Biomass Residue Production and end-use

Bioenergy production in the state of Andhra Pradesh is estimated to be around 3.7 TWh/year which was 7% of total energy consumption in 2015. Main source of bioenergy in the state are agricultural and forest residue which contributes to around 99% of total bioenergy production (agriculture and forest residue production was around 47 and 5 million tons per annum in 2015). Around 33% of agricultural residue is used as fodder. Of the remaining, 62% is used for cooking, 16% is used for electricity and remaining is used for other applications. Further, productivity of agricultural residue is projected to increase from 0 to 0.75% (annual) across the four levels. For forest residue, around 180-200 million tons/year is rated to be the sustainable limit for recovery from forests, which is extended for all the four levels.

Level 1

Level 1 assumes that agricultural residue production increases with annual growth rate of 1%. The share of non-fodder agricultural residue for household cooking decreases from 62% in 2015 to 44% by 2050. Further biomass based power generation capacity increases from 0.5 GW in 2015 to 1.2 GW in 2050, resulting in increase in biomass consumption from 5 million tons to 11 million tons. Liquid transportation fuel from agricultural residue is produced from 2020 onwards reaching up to 7% by 2050.

Level 2

In level 2, agricultural residue production increases with annual growth rate of 1.5%. Further, forestry residue is projected to increase at 0.4% per annum. The share of non-fodder agricultural residue for household cooking decreases from 62% in 2015 to 25% by 2050. Further biomass based power generation capacity increases from 0.5 GW in 2015 to 1.9 GW in 2050, resulting in increase in biomass consumption from 5 million tons to 14 million tons. Liquid transportation fuel from agricultural residue is produced from 2020 onwards reaching to 15% by 2050.

Level 3

Level 3 assumes that agricultural residue production increases with annual growth rate of 1.8%. Forestry residue is projected to increase at 0.6% per annum. The share of non-fodder agricultural residue for household cooking decreases from 62% in 2015 to 1% by 2050. Further biomass based power generation capacity increases from 0.5 GW in 2015 to 4 GW in 2050, resulting in increase in biomass consumption from 5 million tons to 24 million tons. Liquid transportation fuel from agricultural residue is produced from 2020 onwards reaching to 22% by 2050.

Level 4

Level 4 is a more aggressive scenario which assumes that agricultural residue production increases with annual growth rate of 2%. Forestry residue is projected to increase at 0.75% per annum. It assumes that non-fodder agricultural residue would not be used for cooking purposes. Biomass based electricity generation capacity increases from 0.5 GW in 2015 to 3.4 GW in 2050, as higher share (36%) of agricultural residue is used for liquid fuel generation.