

ELECTRICITY ECONOMICS IN INDIA – LESSONS LEARNED FROM EUROPE

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Abstract

The global energy sector is gradually going through a major transition, due to increasing concern over sustainability and climate change. Production and use of energy are responsible for almost two thirds of the world's Green House Gas (GHGs) emissions. However, the use of low carbon energy sources is rapidly increasing, and there are indicators that the growth in global economy and energy related emissions might be starting to decouple [1]. Nearly half of all the newly added power generation capacity in 2014 were accounted for by Renewable Energy Technologies. In 2014, the European Union agreed on the 2030 climate and energy policy framework for the EU and set new targets for GHG emissions, renewable energy and energy efficiency for 2030 [2]. Presently, the situation in Europe is mainly characterized by the need to increase the share of renewables, the de-carbonization of electricity generation and the stagnation of the electricity demand growth rates.

Developing countries like India are now predominantly concerned with rapidly increasing electricity demand growth rates, an ever increasing demand- supply gap and growing concern about environmental consequences. Furthermore, the population explosion situation in India resulting in a high electricity demand growth rate of 4.9% per year elevates the risk of energy scarcity in the coming future.

An accelerated realization of key Indian policy targets, notably the 'Make in India' [3] campaign of 2015, which promotes industry as the main priority for India's growth model implies a much higher electricity demand growth rate. Thus, a strong economic growth along with an improved energy security will be one of the main challenges for India. Consequently, a keen interest in large scale renewable energy integration and new transmission technologies like HVDC is developing.

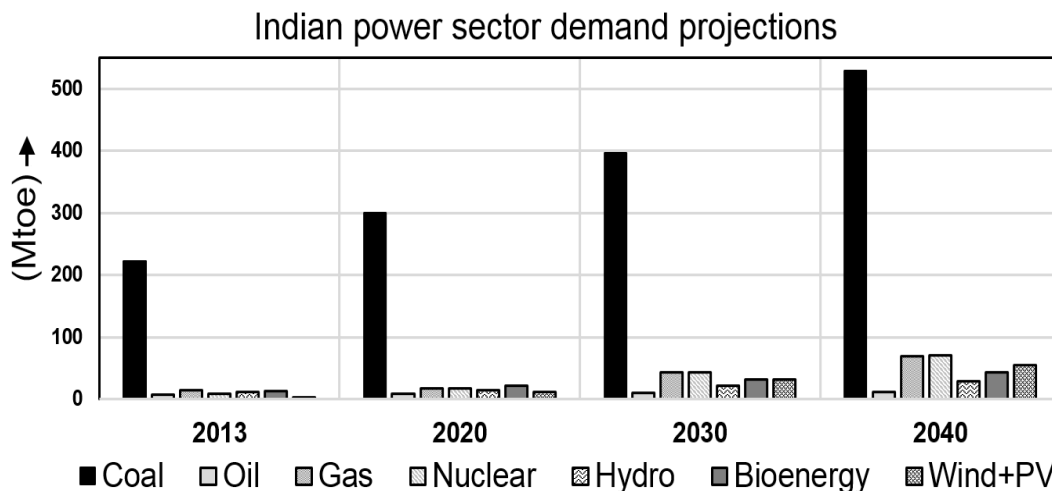


Figure1: Power sector demand projections for India, 2013-2040, New Policies Scenario, WEO2015, IEA

The energy sector today in India is already unrecognizable from the one that existed two decades ago, before the beginning of the large economic reforms in 1991. With the projected exponential growth in the Indian economy, the change over the next decade is expected to be more dramatic [4], as economic development and energy use go hand in hand.

A significant growth in nuclear power is expected, rising about nine times of today's share in 2040 [5]. India also aims to install 60 GW of wind power and 100 GW of solar power capacity by 2022.

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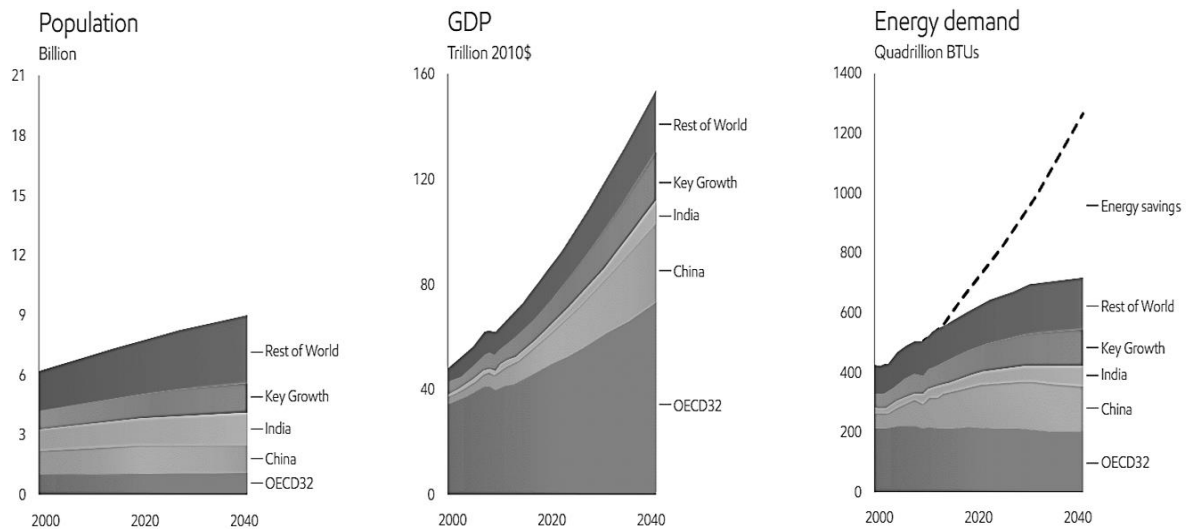


Figure 2: Population, GDP growth and Energy demand projections: ExxonMobil and United Nations

In this paper the main challenges for the transition of the Indian energy sector are identified, and an attempt has been made to compare the Indian and the European sectors to draw conclusions in aiding the transition process of the Indian energy sector.

References

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