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# Analysis on China bio-fuel pellets market

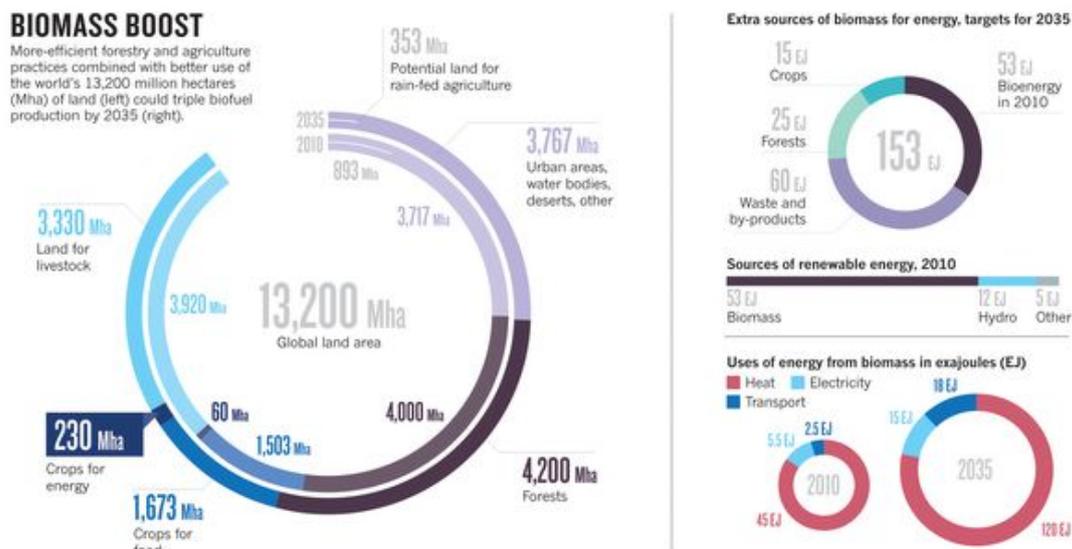
## 1. Say No to Fossil Fuel

### 1.1 World Layout of Green Energy

As a matter of fact, in the international community, the development and utilization of renewable clean energy, including solar energy, wind energy, water energy and biological energy, has been given widespread attention.

The United States plans to reach 80% of its electricity from wind, solar, biological energy, nuclear power and biomass fuel. The new EU policy aim is to achieve renewable energy accounted for 20% of total energy consumption by 2030.

Japan, Brazil, Germany, Denmark and other countries have also put forward clear goals for renewable energy. Germany proposed that, by 2050, renewable energy consumption will account for 60% of total energy consumption, renewable energy power accounting for 80% of the total electricity consumption. Denmark argues to be independent of fossil fuels by 2050.



### 1.2 Energy security in China

Different from developed countries, being in the stage of development of industrialization and urbanization, China is now suffering energy security, eco-environment and climate change simultaneously, so it is the only way to innovate thinking on development, and to control consumption by energy consumption revolution.

Since the reform and opening policies were introduced, China's economy has maintained a long-term rapid development. However, subordinating development quality to growth rate resulted in a sharp increase in the size of the domestic energy consumption and a rapid expansion of energy resources exploitation intensity. Now, although China has become the world's largest energy consumer and producer country,

due to intemperately “open-top” energy consumption, energy resources tension in China has become increasing prominent.

Firstly, energy security threats are becoming more and more pronounced. Having been an oil importer since 1993, until now China has become a net importer of coal, oil, natural gas and uranium resources. the foreign dependency rate is more than 10% totally, in which nearly 60% dependence on foreign oil, natural gas being more than 30%.

Secondly, the ecological environment gets worse. High-intensity energy development brings about severely damage to ecological environment. Long lasting coal mining seriously affect land and water resources of mines and surrounding areas. Coal mining goaf lands has totaled more than one million hectares in China. Haze, which has affected 25 provinces and 600 million people, is more of a problem at present.

Lastly, pressure of reducing greenhouse gas emission is unprecedentedly grim. According to estimates by IEA, in 2010, carbon dioxide emissions of China has already been close to 7.5 billion tons, over 20% of the world total. Per ca-pita emission is more than 5 tons, higher than the global average. With the increase of China's energy consumption, especially non-fossil energy resource, emissions of greenhouse gases will continue to increase in the future.

Mention renewable sources of energy, we have to talk a little about bio-fuel particles (fuel pellets/briquettes) which takes up a large and growing proportion in world new energy market.

## CHINA'S CHALLENGE: DEVELOPING CLEAN ENERGY

Fossil fuel dependence carries heavy environmental costs.



## 2. The current situation of Bio-fuel particles supply&demand in

### China

Utilization of bio-fuel particles in China mainly concentrate in large and medium-sized livestock (poultry) biogas engineering, straw gasification technology and garbage power technology. China is on the threshold of its production and direct combustion research on bio-fuel particles.

China is currently the second largest consumer of energy in the world, behind the United States. Energy has been the foundation of China's economic growth. At the

center of China's energy consumption is coal, which provides China with 70 percent of its energy needs, making it the world's largest coal consumer. Oil accounts for approximately 20 percent of China's energy consumption and the remaining 10 percent comes from natural gas, renewable energy, and nuclear energy.

### supply&demand

China's energy policy is to secure enough energy to fuel its continued economic growth. Over the next two years, ITA expects biomass pellet consumption in 21 key export markets to total 93.5 billion kilograms. China, which is ramping up its use of biomass power, will account for over one-fourth of this.

