

# MILITARY'S ROLE IN ENERGY SECURITY: A STRATEGIC REVIEW

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*One of the most important tasks is to broaden the energy supply ... Energy today determines international security and social as well as economic development in many respects. In reality, the well-being of millions of people is directly dependent on energy security.*

— President of Russia Vladimir Putin

Any disruption in supply and availability of energy could seriously affect the growth and security of a nation, the quality of life of its citizen, and impact the capabilities of most militaries. Traditionally, ensuring availability of the required quantities of energy resources at an affordable price has been the primary responsibility of the government and policy-makers. However, recent developments in international relations make it necessary that military commanders also be aware about its availability at all times. They should be able to appreciate the veracities surrounding the supply of the energy resource, including the reliability of the logistics networks that allow its delivery through imports.

The first instance, after World War II, when a military campaign between two warring nations caused a global energy crisis, was the period following the Yom Kippur War (Arab-Israel) of 1973. The Arab members of

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**Historically, energy experts, political leaders and economic strategists have always treated crude supplies as a freely tradable commodity, the availability of which was never central to planning during hostilities. Therefore, military commanders were never directly involved in the policy framing process surrounding the international trade for the import of crude or coal.**

the Organisation of Petroleum Exporting Countries (OPEC),<sup>1</sup> to show their solidarity with Egypt and Syria, imposed an embargo on the export of crude oil to the US that was supporting Israel. The restriction slowly extended to other countries like Netherlands, Portugal, South Africa, etc. for their actions in support of Israel. The oil rich OPEC nations not only banned export to select nations but also reduced the production of crude oil. The embargo, while affecting the automobile sector and power generation of the USA, also contributed to the spiralling rise in global oil prices, weakening the US dollar and giving rise to global inflation.

Post the Arab-Israel War, America took stock of its energy security and adopted many measures to strengthen its economic stability. These measures included the creation of strategic oil reserves,<sup>2</sup> exploration for new oil fields, improvements in drilling and refining technologies, introduction of new norms for fuel efficiency in the transportation sector and creation of the International Energy Agency (IEA). Later, during the Gulf Wars (1990-2004),<sup>3</sup> similar large-scale fluctuations in oil prices were seen again in the international market. Although, the US did not suffer economically, many of its crude importing allies suffered due to disruption in supplies. Historically, energy experts, political leaders and economic strategists have always treated crude supplies as a freely tradable commodity, the availability of which was never central

1. OPEC (Organisation of the Petroleum Exporting Countries) was created in 1960. Presently, it has 14 member countries.
2. The strategic petroleum reserves to hold emergency stock of over 727 million barrels of crude were started by the US in 1975 at Texas and Louisiana. <https://www.energy.gov/fe/services/petroleum-reserves/strategic-petroleum-reserve/spr-storage-sites>. Accessed on February 10, 2019.
3. Maclean's Economic Analysis, "Three Wars in Iraq and their Impact on Oil Prices", <https://www.macleans.ca/economy/economicanalysis/three-wars-in-iraq-and-their-impact-on-oil-prices/>. Accessed on February 12, 2019.

to planning during hostilities. Therefore, military commanders were never directly involved in the policy framing process surrounding the international trade for the import of crude or coal. Until Gulf War II, energy security was understood to be a diplomatic, political and economic issue, best dealt with by international trade analysts and business experts. However, the approach towards the military's involvement in energy security changed during the years 2004-05.

Every country needs to be resilient to resist, and flexible enough to quickly recover from, a major disruption in the availability of energy. Disruption in accessibility to energy could be caused due to natural calamities like floods, earthquakes, etc.; the failure of external supply lines; and military/cyber attacks on critical infrastructure. Resilience in energy is a nation's ability to withstand these disruptive shocks and recover smoothly at the earliest. This article discusses the role of the military in ensuring this resilience. The doctrinal approach to the energy efficient operations of the US and Chinese militaries is also discussed in the paper. While the US exerts its energy security policies through the North Atlantic Treaty Organisation (NATO), China uses its growing economic and military might to ensure energy resilience for itself. Other major economies like France, Germany and Japan have approached the problem by diversifying the energy basket, with more energy coming from renewable and nuclear sources. India is still in the process of defining its approach, with the draft National Energy Policy, prepared in 2017, yet to be finalised.

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## **EVOLUTION OF THE CONCEPT**

Considering the importance of energy in the stability of a nation and the important role energy security plays in its overall health and prosperity,

NATO and its allies discussed energy security<sup>4</sup> when they met at Brussels on July 11-12, 2018. The core idea was to assure all the member nations that they should not become vulnerable to political or economic manipulation by external agencies due to their concerns about the availability of energy. NATO planned to enhance its outlook and strategic awareness about energy and political/technical developments that have security implications. Thereafter, it decided to develop its own competence in supporting and protecting critical energy infrastructure across member nations and work towards improving the energy efficiency of its own operations. The organisation also proposed to raise the strategic awareness of the military leadership of partner countries by sharing knowledge and intelligence inputs with the relevant international organisations such as the IEA and the European Union (EU).<sup>5</sup>

Early in 2008, NATO had, at the Bucharest Summit, for the first time, defined its role in the energy security of member nations and proposed (and defined) its role in resilience building and influencing international relationships.<sup>6</sup> The concerns were accepted by member nations and included in the post summit declaration. It said, *"Energy security is a vital element for any nation's resilience and is increasingly becoming more pronounced due to emerging security concerns. Energy efficiency is also an important aspect from the logistics and sustainability perspective in the theatres of operations."* Therefore, enhancing strategic awareness of the security implications of energy availability is important for military commanders. Subsequently, NATO started organising specific events such as workshops, table-top exercises, courses, briefings, etc. by domain experts during seminars/congregations. Since 2015, it formally started the "Energy Security Strategic Awareness Course"<sup>7</sup> for senior functionaries at the NATO training establishment at Oberammergau,

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4. NATO, "Brussels Summit Key Decisions", July 11-12, 2018, [https://www.nato.int/nato\\_static\\_fl2014/assets/pdf/pdf\\_2018\\_11/20181105\\_1811-factsheet-key-decisions-summit-en.pdf](https://www.nato.int/nato_static_fl2014/assets/pdf/pdf_2018_11/20181105_1811-factsheet-key-decisions-summit-en.pdf), July 12, 2018. Accessed on January 26, 2019.
  5. NATO, "NATO's Role in Energy Security", [https://www.nato.int/cps/en/natohq/topics\\_49208.htm](https://www.nato.int/cps/en/natohq/topics_49208.htm), September 14, 2018. Accessed on January 10, 2019.
  6. NATO, "Bucharest Summit Declaration", [https://www.nato.int/cps/en/natolive/official\\_texts\\_8443.htm](https://www.nato.int/cps/en/natolive/official_texts_8443.htm), April 03, 2008. Accessed on January 24, 2019.
  7. NATO School, Oberammergau, "Energy Security Strategic Awareness Course", <https://www.natoschool.nato.int/Academics/Resident-Courses/Course-Catalogue/Course-description?ID=134>. Accessed on February 10, 2019.

