European Union

This year's report provides greater depth of analysis for the individual wood pellet markets of the European Union (EU). Each has its own characteristics, although U.S. exports are mainly in demand for the public utility power sector rather than the home heating market. A patchwork of sustainability regulations is beginning to develop, thus requiring closer examination of each market's regulatory process. With regards to ethanol exports to the EU, which used to account for one third of all U.S. ethanol exports, there is very little optimism for the 2015-2016 timeframe. Though not at the same high volumes as in 2012, some U.S. ethanol is being shipped to the Netherlands and Finland, but trade with the United Kingdom (UK) has slowed substantially.

Consumption of ethanol in the EU is expected to remain the same or rise only slightly in the near term, but the U.S. share of imports remains stymied by antidumping duties imposed by the European Commission on U.S. ethanol. Furthermore, sustainability certification requirements under the EU's Renewable Energy Directive (RED) are difficult to meet for most suppliers of corn-based ethanol, as all biofuels used to meet renewable energy goals must provide evidence that they have reduced greenhouse gas emissions by at least 35 percent compared to fossil fuels. This threshold increases after 2017, requiring a verified reduction of at least 50 percent, and at least 60 percent for new installations. Several EU member states have developed national voluntary systems, in addition to the 13 voluntary schemes adopted by the European Commission.

Recently, the EC Parliament passed legislation imposing a 7 percent cap on total field crop biofuels beginning in 2017, modifying the existing RED. Given the double counting scheme that incentivizes waste-stream biofuels and the fact that diesel use in growing while gasoline use is shrinking, biodiesel use will likely increase further while little growth if any is expected for ethanol in the long term.

Although the current mandate calls for 10 percent of the transport fuel of every member state come from renewable sources such as biofuels by 2020, discussions are underway to ultimately remove the specific subtarget for the transportation sector. Such uncertainty over how the EU will meet its own renewable energy goals is also a concern for European producers.

A few EU member states (the Netherlands and Finland) imported U.S. ethanol in 2014, there is no anticipated upsurge during the 2015-2016 timeframe unless the U.S. industry's lawsuit in the EU court overturns the imposition of antidumping duties. And even if this were to happen, U.S. companies will have to weigh the costs of compliance with sustainability requirements and verification schemes compared to pursuing sales in other markets.

U.S. ethanol exports to the UK were particularly strongly impacted by the imposition of the antidumping duties. While U.S. ethanol accounted for 58 percent of all UK imports of ethanol in 2012, the U.S. market share dropped to under 1 percent in 2014 despite the UK's continued dependence on imported ethanol to meet its blending requirements. The UK now gets most of its ethanol imports from the Netherlands, France and Spain.

In contrast to fuel ethanol, the EU will remain by far the largest market for American wood pellets. Demand for wood pellets is increasing as its member states seek alternatives to coal for electricity and heat production. One of the driving factors for the use of wood pellets instead of natural gas is the EU-wide RED, under which renewable energy is to account for at least 20 percent of all energy consumed by 2020.

In 2014, the EU consumed 19 billion kilograms of wood pellets, which amounted to 85 percent of the global market. That year the United States sent $503 million worth of wood pellets to the EU, capturing about 33 percent of the market share there.[27] The UK, the Netherlands and Belgium use the wood pellets predominantly for electricity production and these

Figure 1: Global Export Statistics, 2014
Commodity: 440131 (Wood Pellets)

Reporting Country	Quantity Exported (kg)
USA	4,005,057,299
Canada	1,637,589,402
Latvia	1,248,355,000
Russia	879,007,109
Portugal	749,434,000
Estonia	640,839,000
Germany	627,088,000
Austria	480,854,000
Romania	412,916,000
Lithuania	300,066,000
Sweden	252,793,000
Netherlands	232,279,000
Denmark	217,568,000
Poland	181,710,000
Bosnia & Herzegovina	172,421,011

countries have been the primary EU importers of American wood pellets.[28] Sweden and Denmark use wood pellets for large cogeneration plants and in heating appliances. However, both countries have recently imported most of their wood pellets from the Baltic Region and Russia.[29] Germany, Italy, Austria and France use wood pellets mostly for residential heating and industrial boilers,[30] relying mostly on domestic production and other EU sources to meet their demand.[31]

The large volume of intra-European trade in wood pellets is another distinguishing feature of this market overall. As the table in Figure 1 shows, the U.S. and Canadian wood pellet exporters are competing primarily with exporters in Latvia, Russia, Portugal, Estonia, and Germany. Malaysia, Vietnam and China are the largest exporters in Asia, and therefore they are the primary competitors to U.S. wood pellet exporters in Asia.

