Africa and Geopolitics of India's Energy security
"India's energy security strategy"

Hon Chair, Portfolio Committee on Energy, Ms Elizabeth Thabethe,
Hon Members of Parliament,
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Ms Elizabeth Sidropoulous, SAIIA
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Ladies and Gentlemen,

It is indeed a real privilege for me to be present here and to share my thoughts on India's energy security strategy. From the outset, May I thank the South African Institute of International Affairs and the Konrad Adenauer Foundation for giving me this opportunity. I would attempt to present an overview on the subject, with a hope that it would buttress identification of relevant inputs for the day's proceedings and allow distinguished participants to derive their own conclusions.

Friends,

Energy security forms a major and crucial component of India's national security matrix. The sustainability of our economic growth crucially depends on our ability to secure adequate energy supply so that the developmental and commercial activities could be carried out uninterrupted. A huge and ever-expanding imbalance between the growing demand for energy and its limited supply from indigenous sources is resulting in greater dependence on energy sources from abroad.

The economic development of any country not only depends on energy consumption but also results in its greater consumption. While India's economy has been growing at around 9% annually for past several years, energy production has managed only 5% annual growth. With a low per capita consumption of 490 kg of oil as compared to global average of 1780 kg, our incremental demand is among the highest in the world. India accounts for about 2.4% of the world's energy production, but consumes about 3.3% annually and is the fifth largest consumer. The imbalance is growing and the country is projected to surpass Japan and Russia to become the world's third largest energy consumer by 2030. There are serious concerns that the gap between the energy demand and supply will slow down the economic growth.

India's energy security has both internal and external challenges. India has limited energy resources domestically; its infrastructure is limited and unreliable; and its integrated long-term energy policy is nascent. Environmental concerns arising out of increasing energy consumption are assuming alarming proportions. The political compulsions and bureaucratic bottlenecks are adversely affecting proper implementation of integrated energy policy. At the external front, ensuring continuous energy supply at

reasonable prices from abroad in light of low domestic production and high and growing demand, is a critical challenge.

After many years of arduous efforts, Indian Ministry of Petroleum and Natural Gas formulated in 2000 the “Hydro-Carbon Vision 2025”, aimed to assure energy security by achieving self-reliance through increased indigenous production and investment in equity oil abroad. It took India nine more years to formulate and adopt an integrated energy policy in January 2009, envisaging an energy mix that focused on augmenting the domestic energy resource base and increasing efficiency while strategizing India's stakes in energy assets overseas. The integrated energy policy is expected to fuel economic growth and meet the larger human development goals by choosing fuels that are socially and economically attractive. But the problems of enforcement, implementation and integration of these approaches remain.

Raw natural resources cannot be used directly to produce suitable forms of energy. They need refining, processing and transformation into electrical, chemical or other forms of usable energy and transportation to consumers. Infrastructure development including transmission and transportation are crucial for ensuring smooth energy supply, which India presently lacks. This poses an alarming challenge to India’s energy security. India will have to invest in infrastructure some 800 billion dollars by 2030 to meet its future energy needs, as per International Energy Agency estimates.

As much as 30% to 50% of electricity produced in India is lost along the delivery chain. Unreliable power grids also cause regular load-shedding. State-owned electricity boards, responsible for ensuring and maintaining the transmission lines and delivery systems, are in massive financial debts. These are required to subsidize electricity tariffs for farming purposes which results in inefficient and wasteful usage.

Coal- It is identified as the kingpin of India’s integrated energy security policy and is the most important source for energy. India is the third largest coal producer and holder of 7% of global reserves of coal. Almost 56% of India’s energy supply and about 70% of its electricity generation are met by coal. With more than 90,000 million metric tons of proven coal reserves, the country could be self-sufficient for more than a century.

But the poor quality of Indian coal and lack of appropriate cleaning technology pose major environmental challenge in India’s quest for energy security. Our steel industry is required to import large quantity of high-quality coal from abroad. India is increasingly looking at South Africa as a reliable source of high quality coke, with our latest annual import bill reaching USD 1.9 billion. The Indian Government has set up a new organization, International Coal Venture Ltd to explore investment opportunities in coal mining projects abroad.

Oil, natural gas- India's real energy problem, however, lies with oil, natural gas, and the infrastructure necessary to produce and distribute electricity. Oil and Gas account for 36% of energy mix. India has to import more than 70 percent of its oil, much of it from the Middle East, despite proven reserves of about 5.6 billion barrels, the second-largest amount in the Asia-Pacific region behind China (0.5% of global reserves). This figure could rise to 91.6% by 2020.

India can source it from the Caspian region, South-East Asia, Australia, Africa and Europe. But in the Caspian region, existing reserves are much lower than what was initially estimated; they are land-locked; and the current pipeline infrastructure is grossly unsatisfactory.

Import options from Africa and Europe are a high strategic priority as well as an economic necessity. The crude oil from these regions is more environment-friendly due to its characteristic lower sulphur content. Gas from Russia is a potential energy source to the Asia- Pacific region. However, its transportation to India will require construction of 3,700-km long pipeline, which is commercially not viable. Compared to other regions, transportation of energy sources from the Gulf is cheaper and oil from there will remain our main source in the near future. While we are trying to diversify our imports (from 25 countries in 2004-05 to 38 currently), its pace is slow.