Germany. The aim of this course is to raise the awareness about current energy developments and associated vulnerabilities as part of the emerging challenges to security. It also aims to build a common understanding of the organisation's current energy security agenda and the need to improve bonhomie between international partners in the field of energy security.

While NATO is not an energy research institution, it understands that developments in the energy sector can affect the international security environment and may also have far-reaching security and political implications for many countries. A stable and reliable energy supply line, with options to diversify suppliers and energy sources, and an interconnected energy network is critical for global political stability. Therefore, NATO decided to closely follow all technical and political developments on the availability of energy and developments in new and alternate energy sources. It closely studied the changes in the global index price of crude over several years and analysed the variations, especially during the years of conflicts. The variation in the index price of crude, 60 days before and after the declaration of hostilities in the last three decades, is shown in Fig 1.<sup>8</sup> It can be inferred from the graph that world crude prices were slowly becoming insensitive to global military conflicts. While the price of crude almost doubled during the period of Gulf War I, it remained fairly stable during Gulf War II and, rather fell during the Islamic State in Syria and Iraq (ISIS) crackdown during 2014. This stability could be attributed to improved international coordination and deeper understanding of energy security by militaries. The changes in the price of crude over the last few years and its causes are discussed in the next section.

### **FLUCTUATION IN CRUDE OIL PRICES: STRATEGIC PARTNERSHIP**

Crude petroleum oil has been one of the main sources of energy for the last many years for most nations globally. The prices of Brent crude<sup>9</sup> have dictated the economy of many countries and have been centre-stage to defining international relationships. There have been very few instances

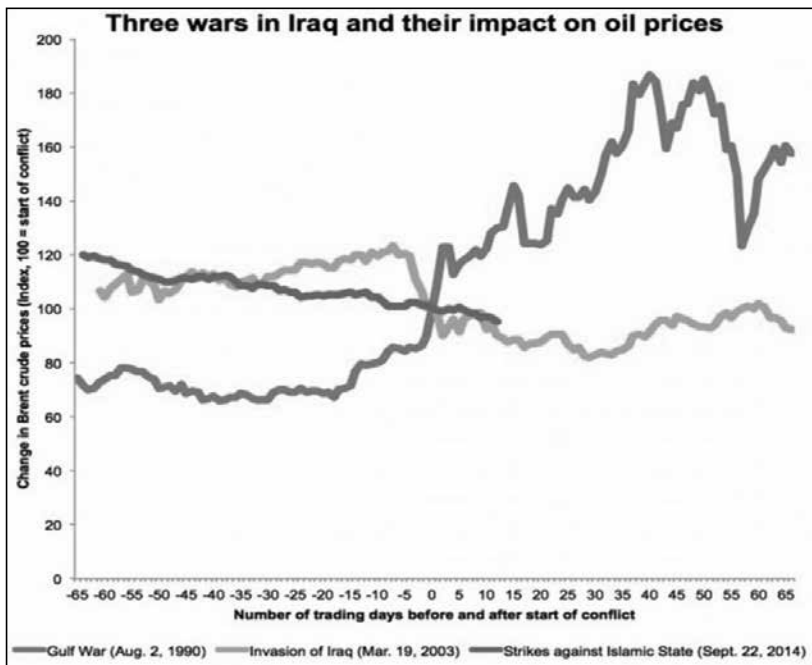
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8. n. 3.

9. Brent crude is the trading name of light, low sulphur crude oil extracted from the area around the North Sea, between the UK and Norway. It is used for benchmarking the quality and price of crude.

when the prices have ever relented suddenly. The price of crude, along with the percentage variation for the last 10 years is shown in Fig 2.<sup>10</sup> From the figure, it can be seen that during the years 2013-14 and 2014-15,

**Fig 1: Variation in Index Price of Crude**



Source: IEA, Paris

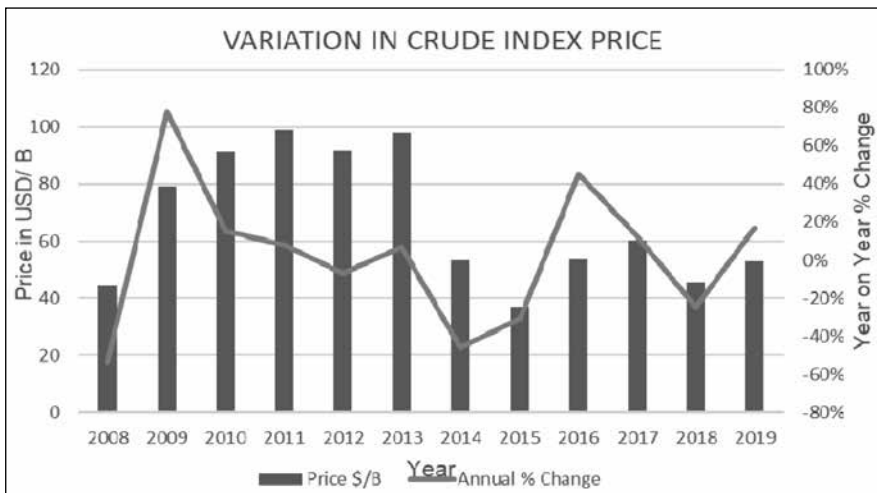
there was a steep fall in the price of Brent crude oil. The drop in price was the result of several factors like reduction in consumption/demand from China and Japan, increase in production of crude from the US and Canada, lack of consensus on price and quantity within OPEC, development of cost-efficient technologies of extracting shale gas, etc.

The fall in the price of crude had a cascading effect on the operational margins and profits of many crude oil producing and exporting nations, as the cost of production did not reduce commensurately with its selling

10. "Macrotrends LLC, Crude Oil Prices—70-Year Historical Chart", <https://www.macrotrends.net/1369/crude-oil-price-history-chart>, 2019. Accessed on February 12, 2019.

price. The economies of many oil exporting nations witnessed a sharp decline in revenues. While the developed oil exporting economies like that of the USA could absorb these losses by adopting innovative technologies and venturing into new markets, the economies of other oil exporting countries receded, with huge losses in spite of substantially increasing production. The threshold price of crude from these

**Fig 2: Variation in Index Price of Crude**



Source: [www.macrotrends.net](http://www.macrotrends.net)

nations remained higher and less competitive than that of their opponents across the Atlantic. The low crude price was a happy development for countries like India and China, but an economic disaster for many like Russia, Algeria, Angola, Ecuador, Nigeria and Venezuela, whose economies depend to a large extent on oil export.

