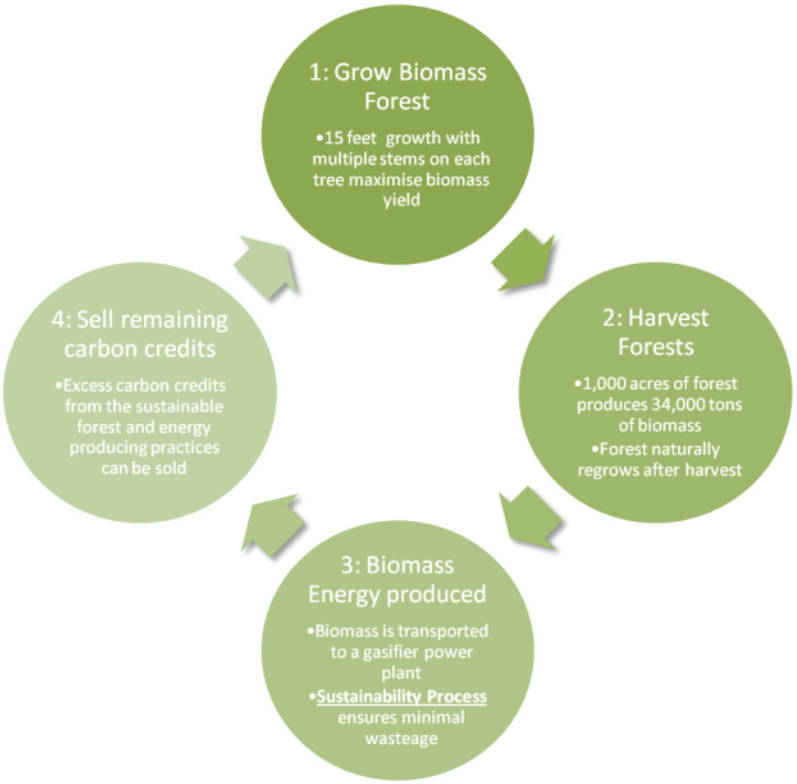
Biomass Sustainable Energy Model



The generation of electricity from biomass is part of a sustainable process to maximize efficiencies and minimize any waste and emissions.

1: Grow Biomass Forest. The biomass is grown using a process to maximize the yield from each tree. Unlike the plantation forests that ECO2 grows for lumber, the biomass trees grow with multiple stems from the stump. Trees are grown for only one year with the stems competing for light which promotes rapid growth. The planting methodologies of ECO2 allow the forest to be easily scaled up too much larger forests using a 1,000-acre module-based system.

2: Harvest Forests. Harvest of the forest is conducted annually and produces 34,000 tons of Kiri Biomass per 1,000 acres. Usually, the biomass is turned into small pellets for ease of transportation and minimizing related emissions.

3: Biomass Energy Production. The gasifier processes the pellets into syngas, which is used to turn a hot air turbine which creates electricity that is sent to the grid.

Energy Production Sustainability Process

1 a. Remaining flue gases are captured and sent to a plasma arc to heat a boiler where hot water is sent throughout the community providing perpetual hot water.
b. Any remaining CO2 is sent to algae ponds to feed algae that produce biodiesel.
c. Hot and cold water is sent throughout the community. This water is captured in sewage containment where the solids and liquids are separated.

2: a. Solid waste is sent to an aerobic digester for methane gas production.
b. This gas is captured for additional feed stock in energy production.
c. The excess solids are taken out and dried before being sent to the gasifier for syngas production.

3. a. Liquids are processed to clear remaining impurities and sent to algae ponds to feed algae in biodiesel production.
b. Water is stiffened from the algae ponds to feed hydroponic food production where 3 acres can produce enough food to feed 10,000 people.

4: Sell Carbon Credits. Carbon Credits created from the growing of the Biomass forest which sequesters carbon dioxide from the atmosphere and also emissions saved through the sustainable gasification process get accredited and then can be sold on open markets around the world.

The current commercial per ton price of wood pellets in northern Europe is $295.00 as of 6-1-2010. Price trends are rising. Using wood pellets to make electricity is among the lowest costs of all energy production, just above coal.