Green energy & local economic development: Mapping impacts of solar scale up on Indian economy

Topic: 714Y Special session: Economic and Environmental Impacts of Renewable Energy Targets in Asia
Author: Surabhi R. JOSHI
Co-Authors: Pritee Sharma

Policy decision to logarithmically scale up solar generation capacities in India (100 GW by 2022) may not only transform existing, predominantly coal based energy mix for the economy but also usher opportunities for regional economic growth and development. This paper studies micro economic impacts of solar technology scale up on India economy by constructing a Social Accounting Matrix (SAM) simulating impacts of solar deployment as new production activity in Indian economy .

Deployment of a new solar capacities would not only create direct and indirect sectoral demand but also concomitantly generate local employment and wage incomes . As Indian solar policy distinguishes between projects using imported and domestically manufactured solar panels, Independent solar I-O blocks are constructed and integrated as a new sector in 35x35 national input output table (2011) obtained from world input output databases (WIOD) . Wage incomes associated with installation of a unit of grid connected ground mounted photovoltaic solar power capacity in India is estimated in terms of skill based labour compensation generation using WIOD -SEA database.

SAM depicts solar deployment leading to income generation which in turn are allocated to institutional sectors. The impacts in the study are distributed between two economic agents house holds getting labor incomes and private corporations getting capital gains. The house holds are categorized into nine groups on the basis of occupation. The relationship between production structure , income distribution and consumption profile of nine household groups is harmonized for the analysis.

Data from National sample survey (68th round ,2011) on household consumption expenditure, employment and unemployment indicators and status of education and vocational training was used to create consumption and income distribution profile of the nine household categories. The concordance was set between WIOD 35 sector classification, NSSO commodity classification and National Industry Classification (NIC) 2008 .

The analysis reveals greater wage generation for urban house hold in medium and high skill category associated with current solar deployment strategy. The study also highlights the fact that projects using domestically manufactured solar panels provide comparatively wider distribution of wages across the house hold categories and with better penetration in lower deciles of per capita expenditure.

Keywords: Socio economic impacts, Renewable energy, Indian solar policy, Social Accounting Matrix, Regional development