



Biomass Demand for Biofuels

Birger Kerckow
Secretariat, EBTP



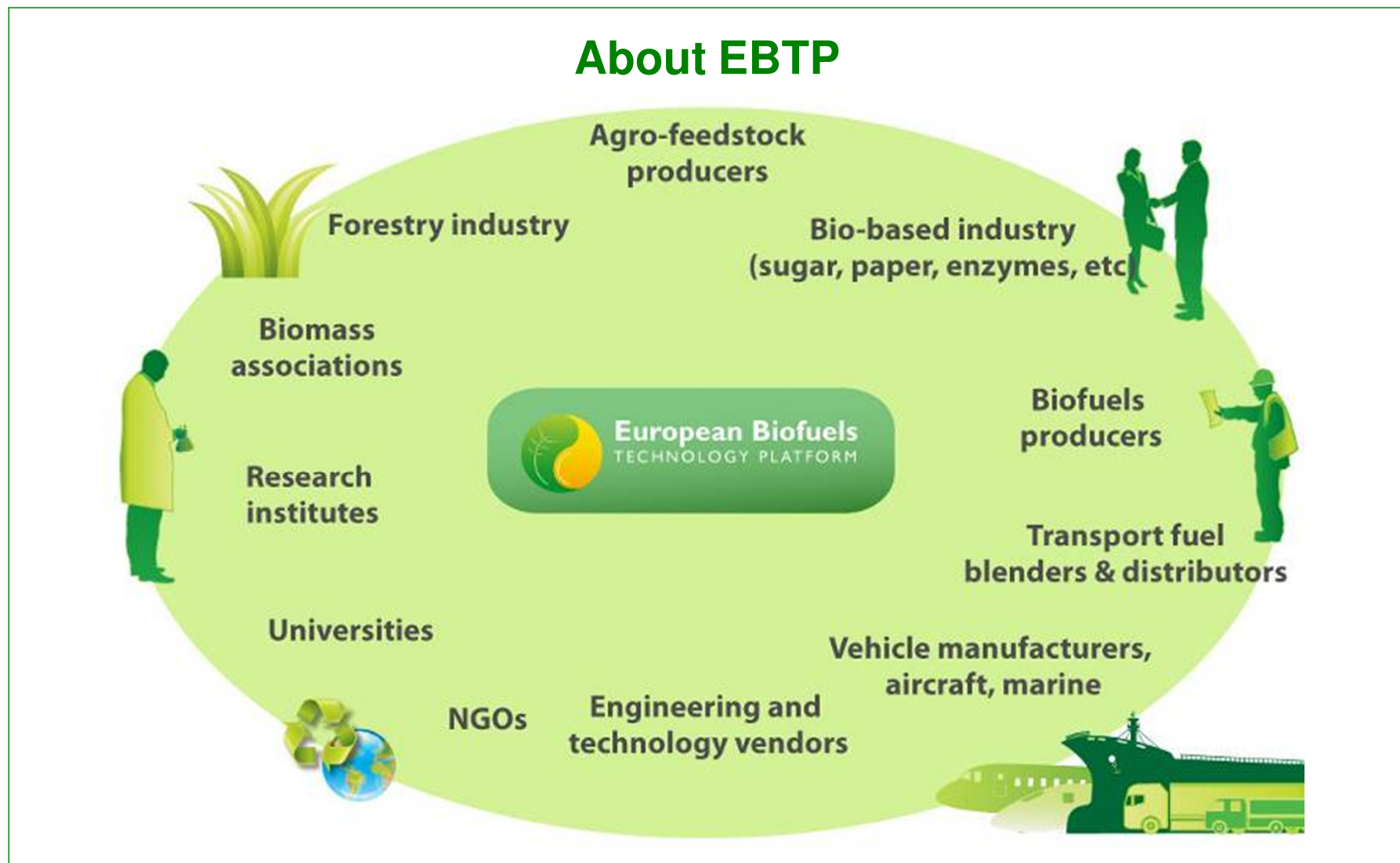