The consequence of such a situation, obviously, had a security dimension. For many oil-producing countries, a drop in the oil price below a certain level threatened to disrupt their internal economic balance. The 'social contract' or welfare schemes run by these governments or political regimes ran into trouble. For nations that used 'petro-dollars' to 'buy off' their populations through generous subsidies, a continued global oil recession translated into political unrest, like those witnessed in South America and Central

Africa. This also led to realigning of alliances and cooperation amongst non-traditional partners like China and Iran. Similarly, Iran and Saudi Arabia had to virtually end their religious rivalry to combat domestic economic instability. Other nations affected by similar economic crises included Syria, Yemen and Jordan.

NATO's reading of the changing regional alliance was centred around the vehement support the oil exporting nations, affected by this economic reshuffle, were receiving from Russia and China. With oil and gas exports to Europe alone accounting for over half of Russia's revenue earning, Russia's annexation of Crimea—to enable it to ship cheap oil to Europe through the Black Sea—was also a worrying development during that period.

As per NATO's assessment, large fluctuations in crude oil prices directly affect strategic partnerships amongst nations, which was not a healthy signal for world peace. NATO's concerns about the fallout of the growing instability in supply and availability of oil could be summed up as follows:

- Energy security is vital for the economic and political stability of all nations.
- Ensuring continuous supply of crude oil from foreign sources requires enormous diplomatic, military and commercial acumen.
- The safety and security of the logistic supply line for the safe movement of crude or finished products (by sea or land) should be the responsibility of the countries' military leaderships.
- Sustainability of all military expeditions is dependent on the availability of energy/fuel in sufficient quantities, which requires dependable logistics.

### **NATO'S APPROACH TO ENERGY RESILIENCE**

The success of NATO's energy resilience efforts was realised globally during the 2014 mission against the ISIS, when, in spite of the conflict, the crude prices remained stable throughout the period; the price, in fact, reduced towards the end of the period. However, for this, the organisation had to work through layers of diplomacy and policy reviews before it could convince the political leadership to accept the role of the military in energy security decision-making. The steps taken by NATO over the years are discussed in this section.

NATO's 20th Summit was organised at Bucharest, Romania, from April 2-4, 2008. The agenda included discussions on energy security. A report on "NATO's Role in Energy Security" was circulated amongst the member nations.<sup>11</sup> The report identified the risks of disrupted flow of energy resources from various sources. It outlined options and recommended the directions for future activities. These objectives were reiterated at subsequent summits and accepted for greater deliberations. However, a clear and focussed role for the military as an enabler and protector of national energy security concerns was accepted by all the members after a long debate.

The next international summit of NATO was held at Lisbon, Portugal, between November 19-20, 2010. At this summit, the emerging trans-national challenges like terrorism, cyber and energy security were discussed. It was decided amongst the member nations to integrate energy security considerations into NATO's policies and activities. The official post-summit declaration, reproduced below, reflects the inter-relationship between energy security and military affairs as understood by the Western organisation.

*A stable and reliable energy supply, diversification of routes, suppliers and energy resources, and the interconnectivity of energy networks, remain of critical importance. The Alliance (read NATO) will continue to consult on the most immediate risks in the field of energy security in accordance with decisions at previous Summits and in line with our new Strategic Concept. We will further develop the capacity to contribute to energy security, concentrating on areas, agreed at Bucharest, where NATO can add value. In advancing our work, we will enhance consultations and cooperation with partners and other international actors, as agreed, and integrate, as appropriate, energy security considerations in NATO's policies and activities. We task the Council to prepare an interim report on the progress achieved in the area of energy security and approve the setting up of an Energy Security Section in the Emerging Security Challenges Division at NATO Headquarters.*

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11. Francesco Tamburini, "NATO's Role in Energy Security: Does NATO Meet the Needs of Member States", [http://www.academia.edu/12290344/NATOs\\_role\\_in\\_energy\\_security\\_does\\_NATO\\_meet\\_the\\_needs\\_of\\_Member\\_States](http://www.academia.edu/12290344/NATOs_role_in_energy_security_does_NATO_meet_the_needs_of_Member_States). Accessed on January 28, 2019.

**Most countries across the globe are dependent on each other for one or other form of energy or on imported technologies to harness their own resources. All forms of energy have to be routed through a complex web of a networked infrastructure.**

Thereafter, on July 10, 2012, the NATO Energy Security Centre of Excellence (ENSEC COE)<sup>12</sup> was set up at Vilnius, Lithuania. The centre was tasked to assist the strategic commands of NATO and other civil/military entities to provide comprehensive and timely expert advice on all aspects relating to energy security. ENSEC COE indoctrinated military policies across the world, and improved the understanding of the role of energy in the security conundrum of the respective countries. The centre's mission also included providing cost effective solutions to support

military requirements, energy efficiency in the operational field, and interaction with the academia and industry. In due course, military commanders started appreciating their role in ensuring that their political and administrative leadership is not rendered vulnerable to economic manipulation due to an energy crisis. The efforts of better coordination and planning of military, political and economic activities before the declaration of hostilities manifested themselves favourably during the years 2014-16. When "Operation Inherent Resolve" was launched against the ISIS in Iran and Syria, NATO ensured the transit of African crude into the global market. Realising this, the ISIS controlled oil fields increased their daily production,<sup>13</sup> thereby further driving down its price. The variation in prices mapped in Fig 1, acknowledges this assessment.

### **NATO'S ROLE AS PROTECTOR OF ENERGY INFRASTRUCTURE**

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12. NATO Energy Security Centre of Excellence, "About", <https://www.enseccoe.org/en/about/6>. Accessed on February 12, 2019.

13. Sanjay K Pradhan, "ISIS and its Implications on Energy Security", *Journal of Energy & Management*, vol I, 2016, [http://www.pdpu.ac.in/downloads/5.%20isis\\_and\\_its\\_implication.pdf](http://www.pdpu.ac.in/downloads/5.%20isis_and_its_implication.pdf). Accessed on February 19, 2019.

of a networked infrastructure consisting of mines/wells, transportation system (including ships, ports, etc.), and processing industries (refineries, thermal power stations, etc.). These vital energy infrastructures extract, transport and convert raw energy source into usable resource. Energy infrastructures are one of the most vulnerable assets of a nation, as its economic stability and prosperity depend on them. Therefore, protecting these—especially those located close to areas of conflict—are vital for the country. Further, as few energy infrastructure networks, e.g. crude oil shipping routes, extend beyond borders, attacks on these by hostile militaries, terrorists or hackers can have repercussions across many nations. Therefore, it is important that military commanders should also devise methods<sup>14</sup> to improve their ability to protect critical energy infrastructure through training and military exercises.

