Energy demand for cooking

Level 1

Level 1 assumes that 35% of rural households would switch to LPG by 2050. In urban areas transition would be from LPG to PNG, and 32% of urban households will use PNG, while 50% of them would still use LPG. Further with increase in reliability of electricity supply, 11% and 15% of urban and rural households respectively use electricity for cooking. Total energy needed for cooking will be 31.5 TWh by 2050.

Level 2

Level 2 assumes that due to effective implementation of rural LPG distribution programs, 36% of rural households use LPG and 20% of rural households use electricity. Establishment of a PNG network in some rural areas leads to 2.5% of rural households using PNG, while biomass will still remain a major source with 34% of households using biomass with improved cook stoves. In urban areas 34% will use PNG and almost half population will use LPG. Total energy needed for cooking will be 27 TWh by 2050.

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. This combined with stove efficiencies, roughly translates to an average use of 7 MJ/day or 1.94 kWh/day. For present analysis, it is assumed that average energy required for cooking is constant over time. There is no distinction made for commercial and residential cooking energy demand, as cooking energy estimated is to satisfy the requirement of the same population. There are around 14.5 million households in Andhra Pradesh, of which nearly 68% are in rural areas. Considering the actual fuel used by urban and rural population, conversion efficiency and efficiency of the fuel used for cooking, a total energy requirement of around 48.5 TWh has been estimated. This lever analyzes the cooking energy requirement under different scenarios of fuel usage and cook stove efficiencies.

Level 3

Level 3 assumes that 21% of rural households are using electricity, 37% of the households using LPG and 11% using Biogas by 2050. Biomass becomes the second highest source for cooking with 30% of households using biomass with improved cook stoves. In urban areas, increase in PNG network leads to 45% of urban households using PNG for cooking energy by 2050. LPG is used for cooking only in 38% of urban homes and 17% of the homes use electricity. Total energy needed for cooking will be 24 TWh by 2050.

Level 4

In Level 4, it is assumed that LPG and electricity will be major source of cooking fuel in rural areas by 2050, with 38% and 36% of households using them as primary fuel for cooking, respectively. Only 10% of rural households uses biomass for cooking. PNG penetration in urban India increases to 48% and LPG users falls to 34%. Remaining 18% of urban homes uses electricity for cooking. Total energy needed for cooking will be 21 TWh by 2050.