Chapter I

OVERVIEW OF THE STUDY,

OBJECTIVES AND METHODOLOGY
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Overview of the Study

In the early 21st century, India has become a focus of International attention more than ever before. It is already fourth in the world in terms of purchasing capacity after the U.S., China and Japan. In the next few years, India would move to the third place, if its annual economic growth rate remains on an average 7%-8%. This has its own bearing on India's relations with other countries. On the other hand, Russia at present is recognized as one of the five big economic powers of the world. Russian economic stagnation in the 90’s was worse than during World War II\(^1\). After Putin took the charge as President in the year 2000, Russia has grown at more than 8 % p.a. Russia's oil and gas industry has been the driving force that pulled the economy out of deep recession. Russia evolved its own model of mixed economy by striking a balance between the Public and Private Sectors. While encouraging foreign investments, it is building an independent economy, which no more is dependent on the World Bank and International Monetary Fund.

The new dimension of the present world order is globalization. India and Russia historically had very strong bilateral trade ties and economic relationship. The Soviet Union played very important role in the development of basic industries in India like steel, mining, heavy engineering, power and so on. Historical relations of India-Russia have given strong foundation to mutual investment in the energy sector. After the disintegration of the Soviet Union, the economic relations between the two countries showed a steep decline. This period coincided with the transformation of Russia from a centrally planned to a market economy amid series of economic and financial crisis. The globalization of economy and introduction of economic reforms in India compounded the situation and led to mutual decrease in trade relations

\(^1\): www.wikipedia.org
between the two countries. Under the leadership of Vladimir Putin, Russia re-emerged as a world economic power, India-Russia relations got strengthened, placed among the world's fastest growing economies. Russia has proved to be reliable partner in the transfer of sophisticated technologies of use to India. Russia is not only a large expanding market for Indian exports across the board from raw materials to finished products but is also a market for Indian investment and joint collaboration projects. Russia's resurgence became complementary in many fields for India like defense, energy, diamond business, Information technology etc. Military technical cooperation between India and Russia has traditionally remained a major pillar of the bilateral strategic partnership. The two countries have progressed from a buyer-seller format to high technological collaborators in manufacturing Brahmos missile and a new Multi-Role Transport Aircraft.

Indo-Russian trade and economic relations are important components of bilateral cooperation and have the potential to take the volume of bilateral trade to much higher level than the existing turnover. Over the last 15-18 years, lack of stability has been the characteristic of Indo-Russia trade. But the settlement of debt repayment issue in 1993 between the two countries provided a boost to bilateral trade. The end of this arrangement (debt repayment channel) increased India's trade with Russia. A disturbing feature of the bilateral trade has been the balance of trade has turned strongly in favor of Russia from 1999. If defense purchases are included in trade, the balance is in favor of Russia by more than four times. One of the weak features of Indo-Russian trade has been the narrow base of the trade basket.

Government of both countries has set up a joint study group to find ways and means to provide strong boost to trade ties. To reach the targeted level of trade turnover, both the countries are implementing special measures to facilitate trade relations. Joint Task Force has been set up to monitor the implementation of Joint Study Group report and to consider the feasibility of concluding the 'Comprehensive Economic Co-operation Agreement' (CECA) between India and Russia. Thus, the prospects of Indo-Russian co-operation are bright as there is sustained goodwill and interest between them. There are areas like diamond, gold, coal, information technology, highway construction, banking, shipping arrangement, high-tech co-operation,
defense and energy sector, which promise to take the trade turnover to a higher pitch in the upcoming years.