Equity investment- The Hydro-Carbon Vision 2025 envisages the state-owned Oil and Natural Gas Corporation (ONGC) to acquire shares in oil fields thereby securing imports quotas. Equity investments have been made in countries like Sudan, Syria, Iran, and Nigeria. Of particular interest is Africa, especially Sudan, where India has invested $750 million in oil, and Nigeria, with which India reached a deal in November 2008 enabling it to purchase about 44 million barrels of crude oil per year on a long term sustainable basis. Indian firms' investment in overseas oilfields is projected to reach $3 billion within a few years.

This policy of source diversification, however, has problematic implications. First, the exploration of overseas oilfields, especially in the area of the South China Sea, could bring India in direct competition with China. Most importantly, this policy contributes to accelerating global depletion of non-Middle East oil reserves, and will lead India and the rest of the world to a point in which dependence on the region would be far stronger.

Strategic reserve – India has decided to create a strategic petroleum reserve facility on its southern and eastern coasts. Approvals have been granted for the construction of storage tanks with 36.7 million barrels of crude oil storage capacity. But at the present rate of consumption, this would only give India about two weeks of import independence.

Hydropower - India is increasingly looking at hydro power for years to ease its dependency on fossil fuels. One fourth of the country's electricity comes from hydro

power plants and new dams will be connected to the main grid in the coming years, especially along the Brahmaputra River. The government is working on plans to build a pan-South Asia electricity ring. India already buys hydro power from neighboring Bhutan and plans to improve electricity networks to enable up to 5,000 Megawatts (MW) of electricity imports by 2020.

Nuclear energy- Nuclear energy is seriously considered as a viable and clean option to meet India's future energy requirements. The historic Indo-US Nuclear Deal has opened avenues for India to have access to critical nuclear fuel and technologies required for civilian nuclear power generation. Nuclear power generation is an essential component of India's long-term energy security. With this deal through, India can initially plan to increase its present nuclear power generation to 8%, from the present 3% of its total power. It would also act as a building block for further expansion of nuclear power generation.

In parallel, India, with substantial thorium reserves, has its own plans and projects for making its own indigenous thorium-based fast breeder reactors as the mainstay of its long-term energy security strategy. Thorium, seen by some as the nuclear fuel of the future, will be crucial in India's three-stage nuclear energy plan. The thorium fuel cycle could make nuclear energy safe and sustainable. Stage one uses uranium-fuelled PHWRs (pressurized heavy water reactors) and LWRs to produce plutonium. In the next stage, this plutonium-based fuel is used in FBRs to breed U-233, and more plutonium and thorium. Final stage uses advanced heavy water reactors to burn the U-233 and Pu-239 with thorium. The thorium will produce around 75% of the power, with the spent fuel being reprocessed to recycle fissile materials.

Another milestone has been India signing the ITER Accord in November, 2006 along with seven major countries for a global project envisaging the construction of an experimental nuclear fusion reactor which could provide a cheaper and safer energy source.

Renewable Energy- The potential for expanding the use of RETs (Renewable Energy Technologies) for energy generation is vast in India and awaits exploitation. In July 2009, India unveiled a US$19 billion plan, to produce 20 GW of solar power by 2020. India is already a leader in wind power generation. Suzlon Energy is one of the India-based pioneering industries in world to generate non-conventional energy. Chemical sources of energy such as hydrogen energy, alternative/ bio fuels for surface transportation, geothermal energy, and ocean energy are also being explored for harnessing energy in the long run. In spite of the slow growth, there is a huge potential in this sector. Though environmentally friendly, the high initial cost of RET has been a major deterrent in harnessing the renewable resources.

Other policies implemented by the government include-

- Increased fuel efficiency through a cut in state subsidies on all petroleum products, except some household necessities such as kerosene and cooking gas which receive the up to 40% subsidy to benefit the poor.

- India will become a major importer of natural gas and LNG in the next few decades. The cheapest way to supply India with gas would be through pipelines from Central Asia and the Middle East, through Pakistan, but due to tense relations with Pakistan, the two countries have not been cooperating on energy schemes and such pipelines will remain a political dream. On the eastern border, imports of some natural gas from Bangladesh may be feasible. However, Bangladesh's internal party politics does not allow it to take a decision in favour of New Delhi. Consequently, India is focusing on costlier LNG imports especially from Oman and Qatar. This would require construction of LNG terminals which pose security risks and are attractive targets for terrorists.

- In the past five years, the government introduced a new exploration licensing policy aimed to promote investment in the exploration and production of domestic oil and gas. It is premature to determine how much oil can be generated domestically and for how long, but privatization of the oil sector, removal of bureaucratic obstacles and improved business climate could help.

- Increased utilization of clean coal technology: Application of the coal gasification combined cycle process is an emerging technology for clean and efficient coal fueled generation.

- Shift to next generation fuels and increased use of renewable sources of energy: India is probably the only country in the world with a full-fledged National Ministry dedicated to the production of energy from renewable energy sources. The Indian government is promoting the use of ethanol made from sugar cane and bio-diesel extracted from trees that are common in many parts of India, such as the Jetropha, Karanja and Mahua. Additionally, India is emerging as a growing market for solar, wind and hydroelectric power. India currently ranks fifth in the global wind energy production. We are looking at South Africa as an important investment destination with firms like Enercon engaged in pilot study projects in Western Cape.

  May I conclude by highlighting that given the shifting global energy consumption patterns, with China and India emerging as key consumers, securing stable energy sources will occupy primary importance in India’s foreign policy paradigm.

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