

OPTIMAL TARGETS FOR INDIA'S PER CAPITA ELECTRICITY USE AND ENERGY MIX

India has an ambitious plan to reduce its dependence on coal for electric power generation. Can renewable energy meet the all the electricity needs of India in the future? To predict the demand for electrical power in the future, there is a need to relate the energy use to human development index. In a recent paper, Gopi Rethinaraj (DCCC) and Dilip Ahuja have argued that India can achieve significant improvement in human development from the present level without imposing a large energy footprint. They have shown that the relation between human development index and electrical energy consumption per capita varies a lot between different states in India. Kerala has a much higher human development index than

Gujarat although the electrical energy consumption in Kerala is less than one third of that in Gujarat. They suggest a target of 1500 kWh per capita by 2030 and 2500 kWh per capita by 2050. To meet these goals, the total installed electrical power generation capacity has to reach 500,000 MW by 2030 and 750,000 MW by 2050. They discuss the ability of wind, solar and hydropower to meet these goals without depending too much on power generation by coal or nuclear.

Reference: Optimal targets for India's per capita electricity use and energy mix by Gopi Rethinaraj T. S., and Dilip Ahuja, Current Science, 119, 1620-1626, 2020

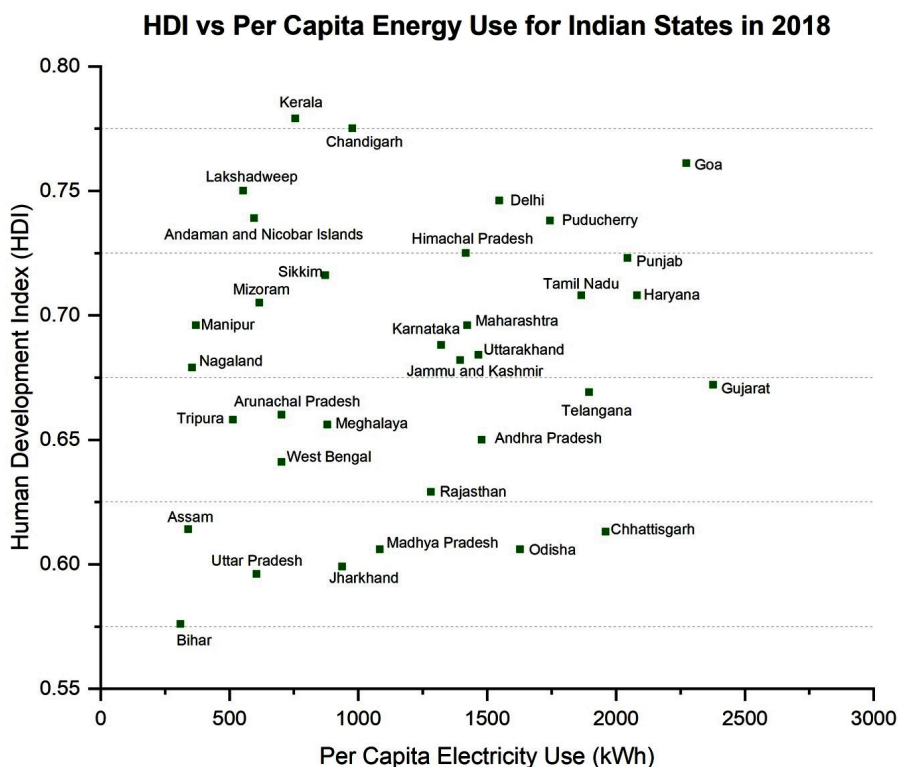


Fig: The variation in Human Development Index (HDI) as a function of electricity use per capita in different states of India.