

## Indo-EU Energy Cooperation: Prospects and Challenges

UDAY PRATAP SINGH

Research Fellow

Department of Defence & Strategic studies

University of Allahabad

Allahabad (U.P.), India

### Abstract:

*The Indo-European relations have moved from traditional development to mutual cooperation. The European Union has engaged India as a strategic partner. The key areas are energy, Trade and Investment, education, science and technology, environment and climate change. The author focuses on the energy cooperation between India and EU. In accessing this vital issue India has to go through various challenges in promoting energy security and broadening the scope of strategic partnership. In analyzing the energy scenario, recent trends show positive sign in the growth of energy sector. The author feels that energy resources will be a key area for Indo-European partnership in the coming years. Therefore, more focus will be on business solutions and promotion of energy innovation.*

**Key words:** climate change, energy security, renewable energy sector, clean energy technology, solar wind and biomass energy, Confederation of Indian Industries, Bloomberg new energy finance, recourse efficiency initiative.

### INTRODUCTION:

There has been a remarkable change in the approach in Indo-European relationship. It has moved from the traditional

development to approach to mutual cooperation. From 2014 onwards, the EU has stopped direct bilateral assistance to middle income countries like India, but cooperation and support to civil society organizations and regional activities will continue. Instead, EU has engaged India as a strategic partner in those key areas of cooperation such as promoting investment and energy security. Other areas of cooperation include support for education and skills. Strategic support in case of the external dimension of EU policies and major areas such as environment and climate change will no doubt continue through the so called 'partnership instrument'.

India and the European Union (EU) has to go through several challenges in strengthening their partnership in the changed regional and global scenarios. Disturbed global economic crisis, eurozone crisis, security issues in Afghanistan, political instability in the Arab world, growing energy security concerns, threats of climate change, a few, are transformative in nature. These issues can seriously affect the relationship between India and the EU.

## **ENERGY:**

Energy has become a major area of India-European Union (EU) cooperation in recent times. Both India and the EU are net importers of energy. There is huge potential for them to cooperate in the areas of renewable energy, technology transfer and research and development cooperation for innovations in renewable energy. The recent Rio+20 declaration had recognized that, for sustainable development and poverty eradication, the green economy is one such tools which can achieve sustainable development. Sustainable development is immensely related to modern and clean energy services. To cope with ever-rising energy demands, to fuel its high economic growth rate and promote socio-economic development in an environmentally compatible way, India has been exploring multiple ways to diversify its sources of energy, including

harnessing the potential to generate renewable energy. India's Integrated Energy Policy explicitly stresses, 'as the country is short of energy resources the need to develop all energy sources including the renewable options is paramount.'<sup>1</sup>

The EU is at the vanguard of the renewable energy sector and advanced clean energy technologies. EU companies are considered to be among the world leaders in renewable energy technology innovation and with growing demand of domestic markets they can explore markets across the world.<sup>2</sup> EU is quite aware of their vast business and investment opportunities in India's energy market. The scope and prospects of India's clean energy market are vast and the regulatory framework is slowly making its way for positive development. If this is so then it would become an attractive destination for European investment and technological products. But there are financial limitations in fulfilling the full partnership potential.

## **PROMOTING THE RENEWABLE ENERGY IN INDIA:**

There are several factors, such as population growth, the structure of the economy, rising fossil fuel prices, enhancing energy security, growing energy demand, greenhouse gas emissions and climate change, improvements in renewable energy technology and cost reduction and rising electricity prices have led to the promotion of the use and generation of renewable energy in India. The country is home to almost one sixth (approximately 1,210.2 million people, 17.5 percent) of the world's population. The annual rate of population is currently increasing by about 1.4 percent per annum.<sup>3</sup>

There has been a rise in urban population. It grew from 290 million in the 2001 census to 340 million in 2008 and is expected to rise further to 590 million by 2030. The McKinsey Global Institute forecasts that urban expansion will happen at a speed quite unlike anything India has seen before. It took nearly forty years (between 1971 and 2008) for India's urban

population to rise by 230 million. It could take only half that time to add the next 250 million.<sup>4</sup> Today, the demand for electricity is more as there are more than 1.3 billion people in the world today who are deprived of it and almost 2.7 billion people suffer from having clean cooking facilities; 289 million people in India do not have access to electricity.<sup>5</sup> According to the National Sample Survey Office (2004-5), more than 80 percent of households still rely on traditional sources of energy for cooking in rural India. Therefore, access to clean and modern energy services have become a big and enormous challenge for India.

