

Sector Case Study: Biomass Pellets

Substitution of coal mixed with biomass in several European Union (EU) Member States to meet carbon emission targets is driving demand for biomass pellets produced in the United States. This has also spurred European investment in several new pellet mills in the American Southeast. In addition, exporters may find new opportunities in Asian markets, though these remain largely untapped by U.S. exporters. Exporters are encouraged to work closely with ITA and the U.S. Department of Agriculture's Foreign Agricultural Service to identify export opportunities.

Biomass power uses organic matter (wood, agricultural waste, etc) or inorganic matter like municipal solid waste to create electricity or heat. Wood pellets and wood chips are the most commonly used fuel in biomass power plants. Pellets are often the byproduct of the timber industry and can be created using residues from other processes.

U.S. wood pellet manufacturers can now produce over 16 billion metric tons of pellets annually.¹ Much of this production has been added in recent years for export to Europe. Trade in wood pellets for bioenergy has become so robust that in 2012 the World Customs Organization adopted a six-digit Harmonized Schedule code (440131) for wood pellets, making it easier to track global trade.² In 2012, nearly 1.9 million metric tons were exported, and in 2013 that number increased to 2.9 million metric tons.

Demand is so high that in the past two years, the Southeast United States, which has vast biomass resources, has witnessed a boom in pellet mill development. Some of these mills are even owned and operated by European electric utilities in an effort to secure their supply of pellets into the future, principally to meet EU-mandated emissions targets.

Overview of Global Export Market Opportunities

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, but will take in only a small amount of exports. The United Kingdom will represent the next largest pellet market globally and is expected to support the most U.S. exports in the short-term.

The Pellet Export Opportunity in the Near-Term

The results showing mostly European countries as top markets for U.S. wood pellets are in line with expectations. According to the U.S. Industrial Pellet Association, in 2012 the United States was the leading exporter of wood pellets to the EU, capturing 36 percent of the EU's import market.³ The top EU markets for U.S. pellet exporters were the UK (30 percent of EU imports), the Netherlands (24 percent), and Belgium (16 percent).⁴ EU imports have steadily

Top Pellet Export Markets to 2015

- 1. United Kingdom**
(large share; large market)
- 2. The Netherlands**
(large share; large market)
- 3. Belgium**
(large share; large market)
- 4. Turkey**
(large share; small market)
- 5. Korea**
(small share; large market)
- 6. Italy**
(small share; large market)
- 7. Denmark**
(small share; large market)
- 8. Sweden**
(small share; large market)
- 9. Canada**
(small share; small market)
- 10. Mexico**
(small share; small market)

This *Top Markets* case study is provided as a resource for U.S. exporters by the International Trade Administration. Every effort has been made to ensure that the information presented in this report is complete and accurate as of the date of publication; however, the U.S. Government assumes no responsibility or liability for any errors or omissions. Readers are advised to independently verify any information contained in this intelligence brief prior to relying on it. The information provided in this report does not constitute legal advice. Readers are further advised to conduct their own due diligence and seek the advice of legal counsel before entering into business ventures or other commercial arrangements in this market.

increased in the last five years, with imports of 2.5 million MT in 2008 and 4.5 million MT in 2012.⁵ The increase is expected to continue, with projections ranging between 25 and 70 million MT by 2020.⁶

In the UK, the use of wood pellets in power plants is driven by the interaction of three policies:

- The Renewables Obligation Certificate (ROC), which requires until 2027 that licensed UK electricity suppliers source a specified proportion of the electricity they provide to customers from eligible renewable sources;
- The EU's Industrial Emissions Directive, which created a legally binding standard for sulfur dioxide emissions and is set to be implemented on January 1, 2016; and
- The Carbon Price Floor, which disincentivizes the use of coal in coal-fired power plants.

On August 22, 2013, the UK's Department of Energy and Climate Change announced the release of its final guidelines, which stakeholders within the United States viewed as achievable based on current practices. The UK announced that the guidelines' sustainability criteria will be enforced starting in April 2015 and that it would not revise them until 2027 at the earliest.

In Asia, South Korea is likely the largest export opportunity for American exporters in the near term. In 2012, U.S. wood pellet producers exported less than 200,000 kilograms (kg) to Korea, but in 2013, exports to Korea exceeded 34 million kg. According to the

government's targets, Korea's wood pellet demand is projected to grow from 750,000 MT in 2012 to 5 million MT by 2020. It also relies heavily on imports for forest products in general, with a forest products self-sufficiency rate of only 6 percent.⁷ By comparison, a majority of the wood pellets used in China are expected to be manufactured in China, limiting export opportunities.

Shipments of U.S. wood pellets to the United States' NAFTA partners are surprisingly low. Canadian use of wood pellets has yet to catch up with production. The United States would be well positioned to supply pellets to Mexico, but new biomass electricity capacity is not expected to come online in the near term.

Planning for the Long-Term

Beyond 2015, demand for wood pellets should continue to grow, particularly in markets where emissions policies encourage the use of co-firing or dedicated biomass. This includes markets outside Europe. In Korea, for example, a policy mandate from the Government has increased demand for pellets from the U.S., dramatically increasing exports over the past two years. Similar policy incentives from other Asian markets may have similar impacts – particularly for pellet manufactures in the American Northwest, which would be well positioned geographically to supply product to growing Asian markets.

2014 Renewable Energy Top Markets Report



This *Top Markets* case study is part of a larger report that includes rankings of 75 different markets in terms of overall U.S. renewable energy exports through 2015, as well as specific rankings for the ethanol, geothermal, hydropower, biomass pellets, solar and wind sectors. To access the full report, visit <http://export.gov/reee/topmarkets>.

¹ <http://biomassmagazine.com/plants/listplants/pellet/US/>

² Wood chips are separate codes (coniferous and non-coniferous), and no distinction is made regarding their end use.

³ USIPA webinar, “Europe’s Growing Appetite for American Wood Pellets,” held on June 27, 2013.

⁴ Ibid.

⁵ Eurostat.

⁶ USIPA webinar, “Europe’s Growing Appetite for American Wood Pellets,” held on June 27, 2013.

⁷ U.S. Forest Service, “The Asian Wood Pellet Markets,” 2012, http://www.fs.fed.us/pnw/pubs/pnw_gtr861.pdf

About the Office of Energy and Environmental Industries

The Office of Energy and Environmental Industries (OEEI), a part of the International Trade Administration's Industry and Analysis unit, is dedicated to enhancing the global competitiveness of U.S. energy and environmental companies, expanding their market access, and increasing their exports. Industry analysts perform strategic research and analysis in order to shape and implement trade policy, create conditions that encourage innovation, lower the cost of doing business, and promote U.S. economic growth. For more information or to access other reports related to the Renewable Energy and Energy Efficiency Export Initiative, contact the office at (202) 482-5225 or visit www.export.gov/reee.

The International Trade Administration's mission is to create prosperity by strengthening the competitiveness of U.S. industry, promoting trade and investment, and ensuring fair trade and compliance with trade laws and agreements.



INTERNATIONAL
TRADE
ADMINISTRATION