Outline

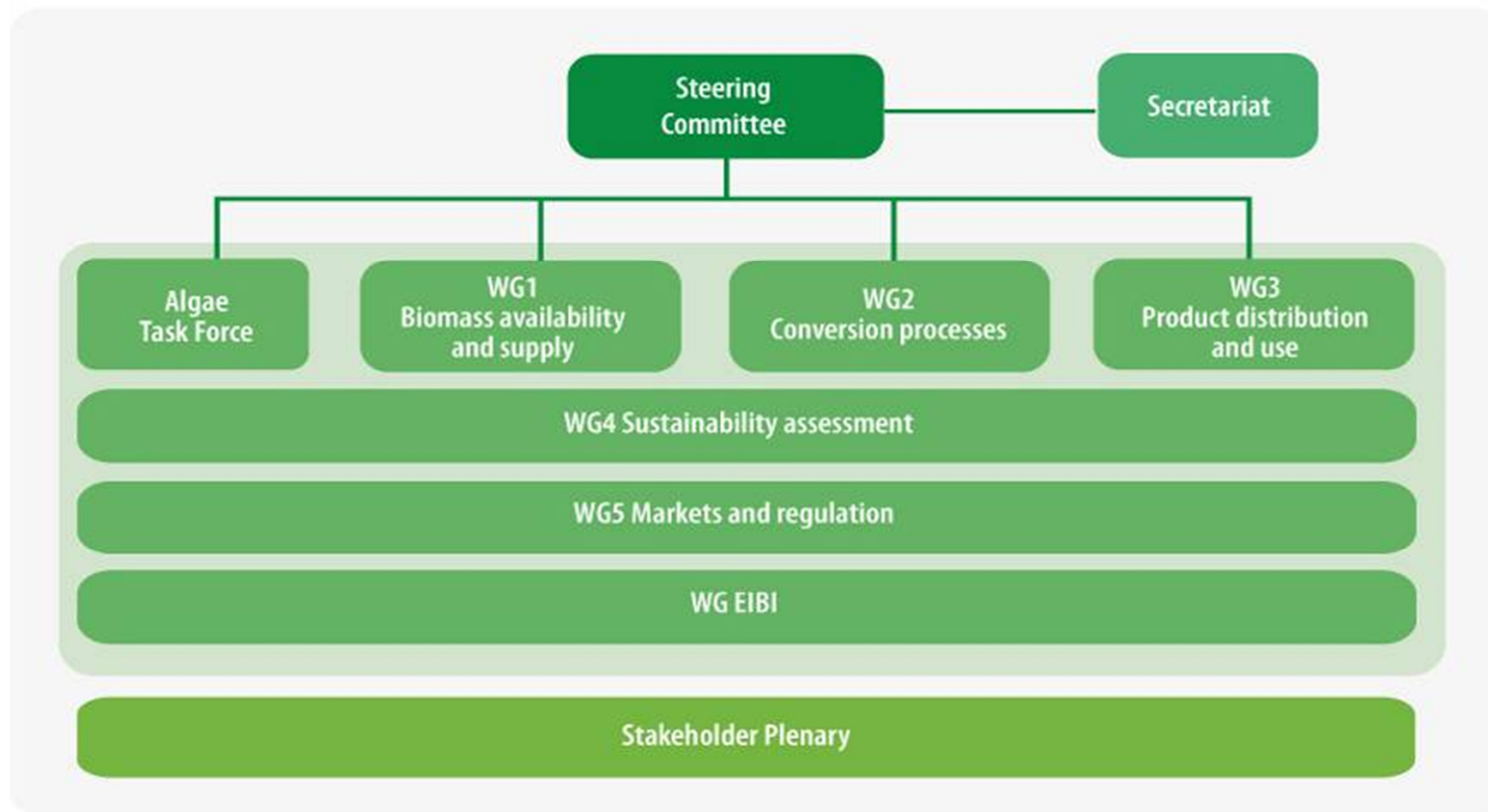
- Introduction to the EBTP
- Biofuels market development



