

20. End-use of bioenergy

Nearly all bio-fuels require further processing before they can substitute a hydrocarbon fuel. This lever allows the user to set policy favoring the conversion towards one type of fuel or the next.

The last decade

In the last decade, two simple end use scenarios have been experimented with in Bangladesh. The demand remains high for solid fuels (for cooking), and some companies now produce solid briquettes from low density crop residue like rice husk. There has also been considerable effort to develop gas conversion technology, since anaerobic digesters are common and make use of feedstocks that cannot be burnt normally.

Assumptions of model

Rather than convert fuels in the most efficient way, a simple percentage rule is used. This represents that most bio-conversion processes (such as pyrolysis) output useful side products. It also represents that in an area, the most demanded fuel may not ideally match the most available feedstock. SNG is 'synthetic natural gas', with a methane content of nearly 99%.

Levels

Level 1

Solid Fuel Focus Scenario. Based on the most efficient conversions possible. 70% of the dry and wet biofuels are converted to solid fuels, and 15% to Liquid and SNG respectively. All of the biogas is converted to SNG.

Level 2

Electricity Focus Scenario. 70% of all biofuels are burnt or converted to fuel that can be burnt and used to generate electricity in biomass power stations. 10% is converted into Solid fuel, Liquid Fuel and SNG respectively.

Level 3

Liquid Fuels Focus Scenario. 70% of all biofuels are converted to liquid fuels of various grades. 10% is converted into Solid fuel, Electricity and SNG respectively.

Level 4

SNG Focus Scenario. 70% of all biofuels are converted to SNG. 10% is converted into Solid fuel, Liquid Fuel and Electricity respectively.

Interaction with other levers

This lever really controls how the bioenergy group of levers will interact with the rest of the model. It has a strong effect on the 'Bioenergy from marginal land' lever since the Liquid Fuels Focus Scenario will result in the planting of Jatropha, instead of fuel wood trees.



Figure 20.1: Rice Husk Briquettes in Japan



Figure 20.2: An Anerobic digestion plant, Tel-Aviv



Figure 20.3: A rice straw power plant, India