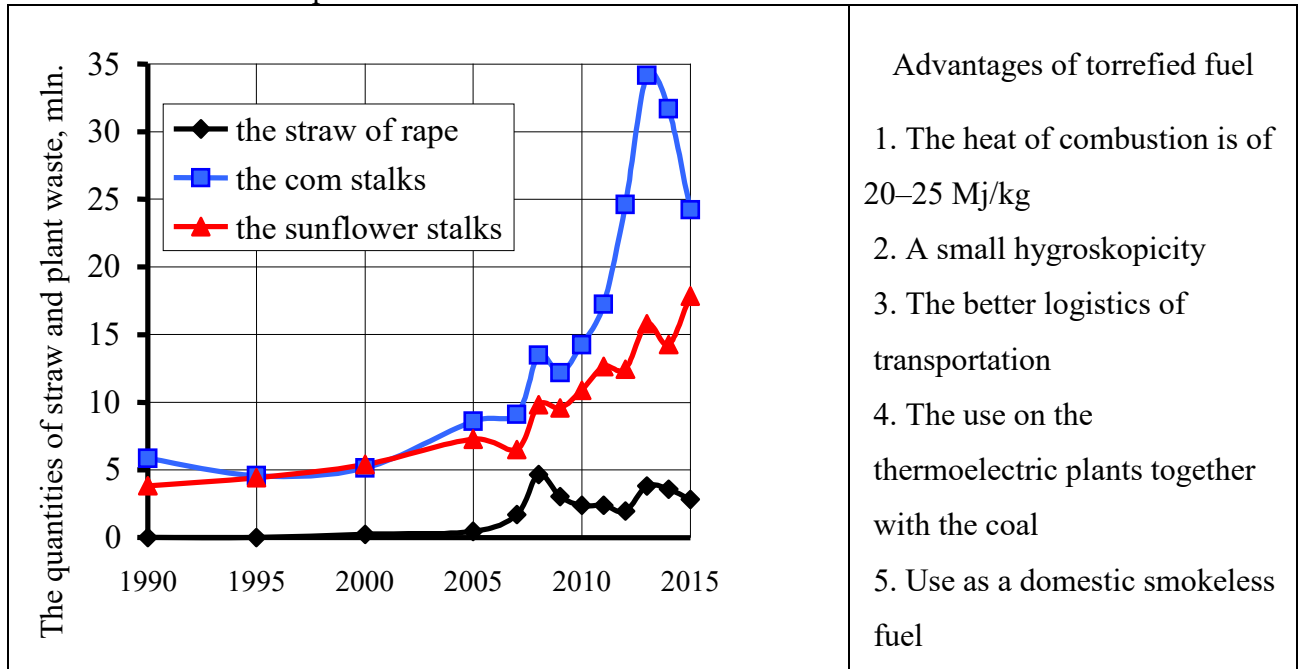


The production of torrefied fuel from plant waste

The wood biomass resources are limited by its long-term growth. The plant biomass is renewed annually.

Resources of plant biomass in Ukraine



Advantages of torrefied fuel

1. The heat of combustion is of 20–25 Mj/kg
2. A small hygroskopicity
3. The better logistics of transportation
4. The use on the thermoelectric plants together with the coal
5. Use as a domestic smokeless fuel

Technological scheme of production



For milling of raw material and granulation (briquetting) of torrefied biomass the serial equipment is used. The special mild pyrolysis reactor (know-how) has been devised for torrefaction of raw material. The process temperature is of 160–340 °C. The torrefaction is of 0.5–2.5 hours. Outlet torrefied biomass is of 50–65 %. The type of reactor: option 1 – batch operated, option 2 – continuous-action. Liquid waste (condensate, resin) are absent.

Operating mode of reactor: autothermal required process temperature is maintained by burning of gases and steam mixture and governed by blast air supply.

The stage of the project is creation of pilot plant.

Samples of torrefied biomass



corn stalks

sunflower stalks

sunflower husk

Samples of torrefied fuel



briquettes

granules