Challenges and Barriers

With regards to ethanol, prospects for U.S. exports are poor in both the short term and the long term. As previously noted, there are anti-dumping duties that handicap U.S. ethanol, costs to meeting EU sustainability requirements and verification schemes and other less regulated markets that offer opportunity, current and evolving policies that incentivize the use of biodiesel at the expense of ethanol, and the possibility that biofuel use may decline after 2020. As a result, most U.S. producers will be looking at other markets, particularly Asia. The remainder of this case study will focus, therefore, on wood pellet exports.

The biggest challenge for American exporters of wood pellets will be regulation. The European Commission, the primary regulatory body in the EU, has stated that it is not planning on instituting any Europe-wide regulations on sustainability criteria for biomass before 2020.[32] In anticipation of EU and member state legislation on sustainability requirements for wood pellets, the industry has created standards like ENplus (created by the European Pellet Council), and the Sustainable Biomass Partnership (SBP) to encourage sustainable practices along the supply chain. In 2013, 4 billion kilograms of wood pellets were ENplus certified.[33] In March 2015, the Netherlands announced plans to require all imported wood pellets to come from sustainable sources.[34] It remains to be seen if those sustainability requirements will exclude some American companies from exporting to the Netherlands and whether other EU member states will follow the Netherlands' lead.

Another potential challenge for American exporters of wood pellets will be the relatively low price of oil (for heating) combined with the strength of the U.S. dollar. The President of the European Pellet Association noted these factors when observing that sales of pellet stoves and boilers decreased in the EU during 2014, and that pellets from the United States were also approximately 33 dollars per metric ton more expensive in February 2015 than the previous year. These trends are anticipated to affect large wood pellet sales in the UK and Belgium.[35]

Opportunities for U.S. Companies

The EU will be the largest market for American wood pellets over the next two years. The EU expects demand for wood pellets in heat and power production to be 21 billion kilograms in 2015 with an equal share going to household and industrial use.[36] The United States can supply wood pellets to meet at

least half of this demand. In 2015, this would amount to a trade value of about $600 million.[37]

Wood Pellet Market Overviews

Wood Pellet Ranking 2

Belgium

Wood pellet consumption in Belgium is dominated by large scale power plants that are attempting to meet the EU's renewable energy goals. In 2014, Belgium imported 657 million kilograms of wood pellets of which 64 percent were from the United States. This made Belgium the second largest market for American pellets in 2014.[38]

Challenges and Barriers: From March to July 2014, the Flemish power sector temporarily stopped combustion of wood pellets because the Belgian wood sector argued that pellet production cannibalized its raw material. In August, generation of electricity from wood pellets resumed as a new Belgian decree requires the wood sector to prove the threat to its inputs prior to limiting its use for pellets. This event showed the uncertainty that still exists in the biomass industry around whether or not wood pellets are the most sustainable and business-friendly alternative to other fuels.

Opportunities for U.S. Companies: The new decree that requires members of the Belgian wood industry to prove that domestic wood pellet sources are a threat to their inputs has caused pellet consumers to favor imports, as the raw materials from abroad are not used by the Belgian wood sector.[39] Because of this, and the growing need for renewable energy sources, reliable demand for U.S. wood pellets in Belgium should continue for the foreseeable future.

Wood Pellet Ranking 5

Denmark

Denmark imported 2.1 billion kilograms of wood pellets in 2014. 121 million kilograms of those wood pellet imports were from the United States.[40] The wood pellet market is substantial in Denmark but so far United States companies have not been able to capture a large share of it due to competition from Latvia, Estonia and Russia.