India's registered an economic growth of over 6 percent in the 1990s and thence onward it has reached up to 9 percent. In India economic growth has come down because of delayed economic reforms. But India is poised to target high economic growth under the 12th five-year plan. There have been sufficient changes in the structure of the economy in the post-economic reform era. (The contribution of the services sector in GDP has been rising. According to Economic Survey 2011-12, the services sector grew by 9.4 percent in 2011-12, while its share in GDP went up to 59 percent in the same period.) Strong demand for building infrastructure, housing, retail outlets, media and entertainment, and information and communication technologies has gradually been rising.<sup>6</sup>

It is hoped that India's energy requirements will be than doubled in the next two decades 2030, the country expects to overtake Japan and Russia and become the third largest global consumer of energy. Oil and natural gas has led to great increase of consumption. It has been projected to account for almost a third by 2030. But with only 0.3 percent of the world's proven oil reserves and 0.6 percent of proven gas reserves, domestic supply will not be able to keep up with demand.<sup>7</sup> India has abundant reserves of coal, but the coal has been mined inefficiently, and by 2030 the country is expected to seek almost a third of its coal requirements abroad. Furthermore, if

production grows at 5 percent annually, India is projected to run out of the currently extractable coal in 45 years.<sup>8</sup>

It is also expected that the imports of natural gas and coal may increase. The increasing oil import bill and too much dependency on imports for coal, oil and gas have resulted in increasing domestic production and exploring alternative sources of energy. Today the correct assessment indicates that they will remain high. Higher fossil fuel prices, energy security concerns, and environmental considerations, rising fossil fuel costs, particularly for natural gas in the electric power sector, along with government policies and programmes to support renewable energy, will enable renewable fuels to compete economically over time.<sup>9</sup> Renewable energy-based power generation installed capacity has reached 18,655 megawatts (MW), which is about 11 percent of the total installed capacity of 168,945 MW and corresponds to a contribution of about 4.13 percent in the electricity mix. If one consider the significance of energy issues to coping with the climate change, the National Action Plan on Climate Change (NAPCC) encourages applications of clean technology and the promotion of renewable energy to mitigate climate change.<sup>10</sup>

The National Solar Mission's target is to create an enabling policy framework for the deployment of 20,000 MW of solar power by 2022.<sup>11</sup> National Mission for Enhanced Energy Efficiency aims to save about 23 million tonnes of oil-equivalent of fossil fuels per year by 2014-2015, along with an expected avoided electricity capacity addition of around 19,000 MW. The Mission also aspires to expand use of more energy efficient equipment and appliances.<sup>12</sup>

These measures will prove to be more useful in expanding access to electricity as well as containing CO<sub>2</sub> emissions. Growth opportunities in renewable energy have slowly receding to the Southeast and South Asia region in recent times. Global investment in renewable power and fuels has increased by 17 percent. In particular, India displayed the fastest expansion rate for investment of any large renewable

market in the world in 2011, with a 62 percent increase to \$12 billion.<sup>13</sup> Both national and international investors confident in doing business in the renewable energy sector in the Indian market. With a growing manufacturing base and an effective supply chain, the Indian renewable energy sector has become an attractive destination for investment. Ernst & Young's 'Renewable Energy Country Attractiveness Indices' of May 2012 rank India as the third most attractive country to invest in renewable energy.<sup>14</sup>

### **INDO-EU RENEWABLE ENERGY COOPERATION:**

Energy security has been an important agenda item of Indian foreign policy in the 1990s. The increase in of India's economic growth rates after the 1991 economic reforms gave further boost to energy-related issues in India's national security discourse. Energy security is now seen as to be an essential component of national security and it has been incorporated into India's foreign policy agenda. India's investments in hydrocarbon fields in the world are on national priority basis. The Ministry of External Affairs has established an energy security sector it has, entrusted with the task of maintaining close coordination with relevant ministries. The goal is international engagement through appropriate diplomatic interventions.' Energy cooperation between India and the EU have been part of their agenda. The European Commission argues that both the 'EU and India are mutually interdependent especially in terms of energy supply' and wants active cooperation with India. The European Union has laid great emphasis has been placed on the development of more efficient, cleaner and alternative energy chains. An India-EU Energy Panel has been set up to coordinate joint efforts. The Energy Panel has decided to work for India's membership in the International Thermonuclear Experimental Reactor (ITER). Both India and the EU agree to cooperate for the promotion of energy efficiency and energy conservation; the development of

