

## **INDONESIA AND ENERGY SECURITY**

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Distinguished guests,

(Preamble)

I want to talk to you today about Indonesia's energy security. I hope to convey to you, in the course of my presentation, why I have a sense of urgency on this issue, why we need to appreciate the true risks to our energy security and why we must step up the pace of action to address the very real challenges we face in the area of energy security.

### **What is energy security?**

First, we need to understand what constitutes energy security. Energy security, in its simplest form, relates to safeguarding the country's energy future by securing a stable and secure supply of energy at affordable prices.

That sounds quite straightforward but underneath this simple definition is a myriad of complex issues that we need to grapple with. Failure to do so might risk jeopardizing our energy future for a long time.

### **Why should we be concerned in Asia?**

I am not exaggerating by stating that urgent attention is required in this matter.

Global energy demand has been largely satisfied over the last few decades with the aid of technological advancements in the energy sector. However, the truth remains that we all live in a world of scarcity, a truth that hits especially hard in the area of conventional energy resources.

To compound matters, energy consumption is expected to continue soaring in tandem with demographics and economic growth around the world. According to a British Petroleum report, the Asia Pacific region's total consumption of primary energy is expected to rise by 63.4 per cent to 7.8 billion tonnes of oil equivalent in 2030.

This presents a challenge for the region's leaders as they seek ways to fuel the region's energy requirements, particularly as emerging markets go through subsequent stages of industrialization and urbanization.

### **What about Indonesia?**

Focusing on the issue at home, Indonesia, with all its abundance in natural energy resources, is still far from having secured its energy future.

Let me paint a rough picture of our predicament: Our total primary energy consumption has increased by more than 50 per cent between 2000 and 2010. However, oil production, which currently supports the bulk of our energy needs, has fallen well below its production peak of more than 1.6 million barrels per day to roughly just 861,000 barrels per day in 2012. At the same time, our proven oil reserves have fallen by more than 1.9 billion barrels since 1992, the fastest decline in Asia.

So what can we do to salvage our energy situation? I would like to present to you today three main areas of action that could help us on our way to securing an energy future.

#### **1) Reducing our reliance on oil**

First, we need to recognize that we have been too dependent on oil to fuel our country's activities.

Despite its declining significance over the years, oil still makes up 30 per cent of Indonesia's total primary energy consumption in 2011. This over-dependence is exacerbated by the combination of poor refining capacities and declining oil production that has turned Indonesia into a net importer of oil.

I shall not go into the problems attached to an over reliance on foreign oil imports as they have been well documented over the years. However, I must mention the most critical cause for concern and largest contributor to uncertainty in the global oil network: geopolitical shocks from the Middle-East.

### **Middle-Eastern concerns**

We have all been watching the dramatic upheavals in the Middle-East as the Arab Spring unfolds. We are concerned about events there as human beings who care for our brothers and sisters who are at risk. But we should also be concerned because events there can affect oil prices and through that medium have a major impact on our energy security as well as on our economic well being.

The media has not been highlighting events there in recent months, having become bored with the Arab Spring. But tensions are rising to new heights in multiple areas. So many important oil exporters are exposed directly or indirectly to political turbulence that we have to watch events in that troubled region very carefully.

President Obama, for example, has just warned that Iran is perhaps a year or so away from possessing a nuclear weapon. In his interview with an Israeli television channel, he observed that he did not want to "cut it too close" and declined to rule out the possibility of military action. Iran is a major oil producer and has threatened in the past to block the Straits of Hormuz in retaliation against any US or Israeli military action. About 40% of the world's traded oil passes through these Straits, so the impact of any military clash in Iran on our energy security would be sizeable.

Iraq, is another example. This country is going through a new spiral of violence. Bordering Iran and Iraq are countries in distress, such as Syria, where a virtual civil war has been raging for the last two years.

According to the International Energy Agency's World Energy Outlook 2012 report, Asia is expected to account for 90 per cent of the Middle East's oil exports in future.

Hence, we are very much at the mercy of such developments. The collapse of one of these politically distressed countries could cause trouble to spill over into other parts of the region, sending ripples across the region: A growing reliance on oil imports will not spare Indonesia.