On the threshold of the 21st century, the Russian-Indian relations rose to a new level of strategic partnership. Putin's signed the document "The declaration about strategic partnership between India and Russia" in 2000, which has great importance and marked a new stage in the development of principles of bilateral co-operation between the two countries. The document has indicated the commonality of geopolitical interests of the two. They have similar or near identical position on issues such as the settlement of Middle East crisis, Iranian problem, situation in Central Asia, Afghanistan and other issues. Another factor that evidences mutual and complementary gestures in the geopolitical interests of both is the desire of both countries to build new pipeline networks for energy, transportation, connecting India with the Eurasian region. Both countries have same view on the construction of ‘Iran-Pakistan-India’ (IPI) and ‘Turkmenistan-Afghanistan-Pakistan-India’ (TAPI) gas pipeline. There is mutual agreement for the construction of the international transport line, the "North-South" Corridor. It provides high potential for India Russia trade and energy cooperation. It would help India to get more connectivity with Central Asia and Europe. The commonness in respective perceptions like no mutual border conflict, rather India is a most preferred nation, support on Kashmir issue and membership of India in United Nations Security Council (UNSC) and their interdependence to pursue their respective interests in general at bilateral and regional level, is essentially the solid strength of the relationship. The strength of relations includes mutual trust that has stood the tests of time for sixty years of relationship in Soviet and post-Soviet periods.

India has been moving ahead on its growth trajectory and the greatest challenge it faces is of a substantial deficit between its domestic production and its actual requirements of oil and natural gas resources. Energy security has cropped up as a vital aspect of Indo-Russia Co-operation mainly in hydrocarbons and nuclear energy sectors. Hydrocarbons are those compounds which are composed of carbon and hydrogen. The prime hydrocarbons are oil and natural gas.

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2: Dutt, P.V. (2003)
Strategies to meet India’s energy requirements are constrained by available energy resources and import possibilities. India is not well endowed with natural energy resources. Reserves of oil, gas and uranium are small but it has large reserves of thorium. While coal is abundant, it is regionally concentrated and is of low calorie and high ash content though it has the advantage of low sulphur content. Hydro potential is significant but small compared to India’s needs and its contribution in terms of energy is likely to remain small. India has been importing around 75% of its hydrocarbons requirements from Middle East, which is plagued by tension, terrorism and corruption. There are tensions between the West and an increasingly radicalized Muslim world, increasing terrorist activity against oil facilities, lack of investment, unresolved border disputes and there is growing uncertainty about the political stability of key energy producers like Saudi Arabia, Iran and Iraq. Saudi Arabia's situation has been critical as slow down of production could imbalance the whole World. The Iranian threat of stopping crude sale to India is due to a dispute over the method of payment using Euros instead of dollars. The political unrest in Egypt threatens to destabilize the oil rich Gulf region and could hamper petroleum imports into the country. Besides all above, Gulf countries also have dynamic changes on energy front like increase in domestic energy consumption, political unrest, going to ‘peak oil’ situation with decrease in oil reserves. It has been stated that the oil wells of Middle East would get depleted in another 10 to 15 years. This has been of serious concern for growing India with increasing energy demand. To sustain the economic growth, energy supply has to be continuous and also at stable price. So India should search for alternative sources of energy supply. In this context, Gulf countries scenario of oil and gas production, consumption, reserves and Reserve-to-Production (R/P) Ratios for the period 1991 to 2010 have been analyzed. For the next decade i.e. 2010 to 2020, R/P ratios have been estimated to know the future availability of oil and natural gas of Middle East.

Future strategy of energy security evolved from the collapse of the Soviet Union, India's most reliable supplier of oil and oil products. Russia as the next major energy power is assertive and self-confident. It has enough petrocurrency that would enable it

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3: Mathew R. Simon (2005)
to take merit-based decision on supplies of energy to buyers, not only from Europe and US but also China, India and other Asian consumers. This underlines that new vistas of Indo-Russian economic co-operation could open in the energy sector.

As per Russian energy strategy 2020, Russia is seeking to diversify its energy trade towards Asia Pacific region and the strategy clearly mentions India as one of the important target countries along with Japan, China and Korea. On the other side, one of the major objectives of India’s energy policy is to diversify from OPEC to non-OPEC countries like Russia and oil and gas producing nations to obtain additional supply. So, this complements with Russia’s energy policy objectives.