Challenges and Barriers: Although biomass is more reliable for base load or backup power, it competes in Denmark with wind power, which is increasing its share of electricity. Biomass power in Denmark is also highly dependent on government funding and the price of the pellets versus coal. In December 2014, the energy sector came to a voluntary agreement with the Danish Energy Agency that biomass will be sourced from fiber that is certified at the forest-level or that is certified under the SBP standard. Voluntary agreements like this are very common in Denmark and are considered equal to legislation or law.

Opportunities for U.S. Companies: Large power plants using biomass are now supported by subsidies in the form of feed-in tariffs of about 22 dollars per megawatt hour (MWh) (this is approximately 104 dollars per metric ton of wood pellets).[41] The Danish Government has a goal of phasing out coal by 2030 and that could support a further increase in the use of wood pellets. In March 2015, Denmark came one step closer to building a large biomass power plant by choosing a developer for the plant.[42] This signaled Denmark's continued desire to pursue power production using wood pellets. Denmark will remain one of the EU's largest importers of wood pellets for the short to medium term.

Wood Pellet Ranking 11

France

France, along with the UK and Italy, was one of three major EU member states to increase wood pellet imports in 2014 despite low oil prices. It increased its total imports to 136 million kilograms and its imports from the United States to 335 thousand kilograms.[43] The share of industry and of collective residential heating has increased since 2005 and it will keep increasing in the future as a result of national incentive policies.

Challenges and Barriers: There has been some resistance to using American pellets in France. The French Government considers local wood as more environmentally friendly than imported pellets and it wants to develop the domestic wood industry. The potential for U.S. wood pellets in the future will heavily depend on whether the French Government recognizes that ocean freight is substantially more carbon and energy efficient on a per ton basis than trucking. Imported wood used in subsidized heat facilities also must be certified (by the Programme for the Endorsement of Forest Certification or Forest Stewardship Council certifications).[44]

Opportunities for U.S. Companies: According to the U.S. Foreign Agricultural Service in France, large heat production facilities have to use at least 50 percent of wood chips and local wood is favored in subsidized heat facilities. However, electricity and heat production from biomass has grown fast in the last 5 years and it is more and more difficult for energy companies to source local wood.[45] Thus, the market for wood pellets is expected to grow over the next few years and France's large energy demand means it has potential to be a lucrative market for American wood pellet producers.

Wood Pellet Ranking 9

Germany

Germany is the third largest producer of wood pellets in the world after the United States and Canada. It has about 70 production facilities and an annual wood pellet production capacity of 3.5 billion kilograms.[46] It has a huge market for wood pellets, especially for wood pellet companies operating domestically.

Challenges and Barriers: Between 2013 and 2014, consumption of wood pellets stagnated in Germany and imports from the United States decreased.[47] At the International Pellet Conference in February 2015, the decrease in oil price and a mild winter were cited as reasons for this decrease in demand.[48] The German Government also recently removed a tax deduction for energy renovations that makes it more expensive for businesses to convert to using wood pellets for heat.[49] These factors, along with Germany's domestic production capability, will make it difficult for U.S.-based companies to significantly increase their market share.

Opportunities for U.S. Companies: The market for wood pellets is expected to grow in Germany as it increases its use of renewable energy sources. The large amount of wood pellet consumption in Germany will make it a viable option for American wood pellet exporters for at least the short term, even if market share does not increase.

Wood Pellet Ranking 3

Italy

Italy increased its wood pellet imports to 1.9 billion kilograms in 2014. The United States exported 180 million kilograms of wood pellets to Italy in 2014, capturing about 9 percent of the market. Both of those numbers were improvements over 2013 and that trend is expected to continue.[50] About 15 percent of the total biomass installations use wood pellets in Italy and the residential heating industry is the largest consumer of the pellets.[51]

Challenges and Barriers: At the end of 2014, Italy increased the value added tax (VAT) on wood pellets from ten percent to 22 percent. The change is not expected to decrease demand for pellets in the short term, though it may exacerbate the price difference between pellets made in the United States and pellets made elsewhere.[52] The Italian wood pellet market also is fragmented. Pellets are sold in many different types of stores and in different quantities. Italy also is increasing the proportion of ENplus certified pellets that it uses, indicating that sustainability of the supply chain will be important in the future.[53]

Opportunities for U.S. Companies: Italy has a very large market for wood pellets and there has been a recent increase in purchases of pellet boilers. The government has tax deductions in place to encourage buying pellet stoves and a scheme to support small-scale efficiency improvements using ENplus certified biomass.[54] The size of the wood pellet market in Italy and the U.S. companies' increasing market share make it a promising place to export to in 2015 and 2016.