Traditionally, protecting the domestic energy infrastructure was understood to be the primary responsibility of homeland security. The military leadership was only required to add value to the security envelope by enabling security from trans-border operators. However, the exchange of best practices amongst partner countries, many of which are important energy producers themselves or provide transit facilities for its movement, have clearly established the requirement to involve the military in a nation's energy security affairs. The involvement of armies and air forces in the physical security of critical energy infrastructure like refineries, nuclear installations, etc. are all examples of the military supporting the national authorities in enhancing their resilience against energy supply disruptions. Similarly, the direct involvement of the navy

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14. Dinos Kerigan-Kyrou, "Critical Energy Infrastructure: Operators, NATO and Facing the Future Challenges", JSTOR, vol 12, No 3, September 2013, <http://connections-qj.org/article/critical-energy-infrastructure-operators-nato-and-facing-future-challenges>. Accessed on January 24, 2019.

**Assuring supplies and protecting critical infrastructure is important in the current security environment. Work on enhancing the resilience of the energy infrastructure, notably in hybrid war scenarios, requires the focussed attention of both diplomatic and military policy-makers.**

and coast guard in protecting important sea lanes, counter-piracy operations and physical security of off-shore drilling rigs, berthing/refuelling installations are examples of the direct contribution of militaries towards energy security.

According to the *American Defence Review* magazine,<sup>15</sup> over 51 terrorist attacks against energy infrastructure were reported in Algeria, 146 in Libya and 17 in Tunisia during 2013-14. This is noticeable when read in conjunction with the fact that the European Union imports over 13 percent of its natural gas from Algeria. The Northern

and Southeastern African nations, which form part of the global network for transit of oil and gas supply to several nations, are under constant attack from disruptive forces. The supply lines for oil and gas from the North African countries like Morocco, Algeria, Libya, Egypt and Sudan to the Mediterranean and Red Sea help deliver the valuable natural resources to the port cities for further shipment to European and Southeast Asian countries.<sup>16</sup> Any disruption to these trading lines can influence the availability of fuel across many nations.

Equally noteworthy has been the increase in the threat of piracy to large oil tankers carrying crude oil from the Gulf region through the Indian Ocean—a challenge which many navies were trying to address under Operation Ocean Shield<sup>17</sup> during 2009-16. The high-sea pirates were

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15. Diego Cardano, "Terrorist Threats to Energy Infrastructure in North Africa", *American Defence Review*, <https://www.africandefence.net/terrorist-threats-to-energy-infrastructure-in-north-africa/>. Accessed on February 18, 2019.

16. Ibid.

17. NATO-OTAN, Allied Maritime Command, Operation Ocean Shield, was a counter-piracy mission in the Gulf of Aden off the eastern coast of Africa. It mandated the navy to provide escorts to merchant vessels as part of a UN Security Council Resolution. Political guidance was provided by the North Atlantic Council. Participating navies included those from Denmark, Turkey, Norway, Spain, UK, USA, etc., <https://mc.nato.int/missions/operation-ocean-shield.aspx>. Accessed on February 12, 2019.

also disrupting the supply line of resources supporting the NATO forces in Afghanistan, making their availability unpredictable and disruptive. Fig 3<sup>18</sup> shows the reach of NATO's operations against pirates to protect the movement of ships in the world's busiest energy shipping lines, across the Arabian Sea. Therefore, the importance of enhancing efforts to optimise resource utilisation during military operations gained momentum.

In line with this thought process, and incidents of terrorist attacks on energy infrastructures, Central Asian experts discussed energy security issues on December 14-15, 2016, at Ashgabat, Turkmenistan. The conference was centred around the topic, "25 Years of Independence: Energy Security Issues in Central Asia and Beyond". Energy and military experts from Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan participated in the event which reflected on the security challenges and regional cooperation strategies, with particular reference to the energy sector. The deliberations concluded with the understanding that while oil and gas pipelines can be built as a means to promote peace and stability, regional cooperation is essential to guarantee the security and defence of critical energy infrastructure.

**Fig 3: NATO's Operation Ocean Shield**



Source: NATO

18. Ibid.

World leaders accept that disruption of energy supply can affect the security and resilience of societies. Assuring supplies and protecting critical infrastructure is important in the current security environment. Work on enhancing the resilience of the energy infrastructure, notably in hybrid war scenarios, requires the focussed attention of both diplomatic and military policy-makers. Therefore, it is professed that increase in awareness about energy risks, enhancement in competence to protect energy infrastructure and acceptance of energy efficiency norms for military operations is essential. By strengthening these virtues, a nation will be better prepared to respond to the energy security challenges.

### **ENHANCING ENERGY EFFICIENCY WITHIN THE MILITARY**

The importance of conserving energy supplies and improving energy efficiency in offshore military operations was a new dimension in military affairs, being appreciated by senior functionaries and policy-makers. On June 19, 2014, Afghan Taliban fighters attacked a convoy of NATO fuel trucks at the Pakistan-Afghan border. The suicide bomb explosion resulted in 37 fuel trucks being burned at Torkham, Nangarhar, Pakistan. The fuel convoy was part of the important supply line enroute to Afghanistan from Karachi port, in support of the International Security Assistance Force (ISAF). Such attacks had occurred in the past also but the frequency and magnitude of these attacks on the logistics networks have been increasing over the last few years in conflict zones like Pakistan, Afghanistan, etc.<sup>19</sup> Such attacks not only strangle field operations but also have a demoralising effect on the forces.

In view of global developments in the field of energy conservation, NATO adapted the 'Green Defence Framework' in February 2014. It proposed to make military units and establishments more operationally effective through changes in their approach towards the use of energy, concurrently saving resources and improving environmental sustainability. Enhancing energy

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19. NATO Staff Report, "Energy Security: A Critical Concern for Allies and Partners", *NATO Review Magazine*, <https://www.nato.int/docu/review/2018/Also-in-2018/energy-security-a-critical-concern-for-allies-and-partners/EN/index.htm>, July 26, 2019. Accessed on February 18, 2019.

efficiency in military operations focusses on reducing the energy consumption by optimising transportation, minimising vehicular movement, improving lighting and heating requirements in military camps, etc. Reducing fuel consumption has, today, become an operational imperative; it not only saves revenue but also improves mobility and increases the endurance of operations. Like any other industry, enhancing energy efficiency within the armed forces has to be given priority to ensure energy security.

The importance of energy efficiency is now being appreciated by many militaries across the globe. Apart from fuel, the weight of batteries to power the wide range of electronic equipment used by the military also adds to the backpack load of a soldier. Considering these, the year 2015 was declared as the 'Smart Energy Year'. Researchers and industry professionals got together to devise methods and equipment for smart energy production, storage, distribution and consumption. Adoption of green fuel and solar lighting at remote stations are other areas being researched by NATO.

The key takeaway of NATO's approach to energy efficient military operations could be summed up as follows:

- Adopting the 'Green Defence Framework' to drive energy conservation in military establishments.
- Adopting green/alternate fuels and promoting the use of solar/wind power at forward bases.
- Optimising transportation and logistics efforts.
- Reducing the weight of batteries and backpacks.

