

Energy Scenario and Nuclear Deal in India

Nisar Ahmad Meer

Political science Lecturer Govt. Degree College Boys Anantnag J & K, India

Abstract

India is among the top four consumers of energy just behind the U.S, China, and Japan. India's total primary energy demand in 1997-98 was 25.5 million ton and this is expected to rise up to 770 million tons in 2020. Currently the sphere of fuels in primary energy dominated by coal and oil. India cannot meet this demand domestically and has to rely on outside supplies. This creates a situation of dependence and call for cooperation from other nations-states. Currently energy resources such as coal and oil are becoming extremely depleted and will run out in the near future. The best replacement is the nuclear energy. It is the fastest growing power generation industries in the world, with this regard it is the safest, cleanest and most efficient. Today 15 percent of the world's electricity comes from nuclear power. As for the India's nuclear energy is concerned it is the fourth largest source of electricity. This industry is expected to undergo a significant expansion in the coming years by passing the Indo-US nuclear deal, and then India is expected to generate an additional 25,000 MW of nuclear.

INTRODUCTION

The energy scene in India is very complex. Important sources of non-commercial energy are fire wood, agriculture wastes and animal dung. Where as sources of commercial energy are coal lignite, oil, hydro electricity and to some extent atomic energy. Information on total energy for the period 1953-54 to 2000-2001 (CASE 1981) shows that proportion of non-commercial energy declined progressively from 67% in 1953-54 to 40% in 1980 commercial energy increased from 60.1 Million ton Coal replacement (MTCR) in 1953-54 to 249.3 MTCR in 1978-79 an average growth rate of 6%. The relative share of different forms of commercial energy in various sectors respectively oil constitutes 71.2% of house hold sector 61.8% agriculture and 83.9% of transport sector. While in industry it is coal (44.5%) and electricity (47.6%) that are important. According to Advisory Board on energy (ABE) that various forms of energy are likely to make the following contribution in India by 2004/2005, coal 450-540 mt, oil 90-110 mt, electricity 501-592 billion kwh, Non-commercial energy 500mt. The coal does not contribute significantly to house hold energy, though we have largely deposits of coal. According to ABE (1985) in rural sector 84% of lightening is by Kerosene and 94.5% cooking is a non-commercial fuel. In urban sector, lighting is 53% from electricity and 45.2% from kerosene were as cooking is 58.1% through non-commercial sources and 26.5% through kerosene.

ENERGY AND NUCLEAR DEAL

The non-commercial sources of energy belong to two categories.

(1) Renewable sources, like solar, wind, geothermal, microhydel etc and (ii) bio-mass based renewable system, like agricultural residues, biogas etc. The system in category (ii) constitutes more than 50% of energy consumption for all most 80% of energy consumption (ABE 1985). Increased application of Fossil fuels (Coal, petroleum and its products, natural gas) but also

biomass based (fire wood etc) system in turn this help in conservation of resources as also in reducing environmental degradation.

CASE (1981) summarized the state of knowledge on the application of new and renewable energy technologies and the present commercial fuel sources in different sectors. Similar analysis is done by sootha (1984). It is evident that some devices like biogas, charcoal fire wood, biomass wind and solar energy have been developed and increasingly used in India. In other energy system there is scope for further improvement and also for cooperation with developed world.

Recognizing the need of alternatives for fossil fuel, a committee a Development of Bio-fuel was constituted with exports from planning commission in July 2002 in its report in July 2003, it proposed bio-ethanol and bio-diesel as respectively and ministry of rural development (MORD) was made the Nodal Ministry for implementation of its recommendation by the PMO.

Ministry of petroleum and natural Gas (MOP & NG) mandated 5% ethanol blending from January 2003 in nine states. (Maharashtra, Gujarat, Goa, Haryana, U.P, Punjab, Karnataka, Andhra Pradesh & Tamil Nadu) and four union territories (Daman-Div, Dadra & Nagar Haveli, Pondicherry and Chandigarh) using molasses as feed stock. However, production of sugarcane and molasses in 2003-2004 fell short due primarily of draught, the 5% ethanol blending target could not be met and hence it was subsequently, revived in November 2006. In October 2007 GOL extended the norm of mandatory 5% blending of ethanol across the country and set a target of 10% blending of ethanol from October 2008. Prices of ethanol was fixed at Rs. 21.5 per liter for the next three years and further production of ethanol directly from sugarcane Juice apart from molasses was also approved.

As for the India's nuclear energy is concerned it is the fourth-largest source of electricity, after the thermal hydro and renewable sources of electricity. As for 2008, India has 17 Nuclear Power Plants in operation generating 4, 1200 MW while 6 other are under construction and are expected to generate an additional 3,160 MW. India being a non signatory of the Nuclear Non-proliferation treaty (NPT) has been subjected to a defected nuclear embargo from members of the nuclear suppliers Group (NSG) cartel. India is expected to generate an additional 25000 MW of nuclear power by 2020, bringing total estimate nuclear power generation to 45000 MW.

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* Dr Nisar Ah Meer teaches Political Science at Govt. Degree College Anantnag (Boys) Jammu & Kashmir