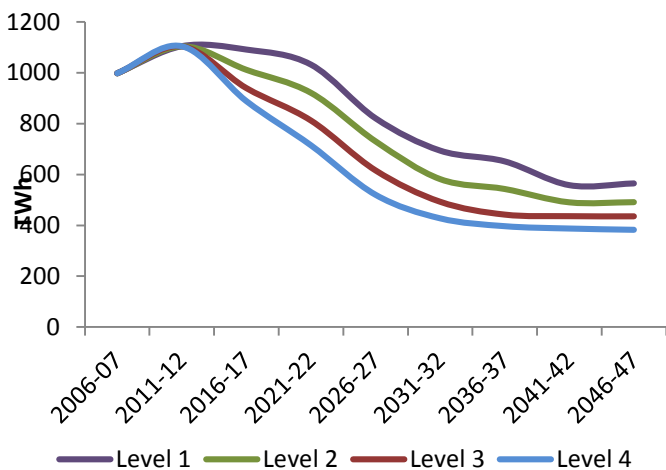


COOKING

Currently, in a country with 25 cr. households, 31% urbanisation and a per capita income of Rs 39,143 approximately 1104 TWh of energy is used for domestic cooking. Energy needed for cooking depends largely on the fuel used, energy conversion efficiency of the fuel, population growth, economic growth, government policies and urbanisation. Data suggests that on an average, a household uses about 8 to 10 LPG cylinders or 170 scm of PNG or 1022 kWh of electricity annually for cooking. Whether it is LPG, PNG or electricity, energy use due to modern fuels after accounting for stove efficiencies, roughly translates to an average use of 7 MJ/day or 1.94 kWh/ day. Therefore the average useful energy needed for cooking per day per household is approximately 7 MJ/day. There can be variations in the demand for energy needed. For this estimation, it is assumed that the average useful energy is constant over time. Given the average energy needed for cooking, there is no distinction made between commercial cooking and household energy demand for cooking as the cooking energy needed is to satisfy the requirement of the same population. Therefore energy needed for commercial cooking is implicit in this assessment.



LEVEL 1

By 2047, 40% of rural households switch to LPG. In urban areas, due to increased access to PNG there is switching from LPG to PNG resulting in 35% of urban households using PNG while half the households LPG. With reliable electricity supply to all households, 15% and 18% of urban and rural households respectively use electricity for cooking. Biogas users increase gradually from 4% of the rural population to 7% of the rural population. In Level 1, India will need 694 TWh by 2032 and 565 TWh by 2047 for

LEVEL 3

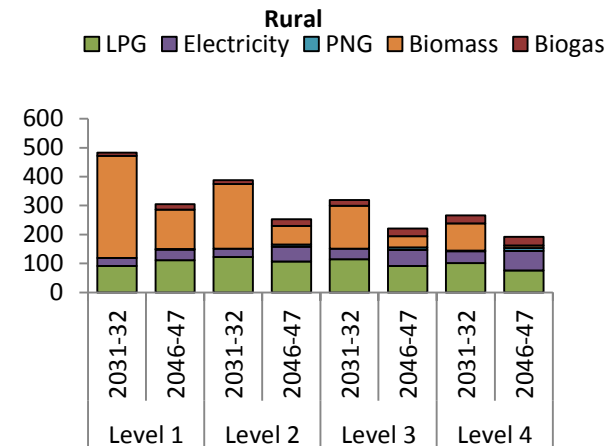
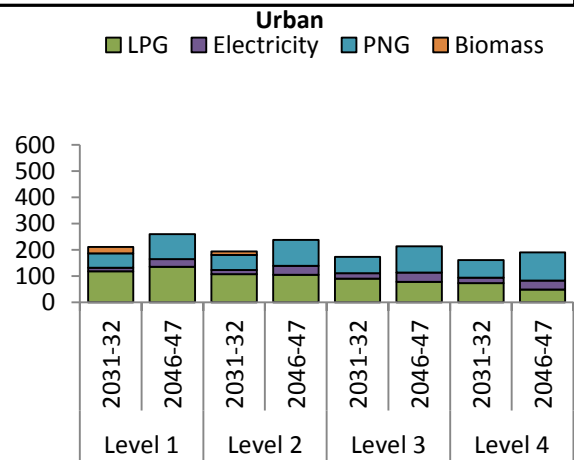
Level 3 assumes, LPG with 30% of rural households using electricity and 40% of the households using LPG and 12% using Biogas by 2047. Therefore only 14% of the households continue to rely on biomass, with all households switching to improved cook stoves by 2032, and 4% uses biogas. In urban areas, keen efforts to increase PNG network leads to 45% of urban households depending on it as a primary source for cooking energy by 2047. LPG is used for cooking only in 35% of urban homes and 20% of the homes use electricity. Thus, India's energy demand for cooking will be 493 TWh by 2032 and 435 TWh by 2047.

LEVEL 2

Level 2 assumes that due to effective implementation of rural programs for increasing access to electricity (RGGVY) and LPG (RGGLVY), by 2047, 26% of rural households use electricity and only 42% of rural households use LPG. Establishment of a PNG network in some rural areas leads to 3% of rural households using PNG, while 9% of households use biogas. Due to a policy push in urban areas for increased PNG use, 40% of urban India utilise it by 2047 and only 42% will depend on LPG. Given these assumptions, India will need 582 TWh by 2032 and 491 TWh by 2047 for its cooking needs.

LEVEL 4

In Level 4, by 2047, 38% of the rural households use LPG and 38% depend on electricity. 15% of households use biogas and only 4% of rural households use biomass with traditional cook stoves being phased out in 2027. PNG penetration in urban India increases to 55% and LPG users falls to 25%. However, at least 20% households use electricity. Thus, India's energy demand for cooking will be 428 TWh by 2032 and 383 TWh by 2047



Fuel wise energy demand (TWh) for cooking in 2032 and 2047 by urban and rural households