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## **CHINA'S APPROACH TO ENERGY SECURITY: AN INTRODUCTION**

The problems associated with China's increasing dependence on imported crude was understood earlier by its central committee and policy-makers.

They had prophesied that the country's dependency on imported energy would continue for ever if the necessary long-term investment in technology and strategic outreach were not initiated in a planned manner. Similarly, the IEA had also projected that by 2014, China would become the world's largest importer of crude,<sup>20</sup> and may continue to dominate the oil import market even beyond 2025. Presently, China's crude requirements are met by imports from many countries, including those from West Asia, Central Africa and Latin America.

While NATO's doctrinal approach to energy resilience recommended a multinational joint effort towards securing the supply lines and sources of energy, China's 2007 White Paper on Energy<sup>21</sup> stipulated that the country should involve itself actively in international energy trade and gainfully utilise foreign energy resources for its growth.<sup>22</sup> For long, Beijing's scheme has been to invest in foreign energy resources, based on a 'leapfrog' strategy. By the turn of the century, it had decided to invest with a new set of suppliers for natural resources like oil and crude, starting initially from the Southeast Asian region, particularly Indonesia, the largest oil producing nation in its neighbourhood. Way back in 2002, Chinese oil companies had already acquired stakes in oil and gas fields in that area.<sup>23</sup> However, after 2007, it aggressively started expanding globally and invested heavily in the African nations. The intensity and speed of ingress even overstepped the American dominance in harnessing the unexploited energy potential of the region.

Recently, China has also been using diplomatic tools to control the energy assets and oil supply lines from countries with which it shares economic interests. While energy security calculations and the activities of its national oil companies had always been central to its foreign policy, non-energy economic and political issues also influence Beijing's outreach plans. A case

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20. IEA, "Market Series Report, Oil 2018", *Net Crude Oil Imports, 2003-2025*, <https://www.iea.org/oil2008/#section-5-2>. Accessed on February 26, 2019.

21. China.org.cn, *White Paper on Energy*, <http://www.china.org.cn/english/environment/236955.htm>, December 26, 2007. Accessed on February 18, 2019.

22. Ibid.

23. In 2002, China's state-owned offshore oil company CNOOC, bought Indonesia's oil and gas stakes in the Spanish oil company Rspol YPF for \$585 million—a considerably large sum during those days.

in point is Iran, with which China has had a strong trading partnership. Lately, it started investing substantially in Tehran's hydrocarbon sector, and thereafter, showed reluctance in cooperating with international advisories on implementing sanctions on Iran, which were imposed due to the latter's nuclear weapons programme. Beijing has also found a new friend in Pakistan and has been supporting the latter due to the country's unique geographical location. Similarly, China has also been listed amongst the largest foreign investors in Sudan's oil sector, in spite of the government's alleged involvement in the genocide in Darfur.<sup>24</sup> Chinese companies are also dumping the African markets with cheap Fast-Moving-Consumer-Goods (FMCG), thus, ensuring high growth of its domestic industry. Bilateral trade between China and Africa in 2017-18 amounted to over US\$ 170 billion, of which China's export itself amounted to over US\$ 95 billion,<sup>25</sup> an increase of over 21 times from the 2002 volume.

### **CENTRALITY OF CRUDE TO CHINA'S DEVELOPMENT: MILITARY'S INVOLVEMENT**

On the military front, China has been building strong bilateral relations with some African leaders by selling them arms. For example, it sold weapons and helicopters to the Sudanese government that were used in Darfur to suppress the locals.<sup>26</sup> Similarly, in Algeria, which is the world's 18th largest producer of low sulphur oil and fourth largest producer in Africa of good quality crude, Beijing has been providing training to its military officers and supplying them modern arms and equipment. Concurrently, the Chinese petrochemical companies have also been making great inroads into the Algerian oil sector, including receiving the awards of exploration licences. This bonhomie of interdependence between China and the African nations has been growing

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24. Hilary Andersson, "China is Fuelling War in Darfur", BBC News, July 13, 2008, <http://news.bbc.co.uk/2/hi/africa/7503428.stm>. Accessed on February 19, 2019.

25. Ministry of Commerce, "People's Republic of China, on China-Africa Bilateral Trade Statistic in 2017", January 26, 2018, [http://english.mofcom.gov.cn/article/statistic/lanmubb/AsiaAfrica/201803/201803\\_02719613.shtml](http://english.mofcom.gov.cn/article/statistic/lanmubb/AsiaAfrica/201803/201803_02719613.shtml). Accessed on February 26, 2019.

26. "Report Accuses China and Russia of Arming Sudan", *New York Times*, <https://web.archive.org/web/20171012035352/https://query.nytimes.com/gst/abstract.html?res=9A06E7DC1731F93AA35756C0A9619C8B63&legacy=true>, May 9, 2007.

**Until 2002, most of the oil refineries in China were located on its eastern and southeastern coast, in close proximity to sea ports. This was to minimise inland transfer of crude oil supplies received from West Asia and Africa.**

stronger since the turn of the century and is not likely to weaken.

On the domestic front, Beijing's rapidly expanding industrial base requires large quantities of cheap crude petroleum—especially that from Africa—to support growth. Under these trading compulsions, Beijing's dependence on the maritime routes, especially those passing through the Indian Ocean, has become crucial. Therefore, China decided to extend its military presence in the Indian Ocean with the intention to ensure the safety of its energy security matrix.

Fig 4<sup>27</sup> illustrates the geographical limits of the traditional oil shipping lanes (routes) extending from the Chinese mainland to the Sudanese port in the Horn of Africa and Bagamoyo, Tanzania. In order to protect these routes, Beijing decided to increase its naval presence in the Indian Ocean Region (IOR). The map also marks the network of Chinese military and commercial facilities developed along the shipping routes. All the new ports, including those at Kenya, Djibouti, Pakistan, Maldives, Sri Lanka, Bangladesh, Myanmar, Thailand, Cambodia, etc. have been developed with capabilities for refuelling, berthing and handling cargo of large merchant ships, including those belonging to the People's Liberation Army Navy (PLAN). This chain of ports was later called the 'String of Pearls', a conceptual theory proposed by the US research firm<sup>28</sup> Allen & Hamilton, that felt that China intended to gain access to strategic ports and airfields, expand and modernise its military force, and foster stronger military relationships with trading partners. However, Beijing insisted that the project was entirely peaceful and only meant for

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27. Pragya Mishra, "Why is String of Pearls Strategy of China a Threat to India's Economy and Security", *Quora*, <https://www.quora.com/Why-is-String-of-Pearls-strategy-of-China-a-threat-to-Indias-economy-and-security>, August 13, 2017. Accessed on February 24, 2019.

28. In 2004, Juli A MacDonald came up with the "string of pearls" hypothesis, which professed the potential outcome of China's growing geo-political influence and reflected on its intentions in the IOR.