Wood Pellet Ranking 4

Netherlands

In 2014, the Netherlands imported 383 million kilograms of wood pellets which made it the sixth largest importer in the EU. The United States exported 299 million kilograms of wood pellets to the Netherlands, capturing approximately 78 percent of the market.[55]

Challenges and Barriers: In March 2015, the Dutch government announced plans to require all large (>500 hectares) wood pellet producers for the Netherlands to be certified as sustainable by the Forest Stewardship Council (FSC). It plans to gradually require that 100 percent of the forest acreage from which Dutch wood pellets are sourced be sustainable. It remains to be seen if those sustainability requirements will exclude some American companies from exporting to the Netherlands but long term contracts will be more difficult to secure and other countries in the EU may follow the Netherlands' lead. As of today, the United

States can only produce half a million metric tons of FSC certified pellets.

Opportunities for U.S. Companies: The dominant market share for U.S.-based wood pellet companies can be expected to continue in the short term as the Netherlands has committed to using biomass in heat and power to reach renewable energy goals across all sectors. Legislation requiring 100 percent sustainability of wood pellet sources will not be fully implemented until 2020, after which U.S. exports are uncertain.

Wood Pellet Ranking 7

Sweden

Sweden is the second largest producer of wood pellets in the EU. However, production has stagnated since 2011 as competitive imports from the Baltic countries and Russia have increased.[56] U.S. companies had approximately 6 percent of the market share of imports in Sweden in 2014, which amounts to exports of 29 million kilograms of wood pellets.[57]

Challenges and Barriers: American companies wishing to export to Sweden will have to compete with cheap wood pellets that are being imported from Russia and the Baltic states. Production in those areas is increasing and the value of the dollar along with transportation costs will make it difficult for U.S.-based companies to compete.

Opportunities for U.S. Companies: Sweden is targeting 100 percent renewable energy use by 2020 so it is expected to continue to utilize large amounts of wood pellets for heat production.[58] American companies have an opportunity to increase exports to this large wood pellet consumer market.

Wood Pellet Ranking 1

United Kingdom

The United Kingdom will continue to be the largest market for wood pellets within the EU for the foreseeable future. In 2014, the UK consumed 6.8 billion kilograms of wood pellets.[59] That number is expected to increase to 7.75 billion kilograms in 2015 and to 8.7 billion kilograms in 2016.

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

- The Renewables Obligation(RO), which requires until 2027 that licensed UK electricity suppliers source a specified proportion, which is set at the beginning of each year and increased annually, 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, among other things, 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 (DECC) 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. Drax, which provides electricity for seven percent of the UK, is continuing its conversion to wood pellets. It has signed contracts with U.S. suppliers and is expanding its own pellet production in the United States.[60]

Challenges and Barriers: The UK's Renewables Obligation program states that utilities are required to assess the sustainability of the fuels that they use and publish an annual report.[61] Thus far, this obligation has not prevented American wood pellet producers from being able to supply in the UK market. Currently, the EU is investigating whether or not UK subsidies given to the Lynemouth Power Station, one of its largest power producers, for the use of wood pellets violate EU laws.[62] Some American and European NGOs have supported the investigation because of fears of deforestation. If the subsidies are found to be against EU law, then the UK may reconsider large amounts of its funding for wood pellets and coal plant conversion. This could cause a large drop in demand for American wood pellets.

Opportunities for U.S. Companies: The largest consumer of wood pellets in the UK, Drax, has a coal plant that provides 7 percent of the UK's electricity. Drax will convert its third generating unit out of six at this facility into a biomass fueled unit during the next year.[63] This project and similar ones across the UK will drive demand higher in the short term. The market share of wood pellets from companies based in the

U.S. compared to all other foreign suppliers has increased every year since 2011 and it was 61 percent in 2014.[64] This trend, coupled with the expectation that the UK import market will continue to be more than twice as big as Denmark, the next biggest importer, makes it the most important market for American wood pellets. However, it is anticipated that the market could plateau in 2017.