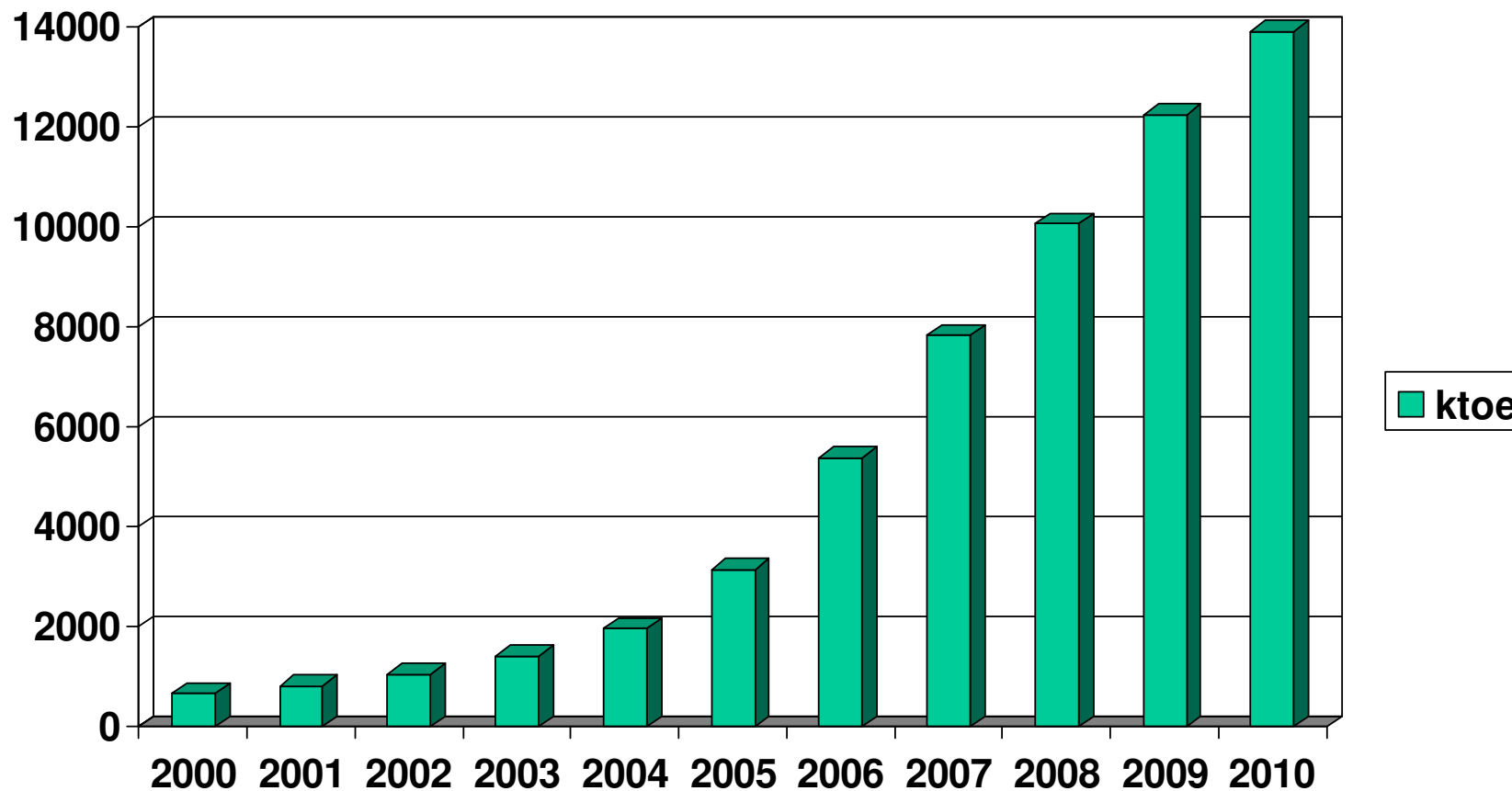
About EBTP



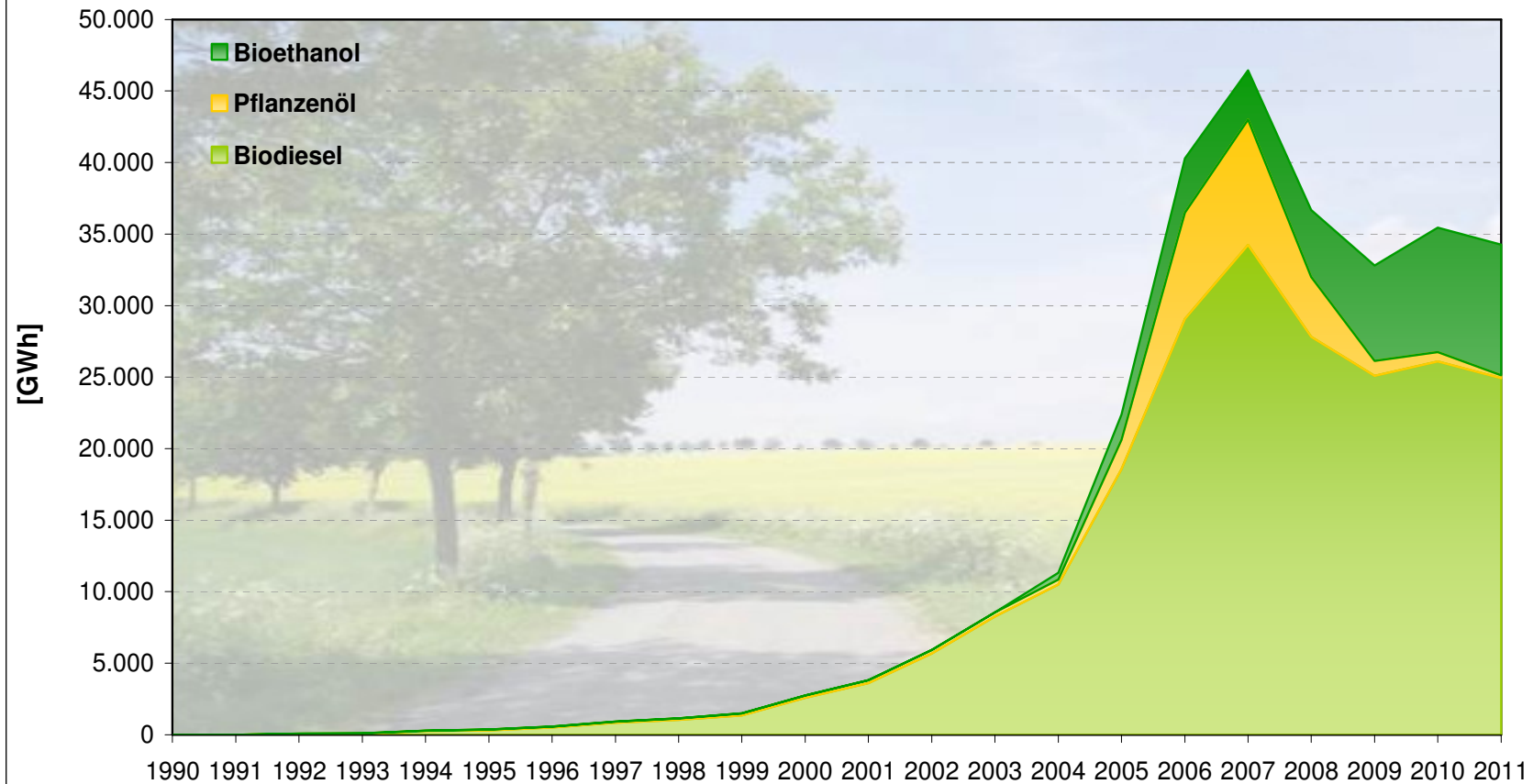
Organisation of EBTP



Evolution of EU27 biofuels consumption (EurObserv'ER 2011)



Beitrag erneuerbarer Energien zum Kraftstoffverbrauch in Deutschland



Keine Biokraftstoffe im Jahr 1990; Pflanzenöl bereits seit 1992 für biogene Kraftstoffe verwendet, Bioethanol seit 2004; 1 GWh = 1 Mio. kWh;
 Quelle: BMU-KI III 1 nach Arbeitsgruppe Erneuerbare Energien-Statistik (AGEE-Stat); Hintergrundbild: BMU / Dieter Böhme; Stand: März 2012; Angaben vorläufig