affordable clean energy technologies; the identification of new technologies in the field of new, renewable, conventional and non-conventional energy sources; and technology and expertise in exchange of energy between different grid systems and the development of energy markets.<sup>15</sup>

The recent Joint Declaration for Enhanced Cooperation on Energy at the 13th EU-India summit 2016 was further expanded to include safety, sustainability, access and technologies. They will be in a number of key energy areas: development and deployment strategies for clean energy production, improved energy efficiency of products and energy efficiency in the building sector, development of smart power grids, including the integration of renewable energy sources, cost-effective ways to encourage the uptake of renewable energy sources, as well as research and innovation cooperation on new, clean and renewable energy technologies, energy safety (in particular nuclear safety and off-shore drilling safety) and advances in developing fusion energy as a future sustainable energy source.<sup>16</sup>

India and the EU can cooperate in the areas of solar, wind and biomass energy, and clean coal. According to Census 2011, there are 641,000 villages in India. Forty percent of the country's population is currently denied energy access.<sup>17</sup> Renewable energy can be useful for lighting, heating, cooling, water pumping and cooking. Under the Solar Mission, it was proposed to cover 2,000 MW equivalent off-grid power systems by 2022.<sup>18</sup>

Wind is another sector which cannot be neglected because there are huge business opportunities available to be harnessed carefully properly. According to the Confederation of Indian Industries (CII), the Indian wind energy industry is ranked fourth in the world in terms of installed wind capacity. It is set to increase its installed capacity figure substantially. Central and state governments have undertaken various policy initiatives to attract investment in the wind sector. Their policies offer a combination of feed-in tariffs, portfolio standards,

subsidised capital and tax incentives to lure investment. Power sector reforms, capital support to renewables, attractive renewable tariffs, domestic equipment and partners, an improved business environment, the establishment of special economic zones and Clean Development Mechanism (CDM) investment have all contributed. India's wind energy sector attracted investments of \$4.6 billion in 2011.<sup>19</sup> It seems that wind energy sector has a better track record and lower cost, and is relatively less risky.

Major European wind energy companies, especially from Germany and Spain, have shown much interest in India. For instance, in April 2011, the International Finance Corporation (IFC) provided an assistance to the tune of €11 million loan to Gamesa Wind Turbines Private Limited, the Indian subsidiary of Spain-based Gamesa Corporacion Techologica in order to pick up its wind turbine assembling facility in the country over the next two years.<sup>20</sup> It is estimated that 540 million tons of crop and plantation residues are produced every year. But a large portion of it is either wasted or used inefficiently in India. There are opportunities for small hydro power projects given India's numerous rivers and their tributaries. It was further emphasised at the meeting of the EU-India Working Group on Clean Coal Technologies that India has much interest to cooperate with the EU in order to develop the technology for improving the burning characteristics of high ash content coals in Integrated Gasification Combined Cycle (IGCC) plants. The India-EU working group on renewable energy and energy efficiency has to open avenues for partnerships in various areas of renewable energy and clean-conventional energy technologies for 'off-grid power generation and biofuels'. Involvement of institutions and industry should be top priority. For this purpose an Indo-EU Consortium has focused on R&D. This is based on the technological strengths of each country.

## **NEW CHALLENGES FOR INDO-EU ENERGY COOPERATION:**

The growth of the renewable energy sector in India, particularly solar energy, has been very strong in the recent past. Though the problems are not so grave but European companies has to face major challenges to adapt to the Indian business and regulatory environment in renewable energy. There has been legal and regulatory delays in land acquisition which needs getting the necessary approval. Emphasis will be also on the signing of power purchase agreements (PPA), maintaining cost competitiveness and quality and technological suitability for Indian conditions. But there has been enough reluctance of Indian financial institutions to finance renewable energy projects, and recent tax-related developments that has prevented large foreign investment in renewable energy in India. Moreover, the business and regulatory environment in India is not conducive to investment in recent years and overall investor interest is low. The problem is more severe for developers and companies to arrange finance for renewable energy. In spite of India having strong and clear renewable energy regulatory regime, fails to give long term assurance to the investor. There are many schemes, for multiple agencies to deal with renewable energy. This makes the issues delicate because it is difficult for any new European companies to adopt the Indian system. India's decision of Granting preference to local manufacturers and the mandatory 30 percent domestic sourcing requirement in the Jawaharlal Nehru National Solar Mission (JNSSM) were not fully supported by the US, the EU and Japan.

