Presentation Outline

• The EU biofuels policy
  • Demand and supply of biofuels in the EU, and impacts on agriculture
  • The prospects for EU production of biofuels
  • Conclusion

The motivations of the EU policy for biofuels

• Climate change (GHG emissions from transport)
  – Biofuels is presented as a significant strategy to reach the Kyoto objectives

• Energy dependence reduction

• Farm sector support

The EU biofuels policy

• Measures at the farm sector level (CAP)
  • Energy crops allowed on mandatory set-aside land (Since 1992 CAP Reform):
    – Normal mandatory set-aside rate: 10%

• Energy crops payments on non set-aside land (since 2004)
  45 euros/ha, maximum of 1.5 millions ha (2 millions in 2007)
The EU directives on biofuels

• Current EU Legislation
  – The 2003 biofuels use directive
  • Incorporation targets: 2% in 2005, 5.75% in 2010
  • Not mandatory, no penalty for noncompliance
  • The member states have to report on their policies
  – The 2003 energy taxation directive allows MS to grant tax reductions or even exemptions on biofuels

The EU trade policy on biofuels

• Tariffs
  – Biodiesel: 6.5%
  – Vegetable oils: 0%
  – No specific customs classification for bioethanol for biofuels production
    • Most of the imports (US and Brazil) faced the MFN tariff 19.2 euros/hl for undenatured alcohol, 10 euros/hl for denatured alcohol
    • Preferential trade arrangements for developing countries
  – Protection on cereals, sugar

Demand and Supply of biofuel

• MS incorporation rates don’t reach the EU target
• Biodiesel is the main biofuel in Europe
• Produced mainly domestically

Implementation of the 2003 directive in EU Member States

• Each member state sets its own:
  – Indicative target
  – Specific policy:
    • Tax exemption/reduction in most MS:
      – Unlimited quantities (Germany) or for predetermined quantities (France)
    • Or mandatory incorporation

The EU trade on biofuels

• Current trade: very few imports
  – No imports of biodiesel
  – Slight increases in imports of palm oil as well as soybean oil (150,000 tons in 2005, i.e., 4.7% of consumption)
  – 200,000 metric tons import of ethanol (2005)

• Reduced tariffs on imports? Controversial issue within the EU
  – Some MS (Portugal, Sweden) are rather favorable
  – Some MS (France, Germany) strongly oppose the idea (support to domestic farmers)
The production of biofuels in the EU

Biodiesel is 80% of EU biofuels

Source: Eur’Observer, Biofuel Barometer

The production of biodiesel in the EU

95% of EU biodiesel: from EU rapeseed oil

Source: Eur’Observer, Biofuel Barometer

Utilization of rapeseed oil in the EU-25 (million metric tons)

Source: Oil World 2006

The production of bioethanol in the EU

Source: Eur’Observer, Biofuel Barometer

Impacts of Biofuels on EU Agriculture

• Current situation:
  – about 4% of the EU-25 arable crops area
  – Production shares:
    • oilseeds (mainly rapeseed): 40%,
    • sugar beet: 5%,
    • cereals: 1%
  – in 2006 more than 50% of energy crops is produced without specific CAP incentives (set-aside, or energy crops premium)

Impacts of Biofuels on EU Agriculture

• Production and acreage needed to meet the 5.75% target: 18% of the total crops area (assuming no imports, and assuming a 55%/45% ratio biodiesel/bioethanol):
  - 6.6 millions hectares of rapeseed (/total area 5.1 in 2006)
  - 4.6 millions hectares of wheat (/total area 18.6 in 2006)
  - 0.5 millions hectares of sugar beet (/total area 3 in 2006)
Impacts on trade

• What models say?

For the 5.75% target:
– Around half of the EU biofuel demand met by imports (EC impact study (SEC (2006) 142)
– EU exports of wheat would decrease by 41% and EU imports of vegetable oil would increase by 300% (OECD, 2006)
– Imports of rapeseed oil +500%, Exports of wheat -60% (Gohin 2007)

What legitimacy for further public support?

• Three related issues:
  • energy efficiency
  • environmental benefits
  • competitiveness

Energy efficiency

– Different evaluations :
  – Limited energy balance for EU wheat and sugar beet bioethanol (1.2 to 1.4)
  – More positive energy balance for rapeseed biodiesel (ratio in the range 2.2 / 3), but rapeseed biodiesel needs more land than wheat or sugar beet bioethanol

Environmental benefits

– GHG emission reduction
  • Significant differences between studies
  • Most recent studies: GHG emissions reduction is rather modest: 25/30% range
  • Very limited GHG emission reduction for bioethanol from grain
  • More positive GHG emission reduction for biodiesel from rapeseed and bioethanol from sugar beet

– Other environmental effects
  • Negative: Water resources, Fertilizers and pesticides, Pasture moving to arable crops.
  • Possibly some positive impacts (erosion, maintaining agriculture..)
  • Environmental impacts of imported biofuels (Brazil, Indonesia)

Competitiveness of EU biofuels -1

– Currently, rapeseed biodiesel is competitive for an oil price around 60-70 $/br., whereas wheat / sugar beet bioethanol is competitive for an oil price above 90 -100 $/br. (within a large range)

– In several Member States, last years, tax exemptions lead to an overcompensation given current oil prices

Competitiveness of EU biofuels -2

– At the 5.75% incorporation level, the competitiveness of biofuels decrease. (see for the French case the INRA- OSCAR model results)
  • ++ Uncertainty regarding oil prices and raw material prices.

– Even with a biofuels market share of only 1% (2005), already a significant impact on some markets / prices within the EU (rapeseed)

– This means that the break-even point of biofuels, compared to fossil fuel, could increase. The farm prices will go up, which would drive biofuels further away from being competitive with fossil fuels.

– It thus posed the risk to artificially support investments which will not find any more raw material competitive
Second Generation Biofuels

- Second generation biofuels are still at the experimental or demonstration stage
  - Cellulosic ethanol from agricultural residues (straw) and wood residues (Abengoa/Spain, ETEK/Sweden)
  - Second generation Biodiesel: Biomass to Liquid (Choren/Germany)

- But, some optimistic forecasts.
  - EU Commission (2007) says the increase in biomass potential could be 300% by 2030 from now,
  - Mainly from energy crops from agriculture: annual crops (full plant), dedicated perennial crops (miscanthus, short rotation coppice, etc.) and straw.

CONCLUSIONS

- Even with a share of 10% in fossil fuels contribution in GHG reduction will be small (less than 1% of total EU GHG emissions).

- The biofuels policy legitimacy is in debate. Major organizations have become critical of biofuel promotion policies (environmental and consumers organizations).

- For political reasons and budget costs, in several Member States, current biofuels policies are shifting from tax cuts towards mandatory incorporation rates.

- The EU Council (March 8 and 9, 2007) sets a new binding commitment of 10% of biofuels in transport fuels in 2020, but subject to “production being sustainable”, and “second-generation biofuels becoming commercially available”...