As the world’s second largest palm oil producer, Malaysia generates huge quantities of oil palm biomass. The oil palm biomass, in particular mesocarp fibre, empty fruit bunches (EFB) and palm shells generated from the milling process, has long been identified and utilised as a sustainable renewable energy fuel in the country. To enhance fuel quality and for logistic purposes, EFB and palm shells can be mixed and further treated to become uniform solid fuel via the briquetting process.

Briquetting is a mechanical treatment to upgrade loose biomass into higher density and uniform solid fuel via compaction. This approach improves the physical characteristics, enhances the combustion efficiency and expands the use and marketability of palm biomass fuel either for domestic or export markets. A process system for briquetting EFB fibre and palm shells using a piston press technology has successfully been developed.

Briquettes are a source of renewable energy from palm biomass, which is an affordable alternative to petroleum in view of the current fuel shortage and ever-rising prices. Briquettes also provide for sustainable renewable energy as a result of the abundant supply of biomass from oil palm plantations in Malaysia. The increasing global concern for green energy, economically viable production and renewable energy incentives will continue to boost the potential of palm biomass briquettes.

Binderless palm biomass briquettes derived from blending EFB and palm shells can be produced using the piston press technology. Besides increased density, the particular blending ratio of shells with EFB fibre also increases the calorific value (CV) of the palm briquettes, making it comparable to the minimum CV of commercial coal.

The product is in the form of a cylindrical log, 90–95 mm in diameter, 300 mm long and weighing about 2.25 kg each. Its length can be customised on request. The properties of the palm-based biomass briquettes are comparable to those of commercial sawdust briquettes.

Oil palm biomass briquettes can be used as coal as well as a petroleum oil substitute for heat and power plants. With the increasing global interest for renewable energy fuels and the decreasing sawdust supply, EFB fibre and palm shells are potential raw materials for the production of palm biomass briquettes. For the production to be more economically viable and sustainable, EFB treatment and briquette plants can be integrated into existing palm oil mills. This approach can significantly reduce the production cost of commercial palm biomass briquettes, mainly the raw material and utility costs. Utilisation of palm biomass briquettes as fuel for power generation may generate additional profits via renewable energy incentives or tax exemptions in many countries and also from carbon credits under the Clean Development Mechanism.