We must therefore be pro-active in addressing this risk. Fortunately, Indonesia is in a better position than most to reduce its reliance on oil as it enjoys substantial endowments in a great variety of alternative energy sources. One example of this is natural gas, which could prove to be a saving grace from our current oil situation.

### **Focus on natural gas and unconventional gases**

According to former oil and gas regulator, BP Migas, companies operating in Indonesia produced 8.8 billion cubic feet of natural gas per day in 2011, or 1.5 million barrels of oil equivalent, two-thirds more than our oil production. Moreover, the Ministry of Energy and Mineral Resources has estimated that Indonesia has an enormous 335 trillion cubic feet of estimated gas resources as of 2011, equivalent to 59.6 billion barrels of oil.

If all this data is accurate, we should step up the pace of shifting our energy mix to reflect a higher consumption of natural gas. For that, we must first ensure that there is sustainability in the sector, particularly as exploration activities in recent years have been stagnant and insufficient to replace ageing fields. I believe that in order to achieve our maximum potential, we should not be afraid to engage foreign expertise and partnerships that will help us beef up our energy infrastructure and knowledge.

Recent gas finds in the Makassar Strait, the Masela block and the East Natuna block have all been very promising. In the East Natuna block alone, we have 46 trillion cubic feet of natural gas that is estimated to be extractable for processing.

In view of such operations in the future, the introduction of greater foreign partnerships will equip us with the best practices and technology that exists around the world, cutting our learning curve significantly.

For instance, Pertamina has been leading a consortium including Exxon Mobil and Total since 2010 to secure a market for gas from the East Natuna field. The conclusions of a conceptual study and recoverable reserves estimates is expected to be completed this year, when more detailed plans will be pushed through.

Such partnerships will have a positive knock-on effect on local firms as they benefit from the experiences of our foreign counterparts, aiding other projects, such as the one in the Mahakam block of East Kalimantan, where knowledge of deep-water operations is currently developing.

The government should assist us in looking at ways which we can extend cooperation with foreign companies so we can develop the sector further to replace oil as a sustainable source of energy in the long term.

### **Coal bed Methane for the near future**

Since Indonesia is well endowed with gas, we should also explore unconventional gases as viable propositions to replace oil. Coal bed Methane serves as a good choice in this respect.

Coal bed Methane is a versatile gas that meets the needs of various markets. It is also highly affordable at half the price of diesel, clean and uses more efficient extraction techniques that have minimal impact on the environment.

Among other benefits mentioned, it is also more economical as lower costs will be incurred in comparison to exploring conventional wells. According to Canada-based CBM Asia Development Corp, current drilling costs run at approximately USD1 million per well based on the use of 500 to 750 horsepower rigs. This drilling costs compares favourably to onshore conventional drilling costs in Indonesia that costs between USD10 to USD30 million per well.

Furthermore, with an estimated Coal bed Methane reserve that is ranked No. 6 in the world, I firmly believe that Indonesia should ramp up the development pace of this unconventional resource.

As a vote of confidence in our Coal bed Methane future, Pertamina has plans to invest around US\$1.5 billion to develop 200 CBM exploration wells in the next five years, possibly increasing the investment if production targets are elevated.

In the longer term, we should then plan for the extraction of other unconventional gases, such as shale gas, which is currently getting much attention because of the success the United States had enjoyed in this area. But as for now, let's take one step at a time and concentrate on maximizing Coal bed Methane as our utmost priority.

We must be reminded that natural gas is still a fossil fuel. While it is an important component of our economy now, it cannot be the solution to all our energy needs. Rather, it should act as a support bridge that connects us to a low-carbon economy based on renewable energy. It will decrease our reliance on oil for now.

This brings me to the second point that I would like to make. We should all brace ourselves as Indonesia's dependence on oil is not the only problem with its energy mix.

## **2) Creating a diverse energy mix through renewable energy**

Indonesia' primary energy consumption in 2011 was 71% made up of hydrocarbons. This trend of utilizing hydrocarbons such as oil, gas, and coal is widely expected to continue dominating our energy consumption in the future. We must be fully aware that our current consumption levels, those energy resources could run out in a short time.