2010 EU biofuel production/consumption (Eurob'servER 2011)

Production in EU:

- **80 % Biodiesel, mainly based on rapeseed and soybean oil**
- **20 % Bioethanol, based on sugar beet, wheat, corn etc..**

Production capacity:

- **Biodiesel 22.257 Mt**
- **Bioethanol: 7.5 M m³**

Consumption:

- **10.742 Mtoe Biodiesel**
- **2.934 Mtoe Bioethanol**
- **0.222 Mtoe others**



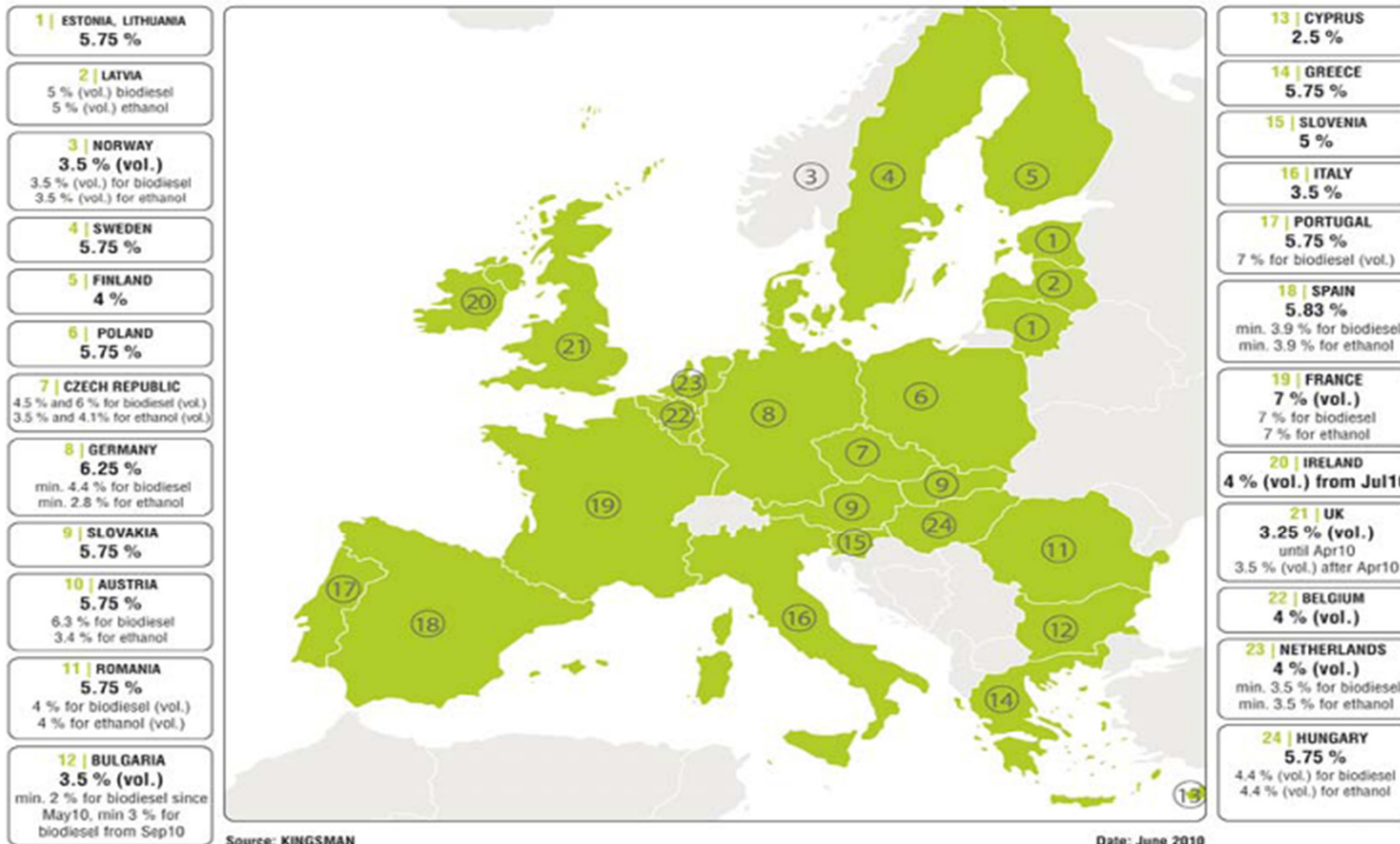
Transport Fuels in the nREAPs by 2020 (JRC, 2011 Update of the Technology Map for the SET Plan):