The basis for China's renewable energy policy is its Renewable Energy Law, which was enacted January 1, 2006. This law mandates that power grid companies purchase all the renewable energy that can be supplied to their grids. An amendment to this law was enacted on April 1, 2010, that increases the enforcement of the mandatory purchase clause and increases support for the purchase of renewable energy. China also has mandated that at least 15 percent of their its capacity be generated from renewable energy sources by 2015.

Biomass fuel development is a top priority in China. One area China is examining to supplement its coal use is wood pellets. China's production of wood pellets was estimated to be 800 000 metric tons in 2008 and 1 million metric tons in 2009. China's wood pellet consumption relies primarily on domestic production, and imports are minimal. In 2008, China imported approximately US\$10.3 million dollars of wood fuel; only a fraction of this figure was for wood pellets. However, the Chinese currency has appreciated against the U.S. dollar, which may make U.S. wood pellets more cost-competitive in the Chinese market. As in Japan, the major market for wood pellets in China is for co-firing at coal power plants. In summary, China has the second largest energy market in the world and is searching for ways to increase its percentage of renewable energy. However, China's wood pellet import volume is still relatively small, thus strong efforts would need to be made in market development.

### Price

In American market, price of small package bio-fuel pellets is \$170/ton, large package being \$135/ton. In Sweden, the delivery price is \$150/ton. F.O.B price for wood pellets in bulk is \$80/ton in Amsterdam.

In Dalian, China, the retail price for bio-fuel pellets is 650-750 RMB/ton, and for straw pellets being 430-500 RMB/ton. In Beijing, it is about 500 RMB/ton.

National Development and Reform Commission proposed that efforts should be made to make bio-fuel pellets being a widely used high-quality fuel till 2020. Consumption amount of fuel pellets is planned to be 50 million tons annually.



### 3. Analysis on market potential for China bio-fuel particles

China has proposed the strategic objectives of increasing the ratio of non-fossil fuels in total energy consumption to 15% by 2020. Renewable sources of energy develops rapidly in China in recent years. The comprehensive utilization of biomass fuels, such as biomass power, biomass pellet fuel, and biogas utilization, expands increasingly, showing a favorable development prospects. Moreover, with great efforts and keeping innovation, biomass power plants turn out to be profitable.

#### 3.1 Chief use of bio-fuel pellets in China

##### **There are three main usages:**

**Domestic heating:** high combustion utilization, easy to store, easy to use, safe and sanitary. Such as Lao Wan boiler for home use in Beijing.

**Generating electricity:** being used as fuel of Thermal power. Burning each 10,000 tons of biomass fuels can replace 8,000 tons of standard coal, reducing 160 tons SO<sub>2</sub> emissions , 80 tons the smoke dust emission, 14,400 tons CO<sub>2</sub> emissions.

**Biomass industrial boiler:** as the primary fuel of industrial boilers, replacing coal, oil and natural gas maintaining a clean and healthy environment.

This is further illustrated by a four tons boiler burning 3600t coal annually. It saves 1.7 million yuan using bio-fuel pellets than coal, 4 million than oil, and 2.1 million than natural gas.

There are more than 500,000 units of small and medium-sized coal-burning boilers smaller than 14 MW, annual standard coal consumption arriving 270 million tons, with 600,000 tons smoke dust emission, 2.26 million tons SO<sub>2</sub> emission, and 1 million tons NO<sub>x</sub> emission. For most users, bio-fuel pellets will be the best choice.

In Wangzhuang village, Quzhou County, Hebei, there was a test creating a village(town)-type business model to integrate “raw material-processing-personal use-selling”. Crops straw, such as wheat, corn and cotton, were gathered together. A bio-fuel pellets manufacturing factory with an annual output of 1500 tons was built according to the total amount of available raw materials. 50% of products are for self-use, the other for selling to towns and counties nearby.

Farmers said that such pellets flare thoroughly, save energy and protect environment, no carbon monoxide poisoning, smokelessly and 20%-30% cheaper than coal. The equipment investment of this factory is 330,000 yuan, with 1,500 tons output annually, and the net profit arrives 120,000 to 150,000 yuan.

In Quzhou county, there are 820,000 tons of available crop straw, 700,000 tons of animal feces and 20,000 tons forestry residues, which can support more than 200 bio-fuel pellets manufacturing factories similar to Wangzhuang village. The production of solid pellets fuels are 400,000 tons annual, and 15 million cubic meters of bio-gas, equivalent to manufacturability of 240,000 tons of standard coal.

All those analyzed above shows that **China owns tremendous market potentials, and investors can start your business here or seek long-term cooperation with China pellets distributors.**



### 3.2 The government's policies

There are legal protection and policy support in China developing and utilizing bio-energy pellets.

“People's Republic of China Renewable Energy Law” clearly states: "The State will tabulate the development of renewable energy use as priority areas for energy

development to promote the establishment of renewable energy market.”

CPC Central Committee and State Council points out: " biomass industry, whose main contents are bio-energy, bio-material and biomass products, is sunrise industry to expand agricultural function and promote bio-energy utilization.

Decree No. 105 of SCS State Council states: "Orderly developing biomass energy, strengthening research and development on technology and equipment, striving to make a breakthrough in converting straw to bio-energy.

In the meeting of Renewable Resources Development Seminar in 19th, Oct. 2006, the Ministry of Finance clearly states: for the development of biomass energy,the state will give strong support in terms of taxation and credit.

**These are fully justifying that the state will protect the development of bio-fuel pellets in law. Therefore, with the powerful support of the government, bio-fuel pellets are sure to have vast market and opportunities in China.**