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## Study project, Bachelor thesis, Master thesis- SS 2010

**Project:** „The application of pellets from agricultural and forestry residues for energy generation in Brazil”

### **Framework:**

In the light of availability concerns and environmental implications of fossil fuels; bioenergy systems could appear as a promising alternative to promote regional development while providing numerous benefits across environmental, social, and economic spheres.

Brazil, with its vast agricultural sector, possesses a wide range of viable biomass inputs - such as agriculture and forest residues- that could be used to produce energy. Densification of biomass (e.g. sugarcane bagasse, saw wood, rice and coffee husks) through pelleting, promises increased storage and transport efficiencies. The BTU Cottbus has successfully pelletized Brazilian biomass and assessed its suitability for combustion based on the amount of ashes and chemical composition.

### **Objective:**

- To explore the risks and opportunities, key drivers and barriers that might determine the market penetration of pellets from agricultural sub-products for energy generation.

In this context, the following preliminary **topics** can be developed for a **study project, bachelor thesis** or **master thesis**:

- 1- Global energy production and climate change
- 2- State of the art of different biomass power plant technologies
- 3- Operation of biomass power plants (case studies)
- 4- Emissions (flue gas cleaning technologies)
- 5- Advantages of biomass combustion (comparison to coal combustion)
- 6- LCA (life cycle analysis) of biomass
- 7- Compaction of biomass residues into pellets
- 8- Socio-economic aspects of biomass use for energy generation
- 9- Environmental aspects of biomass use for energy generation

You can choose one of the topics above or suggest other topic of your interest that could enrich this project.

**Language:** English

**Areas:** ERM, Power Plant Technologies, Process Engineering, Economics....

**When:** Summer semester 2010

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