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The Typical Biomass Pelleting Plant with Annual Output of 40,000 T -----preliminary project design

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(Wood pellet plant, pellet plant design, wood pellet mill, pellet mill plant, wood pellet plant scheme, wood pellet factory, wood pellet manufacturer, bio pellet production)

1. Introduction

1.1 The Introduction of Biomass Pellet

Biomass pellet is a kind of clean fuel which is made of various agro-waste and forestry residue such as stalks, sawdust, etc. Biomass pellet is an ideal substitute for traditional energy like coal, diesel and natural gas. The main processing procedure includes crushing, drying, mixing with additives and pressing.

1.2 Technical Parameter and Advantages of Bio-pellets

(1) Price advantage

Bio pellets have a price advantage over petro products. Here is a chart of the comparison of fuel cost of them.

	Biomass pellet	Heavy oil	Natural gas	Diesel
Calorific value(kcal/kg)	4,100	10,000	8,600	10,200
Boiler thermal efficiency (%)	89%	89%	90%	90%
Fuel consumption for steam(kg/t)	164.4	67.4	77.5	65.4
Fuel cost for steam(\$/t)	34.60	43.65	50.19	63.53
Fuel cost saving rate(-%)	-	-21%	-32%	-46%

Fuel Cost Ratio---- Biomass pellet: Heavy oil: Natural gas: Diesel=1:1.26:1.45:1.84

(2) Policy advantage

The development of biomass pellet fuel complies with requirement of energy policy.

(3) Technical advantage

Our company has technical expertise in biomass pellet mill equipment.

- a. Sawdust rotary drum mill, featured with large capacity, low energy consumption and low investment.
- b. Wood pellet mill: various models; Driven by gear, so that the output is improved by about 20% when compared with that of belt drive.
- c. Automatic biopellet packing machine: adopts highly intelligent control system, with

stable performance and high precision.

1.3 Pellet Plant Project Size

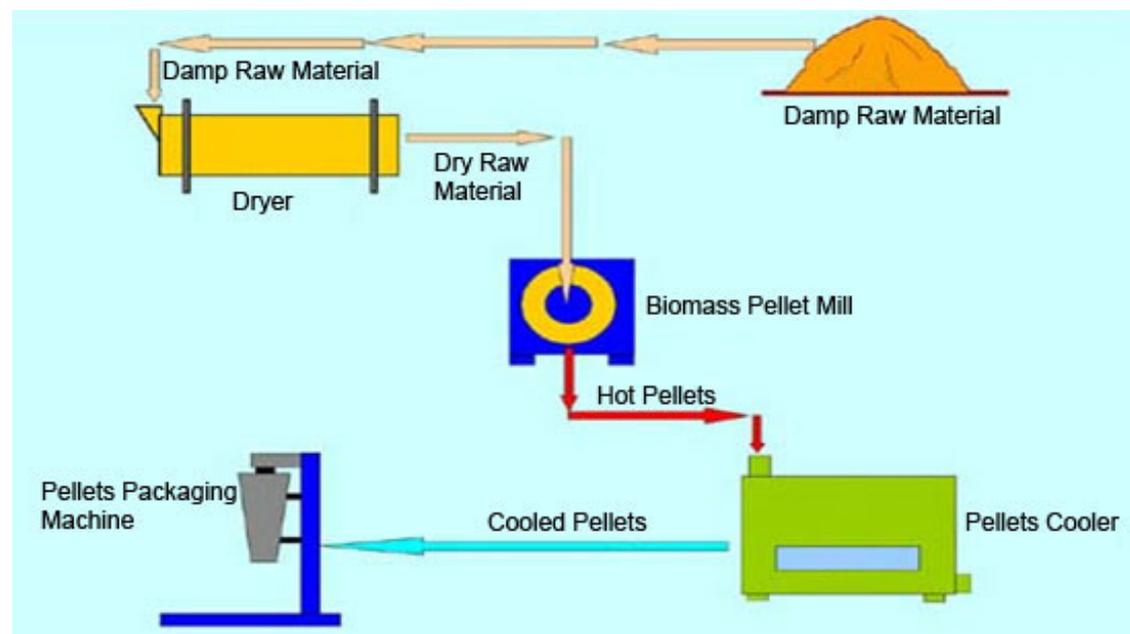
The proper project size is to produce an annual output of 40,000 tons of biomass pellets. This biomass pellet production plant is composed with 4 production lines and each line has an annual production of 10,000 tons. The production time is 20 hours per day and 11 months per year; and the capacity is 120t/day.