- **RES share in transport 11.6 %/30 Mtoe**
- **Biofuel contribution 9.5 %**
- **Biodiesel: 21.6 Mtoe**
- **Bioethanol/ETBE: 7.3 Mtoe**
- **Biomethane, pure vegoils et. 0.7 Mtoe**
- **Biofuels from waste, residues, lignocellulosics etc: 2.7 Mtoe (9 % of biofuel consumption)**
- **Biofuel imports: 11 Mtoe**

Biofuels: diverse legal requirements in the EU

2010 European Biofuels Blending Mandates

(% energy, unless otherwise specified)



Source: UFOP press release 10 Jun 2010

Use of biofuels in 2020 also depending on fuel standards (B5/B10)

	Biofuels use without B10 (Mtoe)	Biofuels use with B10 (Mtoe)
10% vol blend bioethanol in petrol	10.1	10.1
5 % vol blend biodiesel in diesel	8.3	
10 % vol blend biodiesel in diesel		16.7
Maximum contribution from low blends	18.4	26.8
10 % biofuel target	33.0	33.0
Contribution needed from other biofuel applications	14.6	6.2

Source: EC SEC (2008) 852 Impact Assessment Annex, p. 156



Current and advanced bioenergy value chains - multiple options for feedstocks, conversion processes and end use

Feedstocks

Lignocellulosic energy crops

Energy grass
SRC

Multi purpose crops

Sugar crops
Oil crops
Starch crops

Residues / wastes

Forestry residues
Agricultural residues
Biowaste streams
(household/industry)

Aquatic biomass

Microalgae
Macroalgae
Halophytes

Conversion processes

Thermochemical conversion

Pretreatment/fractionation

Torrefaction

Pyrolysis

Gasification / Syngas cleanup

Fuel synthesis

Biological/chemical conversion

Pretreatment/fractionation

Hydrolysis

Fermentation

Upgrading

Reforming

Refining

Catalysis

Metabolic engineering

End use

Biofuels

Liquid

Fatty Acid Methyl Ester (FAME)

Ethanol

Methanol

Butanol

Alkanes/hydrocarbons

Hydrogenated Vegetable Oils

Biomass to Liquid (BtL)

Jet Fuel

Gaseous

Methane/

Synthetic Natural Gas (SNG)

Dimethylether

Hydrogen

Heat

Electricity



Amount and quality of required feedstocks difficult to predict

- Different conversion processes require different feedstocks
- Fragmented & highly heterogeneous (in quality and quantity) supply of bio-feedstocks across the EU Member States
- No clear winner in terms of conversion route or end product
- Biomass logistics will play a key role
- Process efficiency (how much feedstock/toe biofuel) still unclear
- Strong influence of RED sustainability criteria (GHG balance, double credit for targets)
- Importance of domestic feedstock/biofuel production vs. imports
- Overall energy demand for transport in 2020 uncertain

Summary: Biomass demand for biofuels

- **Biofuels market driven by policies and regulations/mandates**
- **Feedstock flexibility and/or new biofuels with higher compatibility with existing infrastructures are the preferred options for advanced conversion routes to be implemented in complement/synergy with current biofuels, to meet the 2020 targets.**
- **Demo and reference plants are critical for development of advanced biofuels value chains: Public/private partnership needed to manage financing and risks!**
- **This has to be accompanied by strong activities to improve sustainable feedstock availability (including logistics), as well as rational criteria on how best to allocate biomass when different uses are possible**



Contact Information

Secretariat of the European Biofuels Technology Platform

secretariat@biofuelstp.eu

www.biofuelstp.eu

Thank you for your attention!