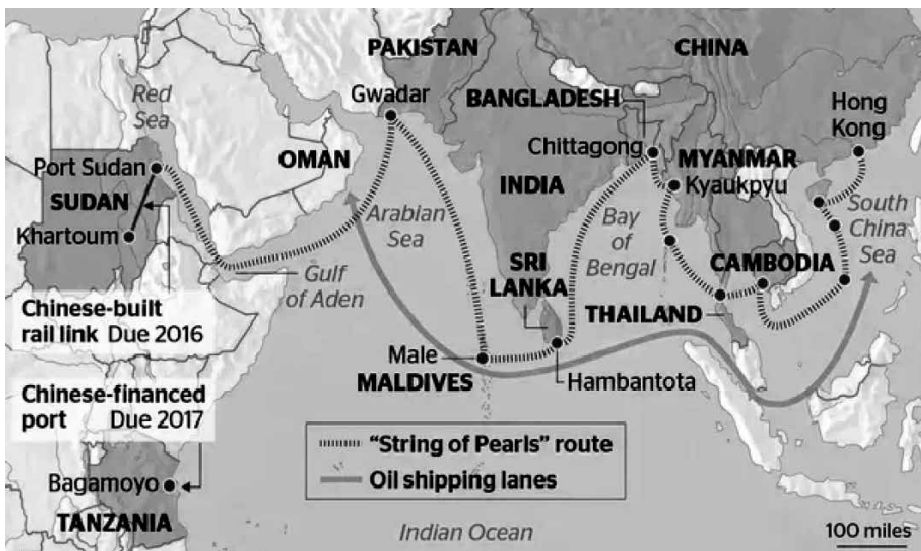
protecting regional commercial interests. A similar argument was put up for justifying the build-up for the China-Pakistan Economic Corridor (CPEC)<sup>29</sup> project with Pakistan over disputed territory.

#### INVESTMENT IN NEW TRADE ROUTES: WHY CPEC?

A formal Memorandum of Understanding (MoU) between China and Pakistan on the CPEC was signed in July 2013; thereafter, the actual monographic study and finalisation of routes was completed in November 2015. According to the official the webpage of the CPEC, the project is mainly related to cooperation in transport, energy and industrial parks. However, an in-depth study of China's domestic energy

**The 'Belt and Road' initiative in 2017, between Kyaukpyu, Myanmar and Kunming in China would also greatly reduce the travel time and transportation cost of crude into China.**

**Fig 4: Shipping Routes from Africa and Southwest Asia to China**

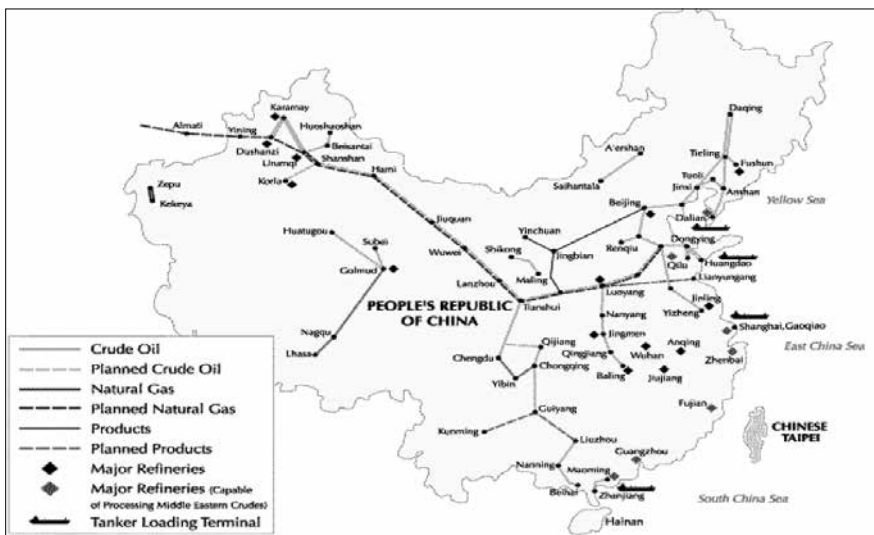


Source: Pragya Mishra, *Quora*

29. CPEC, "China Pakistan Economic Corridor", <http://cpec.gov.pk/>. Accessed on February 21, 2019.

requirements and the regional imbalance within the country suggest different reasons. Until 2002,<sup>30</sup> most of the oil refineries in China were located on its eastern and southeastern coast, in close proximity to sea ports. This was to minimise inland transfer of crude oil supplies received from West Asia and Africa. Some refineries were also located on its northwest border with Kazakhstan for processing the Russian crude. Fig 5<sup>31</sup> shows the locations of the oil refineries and the network of pipelines for distributing gas and oil across the country. What is clear from the figure is that a regional imbalance existed in the distribution and availability of crude oil derivatives across some regions in China.

**Fig 5: Location of Major oil Refineries and Distribution of Pipelines**



Courtesy: IEA

To overcome this shortcoming, China was keen on investing in new trade routes for easing the import of crude oil and export of industrial produce. Therefore, new routes were planned through

30. Dale Allen Pfeiffer, FTW, "Sizing up the Competition: Is China the Endgame", [http://www.copvicia.com/free/ww3/092502\\_endgame.html](http://www.copvicia.com/free/ww3/092502_endgame.html), September 25, 2002. Accessed on February 19, 2019.

31. China's Oil, Gas and Product Pipelines, Map 3, IEA and Energy No 158, July 1999, p. 26. Accessed on February 19, 2019.

Pakistan (CPEC) and Myanmar. The link among Gwadar, Pakistan and Kashgar, China, is shown in Fig 6.<sup>32</sup> This route would provide crude oil for the new refineries in the underdeveloped regions of Xinjiang, Tibet, Yunnan, Sichuan, etc. This regional corridor would, in turn, also boost industrialisation and exports from China. Similarly, the new route proposed under the 'Belt and Road' initiative in 2017, between Kyaukpyu, Myanmar and Kunming<sup>33</sup> in China would also greatly reduce the travel time and transportation cost of crude into China. Further, large super tankers and container ships, carrying cargo to China, always had difficulty in meandering through the archipelagos of the South China Sea. With the commissioning of the new route through Myanmar, the ships would now safely manoeuvre through the deeper waters of the Bay of Bengal and deliver crude and other cargo at Kyaukpyu. These new routes would have distinct financial advantages as the distance between Port Sudan and Hong Kong is about 10,600 km and an oil tanker generally takes 18 days to cover this distance. However, the distance would reduce to 7,000 km and the travel time to 10 days in case the disembarkation port changes to Kyaukpyu, and only 3,500 km and 6 days in the case of Gwadar,<sup>34</sup> Pakistan. This would also afford considerable gains in strategic terms for China.

