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keywords

Chile's wood pellets, Chile wood pellet mill, Chile pellet plant, Chile wood pellet machine

Abstract

With rich resources of forestry in Chile, the wood pellets market is becoming more and more popular, the forests are still increasing, three wood pellet plants have been set in Chile which created its own market. Local government and CONAMA built standards to promote the forestry development and encourage the wood pellets. Chile is becoming a significant exporter of wood pellets. However, there are some problems in wood pellets development such as long transport distance, old equipment and its small market.

Market Analysis of Wood Pellets in Chile

Chile's Wood Resources

Chile is famous for its 3 W's - Wine, Weather and Woman. However, people often talk about

another W - Wood. Chile has rich wood resources because of its lush forests. Forestry is one of the main economic sectors of Chile, representing 14% of the value of the country's total exports. This places the forestry sector in Chile as the second largest export sector behind copper mining. From 1970 to 2005 planted forest surface in Chile grew from 300,000 ha to more than 2.07 billion ha. As of 2006 70% of Chile's forestry production went to export, and the industry employed more than 150,000 workers.



The eucalyptus plantation, consisting of approx. 13,000 hectares, lies about 650 km South of the capital, Santiago. Eucalyptus globulus trees are planted in an enormous swath of land more than twice the size of the area inside the Yamanote Line. The trees grow very fast, so they can be harvested in about 10 years. When they are sufficiently mature, they are cut down, processed at a factory into chips for paper making, and exported to Nippon Paper Industries Co., Ltd., a Japanese paper manufacturer.

Current Situation of Wood Pellets Market Development in Chile

Chile is a major producer and exporter of wood and wood products, such as pulpwood, round wood, wood chips and pellets. Wood pellets are a solid fuel made of by-products of wood production and wood waste such as sawdust and shavings, timber left in the forest after logging. Wood pellets are dry, and easy to store. Because of the efficiency of the production process and the low price of the materials used, pellets are economical. They are suitable for automated equipment because they are uniform in shape and moisture content. Accordingly, they can be used as a fuel for a variety of equipment, from boilers for power generation to heaters and cookers for home use. However, most of wood is often burned for heating, pollution from the smoke is seen as a significant problem. In considering that wood pellets would help solve this problem three wood pellets mill had existed in Chile.

Three Wood Pellet Plant Installed in Chile

- The company Eco pellets, situated close to Santiago de Chile, had two mills, and was established about 6-8 years ago. The theoretical capacity of this plan was about 6 tons/hour, or about 30,000 tons per year, but this production level was never fully realized. The feed stock used was urban waste wood from Santiago. The wood pellets were destined for the domestic market. However, as this market was too small, the company recently ceased production.
- Andes bio pellets, situated close to Santa Barbaras, belongs to a Swedish investor. It is located next to a saw mill, and uses saw dust as raw material. Bio energy International (2011) reported a

production capacity of 50,000 tons.

- The third wood pellet plant planned is run by Ecomas, a joint venture of the Chilean company Promasa and the Japanese Somitomo corporation. It is situated in the center-south of Chile, near the city of Los Angeles. The capacity mentioned by Bio energy International (2011) was 10,000 tons. The company has a marketing strategy to sell wood pellet boilers to small-scale industries, and deliver pellets to them with long-term contracts. Currently, the company holds a 90% market share, with an annual production volume of about 20,000 tons. It is an extremely aggressive business model that created its own market from scratch.



Some Policies to Formalize the Wood Market.

The Chilean government plans to focus on the demand side of wood use for energy. Recognizing that there is a cultural affinity for wood use and that wood is an integral part of the energy mix, the Chilean government has explicitly chosen to encourage a more sustainable use of wood for energy. There are currently no plans to encourage fuel switching. Native forests are protected by law 84 and the government is planning to enact new laws to regulate the use of firewood. Despite the introduction of decontamination plans in some cities measures to reduce emissions from wood use are less advanced compared with other decontamination measures. Proposals to limit emissions from residential firewood in cities with decontamination plans are currently under review. Therefore the Chilean government has set air quality standards to purify air. Because burning wood in Chile produces high concentrations of particulate matter (PM). CONAMA also makes decontamination plans to reduce air pollution. It seems that the wood pellets market in Chile is large.

In 2007, Chile manufactured 60000 tonnes of wood pellets and exported 20000 tonnes. The long distances to major markets, coupled with old port facilities, make pellet exports a challenge. It is reported that in 2007, our country also import wood pellets only from Vietnam, Indonesia and Australia. With the fast development of paper pulp in China, the wood pellets import country has increased from 3 to 8. In South America the mainly import country is Chile and Brazil, in 2012 our country's import volume of wood pellets from Chile has reached 76000 tons. Given cheap shipping rates and the fact that pellets have a lower transport cost per unit energy than liquid bio fuels, Chile could nevertheless become a significant bio energy exporter.

The Develop Problems of Chile's Wood Pellets

There are some problems in wood pellets development in Chile.

Firstly, Chile produces about 40 million cubic meters of industrial round wood, and an additional 16 million cubic meters of firewood, so the sawdust and shaving potential is in theory large. However, these residues are currently utilized to a large extent to produce electricity and heat. Also, most of the forest assets are owned by the pulp and paper industry which are not enthusiastic about the opportunities to produce pellets yet prefer producing electricity.

Secondly, the domestic market in Chile is very small. It is a very large user of firewood for heating. So a wood pellet stove would be able to provide cleaner heat, but as (high-quality) stoves are expensive, and no subsidies are available either for stoves or for pellets, it is hard to compete with firewood.

	Efficiency (%)	Emissions (milligrams/MJ)	USD/kW
Open fire stove	10	50 000	0
Traditional stove (wet wood)	45	5 000	30
Traditional stove (dry wood)	60	500	30
Pellet stove	90	50	200
Industrial boiler (wood)	70	250	100
Industrial boiler (pellets)	95	30	200
Co-generation plant (wood chips)	85	20	2 000

According to a study by the CNE, Chilean consumers have no incentive to switch from a wood stove to a pellet stove, because the payback period is too long. Even when the lower fuel cost of pellets - given efficiency gains - is taken into account, it is estimated to take 15 years to recover the initial cost of the stove and its installation.

Thirdly, Chile is facing the Pacific, the transport distances to the European markets are large, this makes export economics unfavorable.