Such carbon intensity will not only incur risks similar to the over-reliance on oil, they also generate concerns over pollution and the emission of greenhouse gases. For example, increasing emissions could unnecessarily increase international pressure to resolve excessive carbon levels, as we have seen in the case of China and India. Domestically, a continuing reliance on oil and gas will worsen the pollution in major cities, such as Jakarta.

Thus, such an energy mix is unsustainable in the long run. We simply have to do more to diversify our energy mix and reduce our consumption of hydrocarbons. Our future generations should not have to bear the consequences of our inactions today. The Indonesian government has acknowledged that, sooner or later, Indonesia and the rest of the world must bid farewell to crude oil as a major source of electricity.

As a result, there are long term plans in place to build an energy mix that includes a larger proportion of renewable energy sources. For instance, the government has plans to increase our annual electricity generation from renewable sources to around 99 million tonnes of oil equivalent by 2025. Currently, that figure only stands at 10 million tonnes of oil equivalent.

However, such talks to promote the development of renewable energy have been on-going for the longest time and we are still under-achieving. I firmly believe that we can push ourselves to meet such targets for renewable energy much earlier.

### **Geothermal resource**

In order to accelerate our speed in this area, we should take advantage of our existing strengths. Inevitably, this points us to the direction of geothermal energy.

Our geographical position on the Pacific Ring of Fire has bestowed us with an unparalleled amount of potential geothermal energy. Not only is geothermal energy clean and renewable, it requires much less space than other forms of renewable energy such as solar and wind power. It also provides a predictable, constant supply regardless of climactic conditions or the time of day.

Indonesia's geothermal source has an estimated potential to generate 29,000 megawatts of electricity if it is fully exploited. At the moment, we are currently only utilizing 1,200 megawatts of electricity from that source, showing how far off we are towards taking advantage of our natural environment.

As with many initiatives that are meant to develop renewable energy sources, efforts to exploit the geothermal energy sector have been affected by the government's lack of supportive frameworks.

Encouragingly though, Indonesia has a good chance of catching up in this area. An increasing number of investors have entered the sector in recent years. Among them working on new geothermal projects include Japanese conglomerate, Sumitomo and India's Tata Energy.

There are also developments on the macro level. Just last year, the governments of Indonesia and New Zealand signed a cooperation agreement on geothermal energy. New Zealand has been actively developing geothermal energy, which has contributed 70 per cent of its renewable energy share.

Hence, their experience in addition to our natural capacity for development could prove to be a game changer. I am hopeful and optimistic that we will be able to progress significantly in this area of energy to strengthen our case towards energy security.

### **Other renewable energy sources: specifically, biofuel and bioethanol production**

Other than geothermal sources, there are other renewable energy sources worthy for consideration too.

Take the case of biofuels. We have a huge amount of biomass reserves arising from our agricultural industries, including sugar, rubber and palm oil. Based on that, Indonesia has the potential to become a major centre of biofuel production, even though it is currently constrained by the fact that most biofuel resources are being exported due to the higher value placed in food.

Another upcoming source with a potential for further development is bioethanol. Development of the fuel has been part of Indonesia's plan to reduce energy imports and improve air-quality standards.



Plans to produce a 10 per cent blend of high-octane fuel ethanol by 2020 could replace our gasoline imports by more than 30 million barrels a year, mostly from our transport sector.

We can do well to take a leaf out of Brazil's book, where the government has been highly successful in developing bioethanol. The Brazilian government began to invest heavily in ethanol production after the 1973 oil crisis. Its success since has allowed bioethanol to play a huge role in liberalizing the country from the vulnerabilities of the oil market.

But I do have a word of caution in this case. That is, we must not wait for another crisis to explode before taking similar actions.

There are many other renewable energy sources that Indonesia can potentially tap on. That includes hydro and marine power, offshore wind and solar power. While I would love to spend more time in going through details for each source, unfortunately, time constraints dictate that I shall leave them for some other time.

Overall, there is incredible potential in developing our natural gas and renewable energy sector. Such endeavours will have to be supported by the government for any hopes of progression. However, one issue has been haunting the government for many years and its impact is far more extensive than most would expect, bringing me to my third and final point.