Considering the huge market for business, foreign companies want their share of the Indian money. But European companies will have to face stiff challenge from Chinese companies in India. Indian producers have been struggling against low-cost solar energy products because Chinese solar products are 25-30 percent cheaper than Indian companies' products. According to Bloomberg New Energy Finance,

Chinese banks have given at least US\$43 billion in credit facilities to renewable energy companies.<sup>21</sup> On the other hand, European countries have cut already subsidies for solar power since the recession began in 2008. Germany, the UK, Italy, Spain, France and Greece cut subsidies for solar power and other renewable energy sources. These countries were compelled to do so because Chinese manufacturers will put great pressure on European solar companies for survival chance are there that and European firms may collapse.

This is one side of the picture. The other end show how operative is the Indian government conducive atmosphere at the state government level. No doubt, the atmosphere is not state governments role are important in the promotion of solar business, land acquisition, grid connectivity and so on. For instance electricity and solar power is a state subject, solar power generation are state government subject. Therefore, the state should play a more dominant role in solar power generation. Social acceptance is the key to the development of successful renewable energy projects in India. Besides energy services and environmental benefits, it can and creates local jobs and provide livelihoods.

## **RESOURCE EFFICIENCY INITIATIVE:**

Unlike other emerging economies, India is one of the fastest growing economies of the last decade. It has seen radical development paradigm. With 1.2 billion people today, the prediction is that India will become the most populated country in the world by 2025. Furthermore, one sees a change in Indian system from being a net material exporter to net importer. Import growth has been protected by fossil fuels and metals. Moreover, the demand for materials will definitely increase. It is anticipated future growth in GDP could be from \$1.4 trillion in 2010 to \$5 trillion in 2020. Based on recent calculations, India's demand for resources will increase from 5 billion to 15 billion tonnes by 2030 and to 27 billion tonnes by 2050. India

will, therefore, have the largest material consumption share in the world (17 per cent) by 2050.<sup>22</sup>

Hence, in a proposed partnership with India on resource efficiency, the EU has given to support for the development of a longterm framework for actions in many policy areas such as, supporting policy agendas for climate change, energy, transport, industry, raw materials, waste, soil, land, agriculture, water and biodiversity. By this, European stakeholders will be more active in resource efficiency initiatives and develop some kind of into partnerships that could be fruitful to Indian economy. It is to be noted resource efficiency, recycling and waste management were the major themes of the 7th European Union-India Environment Forum that took place in New Delhi on February, 25, 2015. Ambassador Cravinho observed that ‘the new Indian Government and the new Commission offer an opportunity for giving momentum to resource efficiency and better waste management in India’.

Moreover, the focus should be on developing a circular economy – where waste materials from one sector could become raw material resources for another.

## **CONCLUSION:**

To sum up, recent trends show positive sign in the upward growth. This has been greatly admired by the economic strategists. The perception of overall business is changing and foreign powers feel that India is going in the right direction because the government is supportive, of both subsidy and regulatory policies. India’s fast economic and middle class growth, vibrant democracy and booming trade, services and investment sectors have greatly the European perceptions of India. Today India is considered as a centre of economic growth and business in the world. If today demand for energy increases, domestic production of unconventional oil and natural gas supplies will be more costly, resource will be more

intensive than the oil and natural gas obtained in international markets. Therefore, what is required is an adequate levels of energy security in an interdependent world. This will further require diversity in sources of fuels and suppliers, but will need for the inherent trade-offs to make sound energy policy. Thus, energy will be a resources major area for India-EU partnership in the future. More focus will be on the need to find business solutions and promote energy innovations so that products can be developed which can cater local needs.