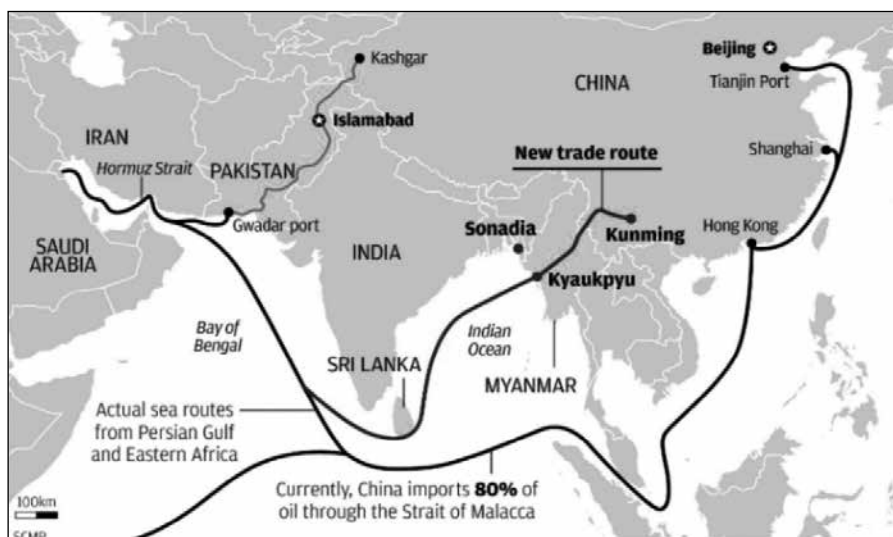
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32. Tanai Moulick, "Why is China Investing so much in CPEC", *Quora*, <https://www.quora.com/Why-is-China-investing-so-much-in-CPEC-China-Pakistan-economic-corridor>, November 16, 2016, Accessed on February 12, 2019.

33. "China's New Silk Road Plan: What's in it for Myanmar?", *Myanmar Frontier*, June 4, 2017, <https://frontiermyanmar.net/en/chinas-new-silk-road-plan-whats-in-it-for-myanmar>. Accessed on February 18, 2019.

34. Source: Searates, <https://www.searates.com/services/distances-time/>

Fig 6: Traditional Oil Trade Routes and New Routes



Source: Myanmar Frontier

In another recent development, the government owned China National Petroleum Corporation (CNPC)<sup>35</sup> conducted a round table for oil and gas cooperation in May 2017, on the sidelines of the Belt and Road Forum for International Cooperation, meeting at Beijing. Participants from many international energy agencies attended the meeting with the intention to discuss partnerships and common interests in the energy sector. The discussions revolved around the three cross-border oil and gas channels—the Central Asia-China, Russia-China and Myanmar-China pipelines. These would enable oil and gas import into China. The participants concluded by stating that for sustaining uninterrupted supplies, cooperation among, and the security of, geographic regions like Central Asia-Russia, the Middle East and Asia-Pacific are very important. These narratives, and the Chinese influence in drafting the declaration, highlight the

35. As of 2017, CNPC operated 49 oil and gas cooperation projects in 19 countries along the Belt and Road routes, involving more than 60 percent of the company's accumulative overseas investment and about 50 percent of the company's accumulative overseas equity production. CNPC, "Deepening International Oil & Gas Cooperation Under the Belt & Road Initiative", <http://www.cnpc.com.cn/en/2014enbvfg/201807/c5489a38771e4076a56e38d5d56d0a10/files/0b3e8c7b4fba47db9e6aa6a99a851d7e.pdf>. Accessed on February 27, 2019.

use of military power and soft political skills by China in ensuring the stability and economics of its crude supplies for the domestic market.

### **SIMPLIFYING CONTEXTUAL REFERENCES FOR INDIA**

Analysing the approach of two of the world's top oil importing nations it is clear that both view uninterrupted supply of energy as essential to their economic growth and strategic outreach. Like any other country, India's energy security is primarily about ensuring continuous availability of commercially exploitable energy at a competitive price. Like China, India's rapid growth has created an ever-increasing demand for energy, positioning it as the 4th largest importer of crude after the USA, China and Japan. However, ensuring its uninterrupted availability requires several initiatives at the diplomatic, political, economic and technical levels. New Delhi should not disagree with NATO's assessment or China's approach to energy security discussed earlier in this article.

However, India's approach to energy security, especially import of crude and coal, and promotion of the use of renewable sources of energy, has been marked by inconsistency. The policy debate on energy security in India started on August 12, 2004, with the constitution of an expert committee by the then Planning Commission. The committee was tasked to prepare an integrated energy policy linked with sustainable developmental goals that would cover all sources of energy and address all aspects, including energy security, accessibility, availability, affordability and pricing, efficiency and environmental impact. The 'Integrated Energy Policy' document was submitted to the government on August 9, 2006. The policy, for the first time, defined energy security for the country and proposed policy options for ensuring the same. It discussed measures to improve the domestic generation of electricity, harness renewable resources and improve efficiency of energy devices. As regards recommendation on the methods for ensuring supply side assurance from external disruptions, it proposed construction of three underground strategic oil reserves for storing 5 million metric tonnes of crude. The reserves would meet about 90 days of the country's requirement, benchmarked on the 2003 consumption pattern.

**India is presently the 6th largest economy of the world and due to its rapid economic expansion, is poised to become a \$5 trillion economy by 2022 and also the world's fastest growing energy market. During this period, crude import accounted for 80 percent and coal about 30 percent of the country's annual consumption.**

Thereafter, in 2013, the Planning Commission again undertook an exercise to examine the energy security scenario of the country. The vision document was called "India Energy Security Scenarios: 2047" (IESS-2047), and was released on February 28, 2014. Soon, the rechristened NITI Aayog released the second edition of the same document in September 2015.<sup>36</sup> This policy document outlined the bold ambitions of the government towards harnessing clean and green energy towards sustaining the accelerated growth rate of 7-8 percent annually, but made no mention

of methods for securing the existing supply lines of imported crude.

A new National Energy Policy (NEP)<sup>37</sup> drafted by NITI Aayog followed, using the IESS 2047 as the underpinning intellectual platform. The policy was last put up for comments/ suggestions on June 6, 2017. The draft policy did not discuss the long-term methods or lay out a clear roadmap for ensuring the reliability of energy supplies from external sources/agencies. Notwithstanding this, in 2018,<sup>38</sup> a status review of India's energy requirement was carried out by the Aayog. It stated that the nation is presently the 6th largest economy of the world and due to its rapid economic expansion, is poised to become a \$5 trillion economy by 2022 and also the world's fastest growing energy market. It also mentioned that, during this period, crude import accounted for 80 percent and coal about 30 percent of the country's annual consumption. Therefore, sustaining growth without a watertight energy security plan could always make the Indian growth story susceptible to external pressures.