### **3) Fuel subsidization costs must be reduced to free up important funding**

Many observers have pointed out over the last few years that Indonesia is threading on dangerous ground with its fuel subsidies program.

Fuel subsidies have grown since their introduction in the 1960s. Not only has it been increasingly difficult to sustain the level that Indonesians want, it is also turning into a major hindrance to efficiency in the energy markets. Ultimately, it is obstructing many important initiatives for two reasons.

First, these subsidies are extremely costly to maintain as more than 20 per cent of the annual budget now goes towards funding fuel subsidies,

not to mention the strain on future budgets as the debt servicing costs of deficit budgets grows.

In the 2013 state budget passed in October 2012, the government has announced a budget of 193 trillion Indonesia rupiah as subsidies for a quota of 46 million kilolitres of fuel.

Despite the substantial provision, the quota provided each year has been insufficient to cover rising consumer demands. For example, the 44 million kilolitres of fuel provided for in 2012 ran out by November, requiring the People's Representative Council to approve an additional 1.2 million kilolitres to meet demand.

This is evidence that such subsidies have delinked the price of energy from underlying realities of supply and demand, causing Indonesians to become oblivious towards the true costs of fuel and resulting in consumption that is both excessive and wasteful.

Second, there is a misallocation of resources because it allows fuel to be sold at artificially low prices at the expense of key areas such as poverty alleviation, health care and infrastructure development. For instance, the value of the subsidies in our 2013 state budget itself exceeds the combined national expenditure on education, healthcare and public works.

The ramifications are huge for the energy sector. A key reason that the sector has remained underdeveloped is the fact that Indonesia has been suffering from a persistent infrastructure problem that turns away foreign investors.

With the government's expenditure on infrastructure continuing to be below 3 per cent of GDP, there is no wonder that we are unable to attract foreign investors. And as I have mentioned, we need the participation of foreign companies to facilitate technological and knowledge transfers. Reducing our allocation of funds towards fuel subsidies should free up more resources for such developments.

However, doing away with the scheme is not an easy option for the government as Indonesians have long taken it as their right to enjoy subsidized fuel. It could take a long time before we see fresh developments. With the 2014 elections looming, neither the ruling party nor the opposition would relish the prospect of having to craft a policy that cuts fuel subsidies. This burden of responsibility would probably fall on the shoulders of our new president.

I hope by then, that at the very least, the government can raise the prices of subsidized fuel to cut the raging costs associated with it. It will make the fuel more expensive and hence rein in demand as consumers will have to shoulder part of the burden of fuel cost while the government saves several trillion rupiah.

Also, it would level the playing field for other forms of power, like renewable energy, to compete with subsidized fuel. It would in turn encourage the development of renewable energy.

Digressing away from the energy sector, the reduction of fuel subsidization costs will also help to provide a better livelihood for our people by freeing more funds to help them attain quality growth.

Fuel subsidization is only a short-term relief to their costs of living. In the long term, stronger measures including education policies, infrastructure for businesses and affordable healthcare will go a longer way in enhancing the lives of Indonesians. Furthermore, this will help us to achieve our Millennium Development Goals that are quickly reaching its deadline in 2015.

There are many other problems within the government's energy framework and policies that requires reforms. But they would take a massive amount of effort and time to correct. For now, the path of action is clear; the government must first bite the political bullet and reduce fuel subsidies as a first step towards greater change. At the end of the day, we must strike a balance that will not overburden our people, nor threaten the plans for our energy future.

## **In Conclusion**

I can go further and warn of many other challenges ahead. But today, I have identified three areas of change that I feel are within our reach.

- Reducing our reliance on oil by developing our natural gas and unconventional gas sector.
- Diversify our energy mix by accelerating plans to explore renewable energy sources.
- Reducing fuel subsidization costs and reallocate such funds towards more important areas

With the right resolve, Indonesia will emerge stronger and more defensible in the realm of energy. But first, we must seize the day and implement some hard decisions, or risk discussing about the same issue in years to come.

Thank you very much for your kind attention.

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