In Russia, increased oil revenues have led to the creation of a ‘Stabilization Fund’ in 2004, designed to fund social welfare projects and act as a reserve to tide over future economic crises. Russia is the world’s largest producer and exporter of natural gas. It is the world's second largest oil producer and a major exporter of oil to Europe and increasingly to Asia. Energy co-operation between the energy superpower Russia and second fastest growing energy market, India heralds co-operation of a new type in the new World economic environment. ONGC Videsh Ltd. invested $1.7 billion for 20% stake in Sakhalin-I and first ship of oil reached India in December 2006. This co-operation is the major part of India's energy security as India would get regular supply of oil from this project. India’s participation in Sakhalin-II project had been ruled out but still India is receiving 2 million tons of LNG fuel annually since the year 2009. Russia has evinced interest to involve India in the Sakhalin-III block. OVL has been trying for joint bidding with Russia’s Roseneft. Gazprom and Oil and Natural gas Corporation (ONGC) have signed a seven year agreement on joint development of a gas deposit in the Bay of Bengal shelf and further planned to provide for the gas related construction and services in India, gas processing and supply of oil and gas equipment to penetrate into the Russian energy market. ONGC bought Imperial Energy for US$ 2.58 billion to tap Siberian deposits, biggest overseas acquisition and merged with Russian Sistema of Oil and Gas business in Russia, for 25% shareholding of merged entity with a say in management. New phase of energy cooperation began after Putin’s visit in the year 2010. Russia and India could take

some important steps like swapping of energy assets in each other’s country, India investing in Russia’s crude oil projects and Russia investing in India’s refineries and supplying LNG fuel in tanker ships to India.

By the year 2025, Russia would become World's eighth-largest economy with per capita income of $45000\(^5\). Russia is re-surging as a global power with immense energy potential, defense capacity and knowledge in science and technology, whereas India is an emerging power and has understood that Russia is the market for future investment and there is lot of potential for expansion of market. So Russia's support to India in the field of energy can go on a long way in meeting Indian energy security needs. To achieve this desired aim, common strategy could be followed by the two countries. Companies from the two countries could undertake joint projects in offshore oil exploration, investment in each other's downstream sector as well as in third countries. Russian expertise and technologies can prove valuable for revival and improving the productivity of mature petroleum fields in India. A resurgent Russia with a trillion dollar economy presents huge opportunities for Indian business. Similarly, India has lot to provide to Russia.

India's energy needs are growing with rising income levels (rising economy’s growth) and growing population. Its dependence on imported energy has been increasing due to increasing gap between demand and supply of oil and gas in India. On the basis of projections made by the Planning Commission ‘Integrated Energy Policy 2006’, ‘India Vision: 2020’ and ‘India Hydrocarbon Vision -2025’, it could be stated that due to tremendous expected increase in oil and gas demand, the gap between production and consumption would keep on increasing as the domestic production of oil has been almost stagnated and increase in natural gas production is much less compared with increase in its consumption. It is expected that energy elasticity of GDP growth would not fall any further as rising income levels have made life style more energy intensive. India’s demand for oil is expected to increase at an average rate of 2.9% annually and

\(^5:\) www.brookings.edu
of natural gas 5% annually from 2002 to 2030.\(^6\) India's hydrocarbon's demand would also increase with the changes in technology, the relative prices of fuels, changes in end use efficiency of equipment, the level of energy infrastructure and development priorities.\(^7\) Energy has a direct correlation with national security, economic development and societal peace. Due to limited indigenous resources of oil and gas, India's dependence on oil imports would increase to 90% of its consumption, by the year 2030 (IEA, 2005). The situation would be slightly better in the natural gas sector as India has made a number of discoveries of gas but still India's import dependency would be around 40% of its consumption, by 2030 (IEA, 2005). So, there would be an enormous increase of oil and gas import demands and India would be having energy security problems.

