Preface

The fact is that planning for energy, especially power generation was earnestly taken up after independence in all the five year plans. But there has been lack of a comprehensive, coordinated and calibrated energy security policy in general and development of nuclear power in particular. Much needs to be done to India’s over all energy security policies in the light of energy being a strategic national security objective and to meet out the burgeoning energy requirements of the people of India for a good living standard.

The proposed research work has been spread over five chapters with an introduction which includes review of literature and significance of the study. There is a conclusion and findings in the end followed by bibliography. Introduction of the study clarifies the concept of energy security and the importance of nuclear power in India’s energy security matrix. It also discusses how energy is important for the overall sustainable growth of the country can achieve without compromising the issues related to environment which is going to dominate the issues of growth and development in the future.

The first chapter highlights the, ‘Evolution of conventional sources of Energy’ in India including the concept of energy security and traditional sources of energy, i.e. coal, petroleum and natural gas in independent India starting from history to their present status. It examines the role of hydrocarbons in meeting India’s Energy Security needs. It also examines the role of India’s Hydrocarbon vision’. This chapter further highlights the reasons which led India to consider energy security as one of the agendas of national security policy. India has meager reserves of oil and needs to diversify to meet the growing demand of energy.

The second chapter deals with the ‘Nuclear Policy of India and its Role in Development in Civilian Nuclear Power’. Since independence India has been engaged in quest for advanced technologies for the purpose of sustainable development. The chapter clearly establishes that India initially began research in the peaceful uses of nuclear energy; subsequently, India developed a nuclear arsenal adopting the minimum nuclear
doctrines in 1974. Further, in 1998 India conducted a series of nuclear weapons tests and declared it a nuclear weapon state. In 2005 the announcement of ‘US-India Civil Nuclear Cooperation Agreement’ was an unexpected development. With this nuclear agreement the George W. Bush Administration made explicit its intentions to resume trade in nuclear reactors and technologies with India—- as a de facto nuclear power and non-signatory to NPT. India now has the massive expansion plans for the expansion of nuclear energy program.

The Third Chapter describes the ‘Development of Nuclear Power in India’ as the soul of the research work. It gives an account of development of nuclear energy in India as a part of future energy security in India and realization of strategic national objective. The chapter begins with how, India started on its tryst with the atom on the very morrow of its independence, braced by foresight and commitment to advanced scientific quests of an abiding and dedicated scientist, Dr. Homi Bhabha a Professor at Indian Institute of Science at Bangalore. He had chalked out a three stage peaceful ‘Nuclear Energy Development Program’ keeping in view available resource (thorium). Then it describes how after peaceful Nuclear Explosion of 1974 and 1998, when India conducted nuclear tests and later just within seven years the Indo-US nuclear deal was signed. Further, the infrastructure, institutions and technological standing in the world in the field of nuclear technology has been described. Now India has many plans to enhance nuclear energy in the country overall energy-mix, from a mere three percent to twenty percent by 2032.

The Fourth Chapter, ‘Indo-US Nuclear Deal And India’s Energy Security’ indicates how the nuclear deal has been helpful in providing India with the much needed nuclear fuel and nuclear technology to give a boost to the development of nuclear power particularly for electricity generation. The chapter starts with Joint Declaration of July 18, 2005 between George W. Bush and the Indian Prime Minister Manmohan Singh, when the US declared India as a responsible state with advanced nuclear technology. The course of the deal, various milestone agreements and finally the conclusion of the deal has been described. The impact of deal on India’s nuclear energy programme and strategic programme has also been analysed. India has been successful in concluding bilateral agreements with countries having raw material in the form of
uranium, and technology which is helpful in setting up nuclear power plants for nuclear power generation.

The Fifth Chapter ‘India and Nuclear Power Safety Standards’ provides a detailed overview of the public concerns over nuclear power in India. First, International norms and practices i.e. role of IAEA (International Atomic Energy Agency) and international safeguards regarding nuclear power production has been discussed. It highlights the specific concerns of the common people with regard to new projects in different parts in India. A brief account has been provided on how the Department of Atomic Energy(DAE) has been helpful in assuaging public concerns and enhance public acceptance of nuclear power in India. Then safety of nuclear power plants as mandated by AERB (Atomic Energy Regulatory Board), lessons from Fukushima, environmental impact of the nuclear power plants in India, nuclear waste management strategy and radiation release from nuclear power plants in India has been discussed.

There is a conclusion of the findings in the end of research work. The conclusion of the research work is in the form of deductions from the preceding chapters. The study has been successful in meeting out the stated objectives of the synopsis. It is clear that India has the capacity and the potential to meet out the burgeoning energy demands to accelerate the growth so that the living standards of common people could improve, at least the bare minimum needs. Further, in the end of the research work a bibliography in a chronological order has been presented.