1.4 The pellet mill equipment and workshop area

Each production line is equipped with a set of biomass pellet mill and other auxiliary equipment; the workshop area is about 3,000m².

2. Processing Procedure

The whole biomass pellets processing includes crushing, grinding, draying, mixing, material transporting, extrusion forming, cooling, quality testing, packaging, warehousing of acceptable finished products and selling. Here is the schematic layout of a typical biomass pelleting plant



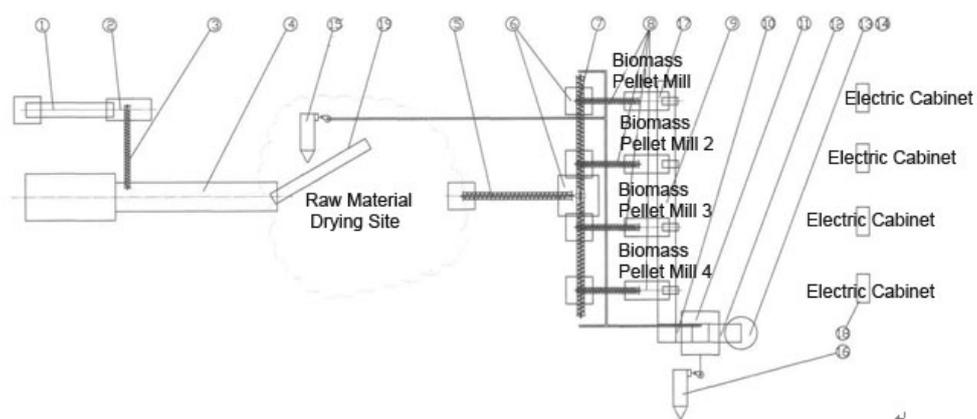
3. Biomass Pellet Machines List

1. Belt Conveyor
2. Rotary Screen

3. Screw Conveyor
4. Rotary Dryer
5. Feeding Screw Conveyor
6. Buffer Bin
7. Sub-feed Screw Conveyor
8. Variable Speed Feeding Screw Conveyor
9. Discharging Belt
10. Cooling Dryer
11. Pellets Surge Bin
12. Packaging Scale
13. Air Conveying System for Material Reverting
14. Cyclone Dust Collector
15. Biomass Pellet Mill
16. Electronic Control System
17. Mobile Belt

(**Note:** If some material is of large size, the crushing machine, grinding machine and transfer bin are necessary.)

The bio pellets production flow is as following:



4. Factory Layout



The factory area is about 5,000 m² including the floor space of workshop area and other supporting building. The workshop area is about 3,000 m².

5. Staffing

There should be 30 workers, 6 management person, 2 salesperson in the plant for the production and selling of biomass pellets.

The biomass pellets plant is running on two-shift or three-shift.

6. Investment Amount

The total investment amount is about USD0.73million, including the rent of factory, training cost and after-sale cost.

7. Economic Analysis

7.1 Annual Turnover: $40,000t * \$161.9/t = \6.476 million (The price is \$161.9/t.)

7.2 Production Cost:

7.2.1 Sawdust Cost: \$56.67/t

7.2.2 Electric Charge: \$12.95/t

7.2.3 Salary: \$3.24/t

7.2.4 Fuel Cost: \$5.67/t

7.2.5 Depreciation Cost: \$5.67/t

7.2.6 Cost of quick-wear parts: \$4.86/t

7.2.7 Operating Cost: \$16.19/t

7.2.7 Tax: \$8.10/t

7.3 Annual Profit: $40,000t * (\$161.9 - \$113.35) = \$1.942$ million

7.4 Investment Recovery Period: 5 months (the price is \$161.9/t); 7months (the price is \$145.71/t)