Upcoming Biomass Events for Exporters interested in the EU:

- **AEBIOM Bioenergy Conference** –May 4-5, 2015 – Brussels, Belgium
- **International Pellet Workshop** – June 9, 2015 – Cologne, Germany

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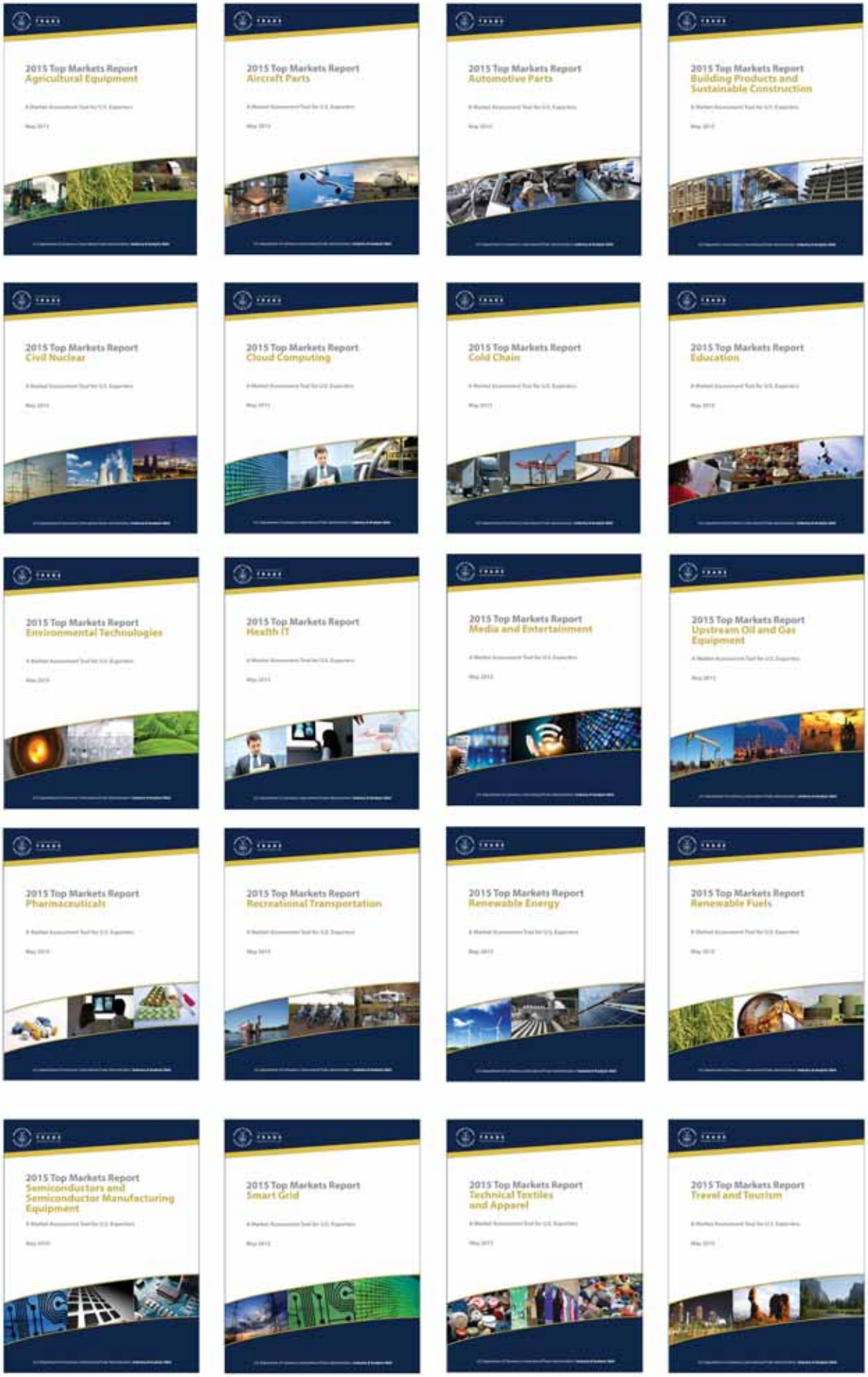

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