The focus of the present research is on hydrocarbons & nuclear energy sector. ‘IHV-2025’\(^8\) has focused on hydrocarbons for energy security issue as India has plenty of coal reserves and has hardly any security concern about it.

Nuclear energy can provide long term solution to India's energy security problem by reducing dependence on limited hydrocarbons. India’s need for uranium would increase tenfold by 2020 as Asia’s largest energy consumer boosts nuclear power generation. Russia’s cooperation with India in nuclear energy is since 1970’s. During the year 2008, India and Russia signed agreements to eliminate supply-demand mismatch in uranium and Russia would provide uninterrupted uranium supply to India. The year 2009 deal has ensured transfer of technology and freedom to proceed with three stage closed fuel cycle program, which would help to increase nuclear power generation capacity of India. These agreements are big contribution towards India’s energy security in the long term. To minimize the stress on global fossil fuel resources, increase in the share of nuclear energy in India's energy mix is desirable, rather has become essential.

India needs to engage with energy rich countries in a very strategic manner backed by its energy diplomacy and foreign policy for ensuring continuous availability of

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\(^6\) International energy agency: World energy outlook (2004)
\(^7\) Brookings Foreign policy Studies, Energy Securities Series :India, Madan,Tanvi (2006)
\(^8\) Planning Commission (2000)
commercial energy at competitive prices to support economic growth and achieve energy security.

India and Russia attach particular importance to energy security issues. The concept of energy security envisages an acceptable balance between demand and supply. In view of their corresponding resources, needs, capabilities and potential, both the sides have agreed to further enhance direct dialogue between their oil and gas companies aimed at concluding concrete and mutually beneficial commercial agreements for joint work in all segments of oil and gas companies in India, Russia and third countries.

To find out policy options for the improvement of energy security, it is important to have analysis of India’s energy security scenarios. This analysis is based on Energy Security Indicators which are Net Energy Import Ratio (NEIR), Shannon-Wiener Index (SWI) and Diversification of Primary Energy Demand (DoPED). Javed Anwar has used the same energy security indicators to analyze Pakistan’s energy security scenario. India and Pakistan are having similar geographical conditions and are energy hungry countries. The demand of energy is increasing much more than the total primary energy supply in both the countries, therefore government of both the countries have to give serious concern to their energy security issue. Like India, Pakistan is also dependent on Middle East for oil imports which are likely to increase in future. Besides all these common factors, both countries have vast alternative renewable resources. So for analyzing the effect of import dependency and diversification of energy resources for India’s energy security, same energy security indicators are considered.

An analysis has been made to find out whether economy would be largely dependent on energy imports, whether energy system would be well diversified or not, whether economy would be uniformly spread among several energy resources. The primary objective of this quantitative analysis of energy security scenario is to classify policy options for the improvement of energy security of India. Restricting energy imports,

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diversification of energy resources and diversification of energy supply sources are the direct policy options used for the improvement of energy security.

Indian Government had developed a four pronged strategy in order to cope with energy security, as the indigenous base was too small to achieve energy self-reliance.

1. The first strategy includes the diversification of energy imports and the acquisition of equity oil by India's state-owned oil companies.
2. To build up a strategic petroleum reserve.
3. Extension of the domestic production and exploration.
4. Fuel diversification in the country.

Ensuring energy security requires dealing with various risks like supply risks, market risks and technical risks. To face the situation, national oil companies are already integrating across the hydrocarbon value. India’s energy diplomacy is being pursued at bilateral, regional and global levels to promote corporate joint ventures and government-to-government partnership. Multipolarity trends are on rise and multilateral agreements have been followed to reduce friction and conflict and to resolve differences through rules embedded in the multilateral framework like ECT, GCC, SCO, BRICS, RIC etc. Through these multilateral forums India and Russia could further intensify trade and economic cooperation especially in energy sector. Russia is keeping up strong association with India and China so the three powers would be engaged multilaterally, regardless of their bilateral differences. Putin championed a new energy security plan. It would guarantee not only the security of supply to consumer nations, but also the security of markets for energy-producing nations through diversification of export routes and long-term arrangements between producers and consumers. This would benefit the rising economies like India and China, to which Russia is looking to diversify its energy flows away from the West.
RELEVANCE OF THE PROPOSED STUDY