## **REFERENCES:**

1. Planning Commission, Government of India, Draft Report of Expert Committee on Integrated Energy Policy, December 2005, p. 92.
2. 'Renewable Energy Sector in the EU: Its Employment and Export Potential: A Final Report to DG Environment', ECOTEC: Research & Consulting Limited, Birmingham, United Kingdom. Available at:  
[http://ec.europa.eu/environment/envecoeco\\_industry/pdf/ecotec\\_renewable\\_energy.pdf](http://ec.europa.eu/environment/envecoeco_industry/pdf/ecotec_renewable_energy.pdf)
3. Census of India 2011. Available at:  
[http://censusindia.gov.in/2011-prov-results/data\\_files/india/povpoputotalpresentation2011.pdf](http://censusindia.gov.in/2011-prov-results/data_files/india/povpoputotalpresentation2011.pdf).
4. McKinsey Global Institute, India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth, April 2010, p. 13.
5. International Energy Agency, World Energy Outlook 2011, 4 April 2012. Available at: [http://www.iea.org/Papers/2011/weo2011\\_energy\\_for\\_all.pdf](http://www.iea.org/Papers/2011/weo2011_energy_for_all.pdf), p. 11.
6. Ligia Noronha and Anant Sudarshan, India's Energy Security (New York: Routledge, 2009), p. 8.
7. Tanvi Madan, 'India's Global Search for Energy', in Michael Kugelman (ed.), Foreign Addiction: Assessing India's Energy Security Strategy, Asia Program Special Report, no. 142,

Woodrow Wilson International Center for Scholars, October 2008, pp. 6-7; and BP Statistical Review of World Energy, June 2012.

8. Tanvi Madan, op. cit. in note 9, p. 6 and KPMG, India Energy Outlook, available at: [http://www.in.kpmg.com/pdf/India\\_Energy\\_Outlook\\_2006.pdf](http://www.in.kpmg.com/pdf/India_Energy_Outlook_2006.pdf).

9. Ministry of New and Renewable Energy, Government of India, Strategic Plan for New and Renewable Energy Sector for the Period 2011-17, February 2011.

10. The Government of India, Prime Minister's Council on Climate Change, National Action Plan on Climate Change, 2008. Available at: <http://pmindia.nic.in/Pg01-52.pdf>.

11. 'Jawaharlal Nehru National Solar Mission: Towards Building Solar India'. Available at: <http://india.gov.in/allimpfrms/alldocs/15657.pdf>, p. 1

12. Kirit Parikh and Nicolas Stern, 'India's Low-Carbon Growth Strategy'. The Indian Express, 8 June 2012, and Aarti Dhar, 'National Mission on Enhanced Energy Efficiency Approved', The Hindu, 25 August 2009.

13. Bloomberg New Energy Finance, Global Trends in Renewable Energy Investment 2012. Available at: [http://fs-unep-](http://fs-unep-centre.org/sites/default/files/media/globaltrendsreport20123.pdf)

[centre.org/sites/default/files/media/globaltrendsreport20123.pdf](http://fs-unep-centre.org/sites/default/files/media/globaltrendsreport20123.pdf).

14. Ernst & Young, All Renewable Index. Renewable energy country attractiveness indices May 2012. Available at: <http://www.ey.com/GL/en/Industries/Cleantech/RECAI-May-2012-All-Renewables-Index>.

15. The Council of the European Union, 'The India-EU Strategic Partnership, Joint Action Plan', 11984/05 (Presse 223), Brussels, 7 September 2005.

16. The Council of the European Union, Joint Declaration for Enhanced Cooperation on Energy, 13th EU – India Summit, Brussels, 30 March 2016.

17. Ministry of New and Renewable Energy, Government of India, Strategic Plan for New and Renewable Energy Sector for the Period 2011-17, February 2011.

18. Ibid.

19. 'India Leads the World in Cleantech Investment Growth', op. cit. in note 36.

20. Dolly Khattar and Nitin Parmeswar, op. cit. in note 36, p. 91.

21. Shelley Singh and Rachita Prasad, 'Chinese Eclipse', The Economic Times, New Delhi, 5 June 2012.

22.

<http://www.cstep.in/uploads/default/files/pressroom/stuff/224749732846e6f14c0e9dba9d30f76c.pdf>