# European Power from U.S. Forests

How Evolving EU Policy Is Shaping the Transatlantic Trade in Wood Biomass

Tuesday, July 17, 2012

## Outline for Today's Presentation

- Introductions
- Overview global pellet market
- EU legislation
- Pellet demand in Europe
- Emerging sustainability requirements
- Industry-led sustainability initiatives
- Policy shifts & sector developments
- Conclusions

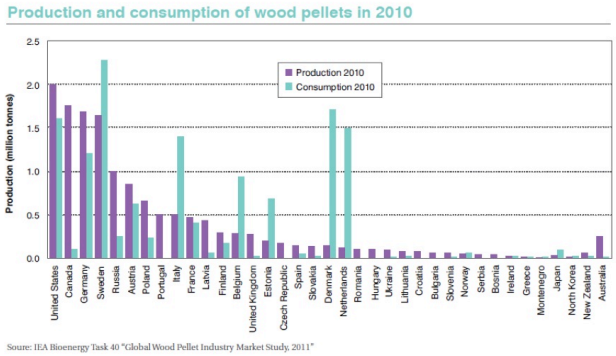


## Introduction: Global Pellet Market

- Global pellet market taken off in past 5 years
- 2009 Consumption: 12 mill tonnes globally, 10.4 mill tonnes in Europe (IEA Bioenergy Task 40 2011)
- Main pellet markets:
  - Residential or district heating
  - Combined heat and power plants (CHP)
  - Industrial co-firing in power plants



## Global Pellet Markets, continued




Soure: IEA Bioenergy Task 40 "Global Wood Pellet Industry Market Study, 2011"

Taken from Pg. 2 "European Power From U.S. Forests" Joudrey et al. 2012



## Relevant EU Legislation

- Emission Trading System (ETS) of 2005
- Energy Efficiency Directive (2011)
- EU (Illegal) Timber Regulation
- Renewable Energy Directive (RED) of 2009



## Sustainability Requirements in RED

| | Sustainability requirements | Reference/additional information |
|---|---|---|
| Directive 2009/28/EC (also known as EC-RED) | 1. GHG emission saving shall be at least 35% until Jan 2017, when it must be 50%, and then 60% after Jan 2018<br>2. Biomass shall not be produced from land with high biodiversity value:<br>• primary forest or wooded land, with native species and no visible indication of human activity, with functioning ecological processes<br>• designated protection areas, reserves or rare or endangered species habitats as designated by IUCN, unless there is proof that production does not interfere with those protection purposes<br>• highly biodiverse grassland that is natural or non-natural but species-rich unless harvest can be shown to preserve its grassland status<br>3. Biomass shall not be produced from the conversion of lands with high carbon stock, namely land that was one of the following in 2008:<br>• wetlands<br>• continuously forested areas (> one ha) with a canopy cover of more than 30% and trees higher than five meters<br>• land spanning more than one ha with trees over five meters and a canopy cover between 10-30%<br>unless the biofuels can be produced in such a way as to still offer 35% GHG reduction benefits<br>4. Biomass shall not be made from land that was peatland in 2008 unless it can be proven that harvesting did not involve drainage of previously undrained soils | • Binding criteria for biofuels and bioliquids (not solid biomass)<br>• Must demonstrate compliance with these requirements to be able to count toward RE targets and apply for support schemes<br>For more information: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0028:EN:NOT |

 Taken from Pg. 4, "European Power from U.S. Forests" Joudrey et al. 2012

## Report COM(2010)11

- Recommended sustainability criteria for solid biomass
- Essentially identical to those in RED for biofuels and bioliquids, with some exceptions

| | Sustainability requirements | Reference/additional information |
|---|---|---|
| Report COM (2010)11 | 1. Minimum GHG savings of 35%, rising to 50% in 2017 and 60% in 2018. NOTE: Waste and residue based feedstocks do not need to comply with this criterion<br>2. Raw material must not come from high biodiversity areas, conversion of high-carbon stock areas, or undrained peatlands as outlined in RED requirements above<br>3. Agricultural raw materials produced within the EU must follow agricultural regulations of the EU<br>4. Economic operators must show compliance with these criteria using the "mass balance" method for the chain of custody<br>5. LCA methodology must be extended to include the final conversion efficiency of biomass to electricity or heating and cooling | • Recommended sustainability requirements be developed for solid and gaseous biomass (expected in 2012)<br>• Compliance can be proven three ways: by EU level recognition of voluntary schemes which address the sustainability criteria, through bilateral or multilateral agreements with third countries, and by Member States national verification methods<br>• Criteria apply only to energy producers of 1 MW or more<br>For more information: http://ec.europa.eu/energy/renewables/bioenergy/sustainability_criteria_en.htm |

