and India and it is rapidly growing in the ASEAN region as well.

So to a large extent, the Golden Age of Gas is the story of gas in Asia taking its proper place in the energy system of this massive region.
But if the energy structure resembles the 1950s, it should not be surprising that so do the environmental consequences.

The list of Asian megacities that suffer serious air pollution problems is long.

This was the case in Europe as well – it took 5000 smog-related deaths in London in 1952 to trigger a comprehensive response, namely a switch to gas.

The same took place in Japan, which had a serious pollution problem before turning to gas.

*CLICK*

I have no doubt that this will be the case in major emerging Asian countries as well – particularly as we see it driving policy already.
Currently Asia represents only 17% of global gas demand – that is low compared to the region’s weight. But this is changing, and Asia represents the bulk of global demand growth over the next 20 years, and its share of the global market will almost double.

Up until recently the Asia Pacific region was almost self sufficient in natural gas, with Malaysia and Indonesia supplying Japan and Korea. Those traditional exporters are now mature, and the only meaningful domestic production growth is in China – which anyway will not be enough even to meet its own demand.

In the meantime regional demand growth never stopped, so Asia increasingly relies on gas imports from outside the region. Due to the combination of geography and geopolitics, most pipeline projects struggle, so this new supply will have to come predominantly from LNG.

Let us remember the scale of this demand growth: the largest investment project anywhere in the world economy is Gorgon LNG in Australia, a massive 52 billion dollar effort. Its production will cover half a year of Asian demand growth, so we will need the equivalent of two Gorgons every year.
But that demand is hampered by fragmented markets. Indeed, gas has never had a global market. LNG represents only around 10% of global gas consumption.

A large proportion of global gas is consumed at regulated prices in the Middle East, the Former Soviet Union and several Asian countries. The only region with genuine market dynamics, and prices driven by supply and demand, is North America. Oil-indexed long term contracts have traditionally played a major role in both Europe and Asia.

Note that efficient markets do not necessarily mean low prices. In the decade before the shale revolution the depletion of conventional gas in the US often led to a tight supply/demand balance and very high prices. But those prices were not a sign of market failure - such price signals were instrumental to providing incentives for shale development. Nevertheless, in the past decade a convergence took place, and by 2009 there seemed to have been something like a global price of gas, with Asia, Europe and North America less than 10% from each other.

Then, the last 3 years witnessed an amazing disconnect. The shale revolution crashed North American prices at exactly the same time as persistent oil indexation drove them to a record level in Asia. That puts a massive competitiveness burden on Asian economies, and will jeopardize the potential contribution of gas to energy security and sustainability. In Europe we can see the effects of increasing competition as policies start to work. Europe also lacks shale gas and has a growing import dependency, but much lower prices than Asia.
LNG is providing a much needed linkage and flexibility to regional markets – but it is not immune from energy security headaches.

In fact last year witnessed an exceptional decline of global LNG supply. This was not the result of a single disruption, but widespread factors:
- security issues in some producers like Yemen and Libya, and wider regional risks exemplified by the situation Syria – that’s one.
- depletion of conventional reservoirs in Indonesia and Oman is another.
- and runaway demand growth often fuelled by inefficient energy subsidies in places like Algeria and Egypt is a third driver.

Although very large investments are taking place in Australian supply, it is plagued by persistent cost inflation and project delays.

That tightness risks energy security and market growth – particularly as it erodes the competitiveness of gas relative to alternatives, like renewables.
- The typical investment cost of a liquifaction train would buy 12.6 gigawatts of solar power today, five times more than in 2007 – that makes them a cost-effective alternative.
So supply/demand balances play a role in high Asian prices, but the significant regional price differentials are driven more by contracting particularities.

Long-term, oil-indexed gas contracts dominate international gas trading, despite the fact that oil and gas are poor substitutes. And while long-term contracts can provide demand security for very expensive projects, they also make for less liquid, less flexible, and less integrated gas markets.

The bulk of new LNG supplies will follow the same path, but an important and growing amount will not. North American spot contracts and secondary re-exports from Europe and elsewhere will play an increasing role. In the case of Asia, these flexible supplies can help provide liquidity to a developing Asian gas hub.

In April the IEA released a report as to how that process can play out.
Why move away from oil indexation?

The historical argument for the practice is the physical substitution between the two fuels.

This has all but disappeared in Europe and the US, but in Asia there is still meaningful oil-fired generation. But high prices are driving oil out the sector and concentrating it in transportation – where oil is almost the only game in town.

As a result, gas and oil are increasingly decoupling in Asia, undermining the economic rationale for oil indexation.
And it is not just pricing mechanisms that make contracts inflexible. Traditional contracts contain destination clauses prohibiting resale. These restrictions made sense when the players were limited and the possibility of not selling to an individual market posed an investment risk.

But the LNG industry is mature today. These logos are familiar to us all, and you are likely aware that their business models are turning them into international gas companies, with natural gas playing an ever increasing role in their upstream portfolio. LNG plays to their key strengths of large-scale capital deployment and project execution.

Unsurprisingly, LNG developments around the Pacific rim are dominated by the so called oil majors. Given the financial strength and portfolio management experience of these companies, they can and often do develop projects into their global portfolio. On the demand side, the number of importing countries and regassification terminals is expanding rapidly.

