Biomass Residue Production and end-use

Bioenergy production in the state of Assam is estimated to be around 0.28 TWh, most of which comes from biogas, and a small quantum from biomass based plants. Main sources 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 approximately 10.2 and 3.2 million tons per annum in 2015). Around 50% of agricultural residue is used as fodder. Of the remaining, 70% is used for cooking, 5% is used for electricity and remaining is used for other applications. Further, productivity of agricultural residue is projected to increase from 1.5% to 3.5% (annual) across the four levels.

Level 1

Level 1 assumes that agricultural residue production increases with annual growth rate of 1.5%. 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 10 MW in 2015 to 220 MW in 2050, resulting in increase in biomass consumption 1.6 million tons by 2050. Liquid transportation fuel from agricultural residue is produced from 2020 onwards reaching up to 6.4% by 2050.

Level 2

In level 2, agricultural residue production increases with annual growth rate of 2.5%. Further, forestry residue is projected to increase at 0.1% 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 10 MW in 2015 to 400 MW in 2050, resulting in increase in biomass consumption 2.9 million tons by 2050. Liquid transportation fuel from agricultural residue is produced from 2020 onwards reaching to 13% by 2050.

Level 3

Level 3 assumes that agricultural residue production increases with annual growth rate of 3.0%. Forestry residue is projected to increase at 0.2% 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 10 MW in 2015 to 675 MW in 2050, resulting in increase in biomass consumption to 4.85 million tons. Liquid transportation fuel from agricultural residue is produced from 2020 onwards reaching to 19.3% by 2050.

Level 4

Level 4 is a more aggressive scenario which assumes that agricultural residue production increases with annual growth rate of 3.5%. Forestry residue is projected to increase at 0.3% per annum. It assumes that non-fodder agricultural residue would not be used for cooking purposes. Biomass based electricity generation capacity increases to 460 MW by 2050, as higher share (33%) of agricultural residue is used for liquid fuel generation.