Taken from Pg. 4 "European Power from U.S. Forests" Joudrey et al. 2012



## Pellet Consumption in EU

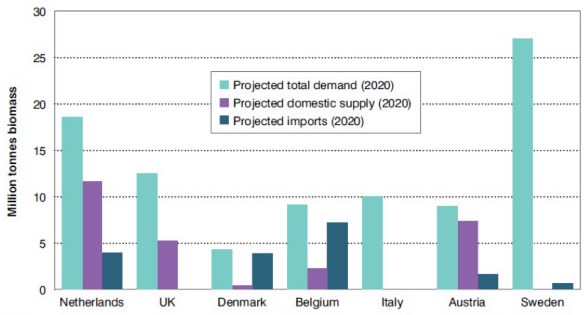
EU demand projections for solid biomass by 2020 (by source)

| | Current total EU demand | Projected total EU demand | Projected demand (imports) | Notes |
|---|---|---|---|---|
| Sikkema et al. 2011 | 9.8 million tonnes (2009) | 114. 8 million tonnes | 60 million tonnes | Reference scenario: Growth projections based on current growth rates, competition with forestry sector |
| Sikkema et al. 2011 | 9.8 million tonnes (2009) | 314.8 million tonnes | Demand met entirely by domestic supply | Rapid growth scenario: Maximum production within the EU from forestry, increased recovery of waste, energy plantations, etc. |
| IEA Bioenergy Task 40 2011 | 10.4 million tonnes (2009) | ~ 35 million tonnes | 16 million tonnes | BAU scenario: based on past and current trends, industry expectations, press releases, existing studies, etc. |
| IEA Bioenergy Task 40 2011 | 10.4 million tonnes (2009) | ~ 35 million tonnes | 33 million tonnes | High-import scenario: rapid growth in demand stimulates increased plantations, pellet production in new areas. |
| Report COM (2010)11 | n/a | 80 million tonnes | n/a | |
| Atanasiu 2010 | n/a | 193 million tonnes | n/a | |
| Beurskens et al. 2011 | 149 million tonnes (2010) | 219 million tonnes | n/a | From NREAPs: Solid biomass for electricity and heating |

Taken from Pg. 7 "European Power from U.S. Forests" Joudrey et al. 2012



## Supply and demand projections for 2020




Numbers taken from individual country NREAPs. Missing bars are due to lack of information for that parameter (i.e., domestic supply plus imports may not equal total demand). Note that Germany has been excluded because its NREAP projections are for total biomass, not woody biomass.

Taken from Pg. 9 "European Power From U.S. Forests" Joudrey et al. 2012



## Major Importing Country Profiles

- **Belgium:** net importer, pellets used for industrial co-firing, some residential heating (sig. fraction from N. America)
  - Projection for 2020: 7.21 mill tonnes imports
  - Green Certificate Scheme: guaranteed value for electricity from biomass, recently changed to promote 100% dedicated biomass generating stations
- **Denmark:** major importer of pellets for district heating, CHP, industrial co-firing
  - Projection for 2020: 3.85 mill tonnes imports
  - Biomass Agreement: minimum percentage biomass co-firing for large utilities
  - Green Growth 2.0: promotes biomass in CHP plants



## Major Importing Country Profiles

- **Netherlands:** importer mostly from Canada & U.S., pellets used for industrial co-firing
  - Projected imports of 3.95 mill tonnes by 2020
  - Sustainability certification through NTA 8080/8081, required for subsidies
  - Newer SDE & SDE+ schemes will focus on small-scale electricity
  - Possible mandatory co-firing in all power plants by 2022
- **United Kingdom:** recently become a major importer, lack of details on import levels and projections
  - Renewable Obligations: to support CHP and electricity generation from RE, also feed-in tariffs
  - Renewable Heat Incentives: introduced in 2011 to encourage heating from RE



## Industry Response

- Most industry-led schemes written to comply with RED & Report COM(2010)11 requirements
- Proliferation of schemes & different sustainability req. currently exist
- Major industry schemes include:
  - Green Gold Label
  - Laborelec Certification System
  - Drax Sustainability Policy
  - Initiative Wood Pellet Buyers (IWPB)
  - ISO 13065

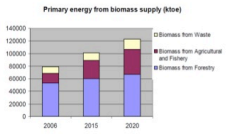
## Policy Shifts & Developments

- Harmonization of sustainability standards:
  - Collaboration is needed among different schemes
  - Many initiatives to do this, duplication of efforts may exist
  - Important to ensure schemes meet recommended EC requirements
- Binding criteria:
  - Majority of stakeholders support binding sustainability criteria for solid biomass at EU level
  - EC to announce sometime in 2012 whether it will implement binding criteria



## Policy Shifts & Developments

- GHG methodology:
  - C neutrality often assumed for biomass
  - Methodologies differ across sectors, certification schemes
  - Indirect effects not usually addressed
- Increase in alternate feedstocks:
  - Many countries expanding into agro-pellets (Poland, Czech Republic, Denmark
  - Wood chips increasing in importance
  - Many countries expanding into biogas and waste-based bioenergy




Fanny-Pomme Langue, DG Energy , 2011



## Conclusions

- Significant potential for increased imports from U.S. to Europe
- Pellet demand for CHP and district heating may increase
- Probable that certification will become the norm within the EU
- Requirements in RED and Report COM(2010)11 will likely remain as baseline requirements
- Important to examine how U.S. producers can demonstrate sustainability



## Selected References

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## Thank you for your time!