For the last one decade, Indian and Russian economies have been growing dynamically at 7% to 9% growth rate per annum and along with it growth in energy demand is also growing since there exists a strong two way relationship between economic growth and energy consumption. To sustain the growth of these economies, the increase in energy demand in future has to be secured at stable prices. As per Energy Information Administration (EIA 2005), 45% growth of world oil demand would be from India by the year 2030. Due to India’s stagnated domestic production of oil, the import dependency would increase. As per projections by International Energy Agency (IEA), India would be dependant for around 90% of its oil demand by 2030. So, it becomes imperative for India to plan for its energy security in the short run as well as for the long run. Continuous instability in Middle East countries increases the uncertainty of regular supplies and results in increased volatility of prices. Besides political unrest in these countries, increase in domestic energy consumption, peak oil situation combined with decreasing oil reserves would result in unstable supplies to its importing countries. As an alternative source of energy supply, India is seeking to diversify towards Russia which has highest reserves and production of natural gas and is second largest exporter of oil in the world. As per Russian Energy Strategy up to 2020, Russia plans to diversify its oil and gas exports towards Asia Pacific region. Since 1970’s, Russia is providing its special cooperation to India in nuclear energy sector. The focus of the study is to analyze Russia’s cooperation with India in hydrocarbons and nuclear energy sector to provide energy security.

OBJECTIVES

The first objective is to study how the long historical relations between India and Soviet Union have significantly influenced their present trade and economic relations?

The second objective is to study why trade relations between India and Russia are much below their potential despite dynamic growth of both the countries since the last one decade?
The third objective is to study how India and Russia could boost cooperation in diverse fields keeping the focus on energy cooperation to provide energy security in Hydrocarbons and Nuclear energy sector?

Given continuing uncertainty regarding oil and gas supplies from Middle East, the fourth objective is to find out whether Russia is a globally important producer and also exporter of oil and gas compared with Middle East?

While dynamically pursuing energy diplomacy, the fifth objective is to study what are the other strategies and policy options for India to achieve energy security?

Lastly, how Russia is providing its special cooperation in Nuclear energy sector of India to sustain long term solution to energy security?

The study is based on the assumption that the foreign policy of both the countries remains oriented to achieve equilibrium between the demand and supply of energy of both the countries.

**METHODOLOGY**

Exploratory and diagnostic research has been conducted to bring out the insights of India-Russia energy co-operation.

To study long term historical relationship between India and Russia, time period from the year 1951 till 2010 has been analyzed in three phases. 1st phase: Since Independence till Gorbachev period (1951-1990), IIInd phase: Yeltsin period (1991-1999), IIIrd phase: Revival of Russia i.e. Putin period (2000-2008) and Medvedev period (May 2008 onwards).

Trade, economic and investment cooperation between India and Russia for the period 1991 to 2010 have been analyzed. The changes in export /import structure, the major constraints in trade and economic cooperation due to which trade is much below their potential are also analyzed. Several initiatives and Policy measures to promote trade and economic ties have also been discussed. Trade trend line has been estimated up to the period 2015 to estimate increase in India-Russia trade. It is estimated with the
assumption that the trade environment will not change much during this period, that is the rate of change of total trade will be constant throughout the period 2010-2015 as has changed during the period 1993-2010. This will give the trend of average trade for the period 1993-2015.

Inter-relationship between economic growth and energy demand in India and Russia for the period 2000-2010 is studied and analysed. The energy consumption data are obtained from British Petroleum- Statistical Review of World Energy 2011, from which year on year growth percentage rates are calculated. These were then compared with rate of change of GDP growth rates. The GDP growth rates in percentage are obtained from IMF-World Economic Outlook 2010, are also given in year on year changes form. The plotting of both these two percentages for India and Russia shows the movement of growth in the economies and in their energy demand.