The entire LNG industry will also benefit from expanded shipping capacity in the next couple of years. Over 80 vessels are under construction in Japanese and Korean shipyards. And unlike the old “ferry” model, almost half of the fleet under construction is not committed to any particular route. They will be available for short term leases and spot trading purposes, and often independently owned, opening up much more flexible capacity.

All of these developments raise a very legitimate question on whether a destination clause is still essential to maintaining investment security.
Add to this the rapid increase in natural gas reserves, thanks to unconventional gas extraction techniques as well as new conventional discoveries.

In the past 5 years we have become much more optimistic about the global role for gas, hence the “Golden Age”. However, new discoveries and reserve additions due to unconventional technology were even ahead of our optimism about gas demand. Known global gas resources are much higher than projected demand for decades to come, so we see a substantial proportion of global gas reserves staying underground in the foreseeable future – the pot has grown so big that in the future those resources will compete for markets, not vice-versa.

But make no mistake, it is not simply geology that will decide which gas resources are developed. Geology will surely need to be adequate, but even more important will be an environment where governments and industry succeed in creating the conditions for investment. A good illustration is Australia, where the geological and engineering challenges are formidable, yet large investments progress taking advantage of an excellent legal and policy framework with low sovereign risk, whereas geologically more attractive resources stay undeveloped.
In that vein, shale gas will continue to be dominated by North America, thanks to continued improvement.

Let’s remember that the unconventional gas revolution emerged in the first place, not because of a single radical game-changing technology. But because of incremental improvements to processes like hydraulic fracturing and horizontal drilling, achieved largely by engineers in the field. And by bringing together existing techniques and technologies, and sharing best-practices.

Since production ballooned in North America, driven by a multitude of small producers as well as major companies, those same processes have pushed production costs even lower.
Originally the volume of gas North America would add to the LNG market was expected to be marginal, thanks to regulatory resistance as well as the domestic supply/demand balance.

But as export licenses pick up, American natural gas exports could be poised to expand significantly, transforming the US into the third LNG exporter globally. Given that the IEA firmly believes that open international markets are the best framework for energy security, we welcome and embrace the decision of the US Department of Energy to approve already 3 major export projects.

And much of that gas is already signed for, with US LNG exports helping to satisfy Asian import demand. Japan for example has already contracted enough US exports to offset increases deriving from nuclear shut-downs after Fukushima – replacing otherwise very expensive additional volumes. US export projects have market based pricing and will be available on spot markets without destination clauses. Given that today 85% of LNG is based on long term contracts, we estimate that the 3 approved US projects alone will more than double the global spot market for LNG.
Huge infrastructure investments in Russia could add another major supply source to Asia.

Russian gas production is not constrained by upstream economics, but by EU and domestic demand (both of which are weaker). Without new markets, that keeps Russian gas underground. Infrastructure projects to connect to Asia are therefore likely to come to fruition, also thanks to staunch political backing.

In short, the oncoming competition for Asian gas markets among a host of potential suppliers will reduce the arguments for less flexible markets.

Indeed, the security and growth of the gas market itself, and thus the environmental benefits it brings, would benefit from more flexible, transparent, competitive, and functional markets.
But how do we get there, specifically in the Asian context?

Establishing a wholesale natural gas market with a functioning spot market is a lengthy process. Too often, the instinct of government is to establish gas futures or swaps in the national exchange. But a derivatives market without a well functioning underlying physical market with adequate competition is little more than a casino.

Governments need to take a series of steps, including institutional and structural changes. Achieving this would require radical changes in the natural gas sectors of almost all Asian countries.

The first phase entails establishing third-party access with an independent regulator in charge of setting tariffs. Increased competition and wholesale price deregulation are needed as well. The experience in some OECD countries suggests that opening access to pipelines alone is insufficient, if upstream sources are dominated by a single supplier.

In the second stage, accessibility via non-discriminatory pipeline access, and availability of capacity on these networks, are essential. This implies that the transmission system operator is investing in a clear and unbiased manner.

Increasing competition also brings a higher number of market participants. Apart from their role in investments, financial parties willing to cover financial/operational risks for parties involved in the natural gas trade, are also needed.

The development of spot and future markets would represent the final stage of evolution. European and US experience also demonstrates that investors and market participants’ confidence is boosted by increased transparency, in particular concerning the conditions of access to gas networks.
So let me leave you with a couple of key messages.

**Overall, we are looking at a bright future for natural gas in the region.**
We expect Asian countries to be a major driver of global demand growth, and China alone will represent a quarter of it.

**In the short term, markets are set to progressively tighten as less LNG comes on line and demand continues to grow.**
Indeed, the next wave of LNG exports starts only by end-2014 with Australian LNG and later North American LNG.
But LNG trade nevertheless expands by 1/3 over 2011-17. Russia and North America are the largest contributors to incremental production.

As those new supplies come on-line, and as they start to compete for Asian markets, the arguments for the old business model are weakened. At the same time, that old model is actively impeding on Asian economic competitiveness.

But steps can be taken in the region to encourage the development of a more efficient market. Eventually, that will also contribute to a more integrated global market for natural gas.

The IEA stands ready to support that process.

Thank you.