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36. NITI Aayog, IESS 2047, <http://www.niti.gov.in/content/niti%E2%80%99s-energy-sector-planning-tool-iess-2047>. Accessed on February 26, 2019.

37. Draft National Energy Policy, NITI Aayog, GoI, [http://niti.gov.in/writereaddata/files/new\\_initiatives/NEP-ID\\_27.06.2017.pdf](http://niti.gov.in/writereaddata/files/new_initiatives/NEP-ID_27.06.2017.pdf). Accessed on February 19, 2019.

38. Amitabh Kant, NITI Aayog, "Challenging Conventions to Build a New India", February 17, 2019, <http://niti.gov.in/niti-blogs>. Accessed on March 10, 2019.

Given India's growing energy demands, limited domestic fossil fuel resources and excessive reliance on imports, it is strongly opined that the government may consider to rework the national doctrine on energy security and propose long-term strategies for securing the import supply lines. Although the proposed policy acknowledges that the nation's Gross Domestic Product (GDP) is directly proportional to the availability of cheap and reliable energy, a tangible roadmap for increasing power generation using domestic resources should also be included. In today's geo-political

environment, sustainable development and growth is possible, if the energy security matrix is approached using political, economic and military tools. A balanced mix of NATO's military approach and China's commercial policies towards energy security is advocated.

Before concluding the analysis of India's approach to energy security, it is important to understand how crude purchase decisions are taken in India.

### **CRUDE IMPORT DECISIONS IN INDIA**

In India, until 1998, the entire procurement process for imported crude was negotiated by the Indian Oil Corporation (IOC), a government owned oil Public Sector Undertaking (PSU). Thereafter, private refineries were permitted to procure crude. Other oil PSUs were permitted to independently purchase crude based on their refineries' requirement only from 2002. The crude import and sourcing decisions for petroleum crude were primarily taken by the oil refining companies. This policy was also applicable to private oil refiners like Reliance Industries Ltd and Essar Oil Ltd.<sup>39</sup> Presently, all oil companies import

**In today's geo-political environment, sustainable development and growth is possible, if the energy security matrix is approached using political, economic and military tools. A balanced mix of NATO's military approach and China's commercial policies towards energy security is advocated.**

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39. Standing Committee on Petroleum & Natural Gas (2012-13), 15th Lok Sabha, "Long-term Purchase Policy and Strategic Storage of Crude Oil", [http://164.100.47.193/lssccommittee/Petroleum%20&%20Natural%20Gas/15\\_Petroleum\\_And\\_Natural\\_Gas\\_18.pdf](http://164.100.47.193/lssccommittee/Petroleum%20&%20Natural%20Gas/15_Petroleum_And_Natural_Gas_18.pdf). Accessed on February 26, 2019.

their crude either by entering into long-term contracts with the suppliers (oil exporting nations) or undertake spot purchases to meet demand fluctuation or to hedge costs. About 80 percent of the crude is imported under long-term contracts inked at the beginning of the financial year at fixed prices, and spot purchases account for the remaining 20 percent of the demand. All purchase decisions on cost and quantities are approved between the oil companies and oil exporting organisations through an Empowered Standing Committee (ESC) comprising representatives from Oil Marketing Companies (OMCs) and the Ministry of Petroleum. Each oil company has a separate ESC.<sup>40</sup> Most of the imported crude shipped to India follows the 'Free On Board' (FOB) model in which the purchaser pays for the shipping cost and takes responsibility for the security of the goods from the point it leaves the seller's premises.

This arrangement of provisioning one of the most important energy resources for India was a matter of concern for our policy-makers. Any political turmoil or unrest in oil sensitive regions of the world may cause disruptions in supplies to India. Therefore, the 15th Parliamentary Standing Committee recommended that the government should keep a close watch on the geo-political situation along the marine routes used by oil tankers supplying crude oil to the country and keep alternative plans ready, in case such a need arises, so that the country does not suffer from a supply crunch.<sup>41</sup> However, the committee was dissolved on May 18, 2014, along with the completion of the term of the 15th Lok Sabha, and no major direction on securing oil supply lines could be delivered by the committee.

The new Parliamentary Standing Committee, formed in 2014, did not deliberate further on these geo-political, commercial and security issues concerning crude supplies, in spite of the fact that the need for securing the area encompassing the supply chains of petroleum products is still acknowledged by many other growing economies. Concrete directions or actions on sanitising India's approach to energy security, especially in view of the fact that these resource and supply routes (of crude) are common between India and China, need to be addressed on priority.

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40. Ibid.

41. Ibid., Para 10.

## THE WAY FORWARD

While globally, actions supporting the energy networks and protecting critical energy infrastructure are slowly moving from being political/diplomatic matters to becoming military affairs, India's energy decisions are dominated by commercial considerations. Simultaneously, most militaries are increasingly becoming aware about their role in sharing and understanding intelligence data on energy alliances, technical developments and political considerations on energy export. NATO and its members have realised and overcome this responsive gap by policy interventions and doctrinal changes in the previous decade. Similarly, Beijing, has always involved the People's Liberation Army (PLA) in its energy security concerns, through cooperative commercial ventures and securing oil and gas assets in more than 30 countries abroad, including those in Africa, Central Asia-Russia, America, the Middle East and Asia-Pacific. Taking a cue from these examples, India should also strongly acknowledge that energy resilience is central to robust economic development. The new approach to energy security decisions should involve policy-makers, economists, diplomats, energy experts and military commanders as equal partners. Enhancing the military's outreach in protecting international supply lines and assets should be our top priority in the fast-changing regional political affiliations. Therefore, inputs to the draft National Energy Policy should also be taken from the Service Headquarters and reworked with military inputs, as the security of critical energy infrastructure—including supply lines and Indian energy assets on foreign soil—should be the joint responsibility of the power companies and military forces.<sup>42</sup>

Taking a hint from NATO's and China's approach to energy, India's politico-commercial and military relationships with the energy exporting countries should become part of our broader security prognosis. As recommended by the 15th Lok Sabha's Standing Committee, the issue of securing oil supplies should form part of a wider geo-political concern. On many occasions, we have seen that international relationships and trade

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42. Annual Report 2015-16, Ministry of Defence, Govt of India, <https://mod.gov.in/sites/default/files/Annual2016.pdf>. Accessed on February 16, 2019.

obligations have been influenced by energy supply choices. Therefore, oil purchase decisions under an unfavourable political situation should be regularly deliberated, not only at the level of the oil companies (or Ministry of Petroleum and Natural Gas) but at the level of the National Security Advisory Board (NSAB),<sup>43</sup> which functions as policy adviser to the National Security Council. This may ensure greater energy resilience and improved stability in the purchase price for India.

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43. The NSAB deals with internal and external security, foreign affairs, defence, science and technology and economic affairs and normally meets at least once in a month.