Scenarios of oil and gas production, consumption, imports/exports for the period 1991-2010 have been studied and analysed for both the countries to estimate the potential of Russia to meet the energy import demand of India.

Russia’s oil export possibilities towards Asia Pacific Region have been analysed on the basis of predictions given by various Government and other agencies.

Reserve-to-Production Ratio which is an indicator of energy security is calculated and analysed for oil and natural gas of India, Russia and Middle East to show that whether Russia is the next best alternative of oil and gas supply to India after Saudi Arabia. R/P ratios trend line is estimated for the next one decade (2010-2020) to estimate the future availability of oil and gas in Middle East and Russia. This is based on the assumption that rate of depletion of oil and gas reserves to production will change by the same amount throughout the period as has changed during the period 1991-2010.

India-Russia energy cooperation from the year 1991 to 2010 has been given in four subheads: various energy cooperation deals, various pipeline projects, acquisition of
equity of the oil sector through overseas joint investments like in Sakhalin projects and Russia’s special role in providing energy security to India through Nuclear energy.

To evaluate and analyze the effects of import dependency and diversification of energy resources on energy security of India, comparative and quantitative analysis of India’s energy security scenario from the period 2000 to 2031-2032 has been done. This analysis is through energy security indicators which are Net Energy Import Ratio (NEIR), Shannon-Wiener Index (SWI) and Diversification of Primary Energy Demand (DoPED).

**Net Energy Import Ratio (NEIR)** indicates the extent to which energy system of the country is dependent on energy imports. Value of NEIR closer to 1 indicates the larger extent of dependency on energy imports.

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\text{NEIR} = \frac{\text{Net Imports}}{\text{Domestic Production} + \text{Net Imports}}
\]

For calculating NEIR, ranges of commercial energy requirement and imports for 8% growth for the year 2031-32 have been given and their average values are taken. The year 2000 is considered for comparing and analyzing with the years 2010 and 2031-2032.

A higher value of **Shannon-Wiener Index (SWI)** implies well diversified energy sources ultimately leading to improved energy security, while a lower value implies low diversification of energy sources and poorer energy security.

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\text{SWI} = - \sum x_i \ln (x_i), \quad \text{where } x_i \text{ is percentage share of resource in energy mix}
\]

Total primary energy comprising commercially traded fuels: Coal, Oil, Natural gas, Hydro-electricity and Nuclear energy are used for calculating SWI and DoPED. The year 2003-04 is considered for comparing and analyzing with the years 2006-07 and 2031-32. For calculating SWI, the percentage share of commercial primary energy
resources i.e. Coal, Oil, Natural gas, Hydroelectricity and Nuclear energy are taken from IEP, Planning Commission, 2006.

**Diversification of Primary Energy Demand (DoPED)** indicates whether the economy is uniformly spread among several energy resources or not. The value of DoPED close to 1 indicates that the economy is reliant on one energy resource while a value close to zero (0) means that the energy sources in the economy are uniformly spread among several energy resources.

\[
\text{DoPED} = \frac{\sqrt{\text{Coal}^2 + \text{Oil}^2 + \text{Natural gas}^2 + \text{Hydro}^2 + \text{Nuclear energy}^2}}{\text{Total Primary Energy}}
\]

The projected Primary commercial energy requirements for 8% GDP growth are taken from IEP document, Planning Commission, 2006. The data for the years 2009-10 and 2010-2011 has been taken from ‘BP-Statistical Review of World Energy, 2011’. The year 2009-10 is considered for comparing and analyzing with the years 2021-22 and 2031-32.

To cope up with the problem of energy security, Putin’s New Energy Security plan, multilateral frameworks like ECT, SCO, GCC, BRICS, RIC; important Strategies and Policy options have been studied and interpreted.

**DATA SOURCES**