

# European Biogas Association

## Analysis of the National Renewable Energy Action Plans 2010

November 2010



# European Biogas Association – 18 countries

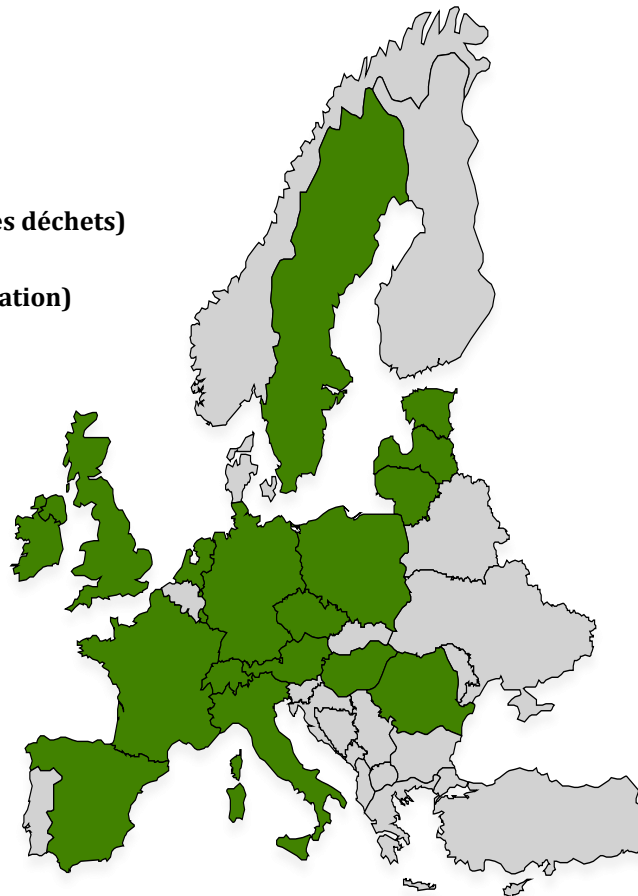
## Join Us!

### Full members: 20 National Associations

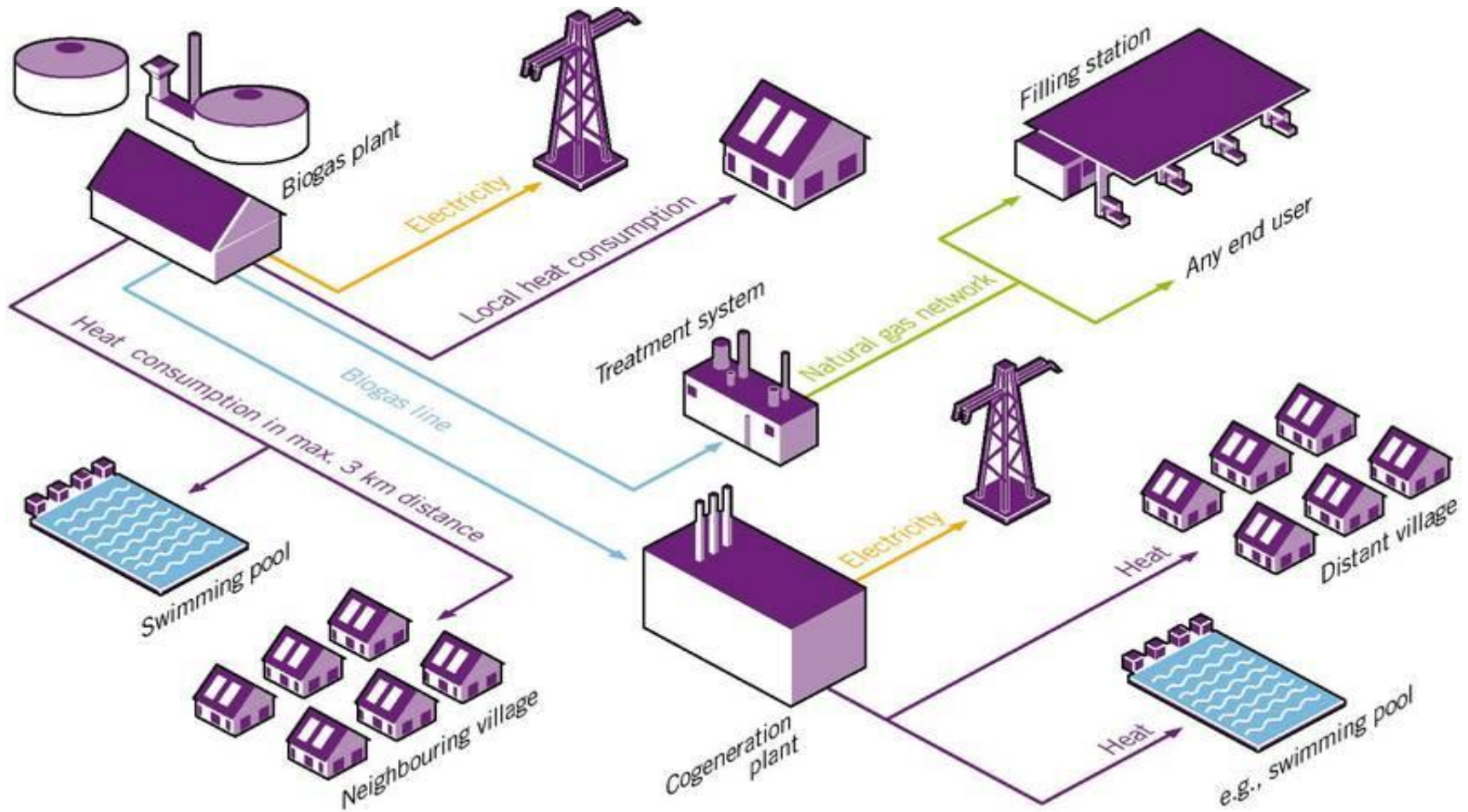
- Austria (AG Kompost & Biogas)
- Czech Republic (Česká bioplynová asociace o. s.)
- Estonia (Eesti Biogaasi Assotsiatsioon MTÜ)
- France (ATEE Club Biogaz und Méthéor,  
(Eden - Energie Développement Environnement)  
(Méthéor – Association pour la Méthanisation Écologique des déchets)
- Germany (Fachverband Biogas)  
(German Society for sustainable Biogas and Bioenergy utilisation)
- Great Britain (REA – Biogas Group)  
(ADBA - The Anaerobic Digestion and Biogas Association)
- Hungary (Magyar Biogáz Egyesület)
- Italy (Conorzio Italiano Biogas)
- Latvia (Latvijas Biogazes Asociacija)
- Lithuania (Bioduju Asociacija)
- Luxembourg (Biogasvereenegung)
- Poland (Polskie Stowarzyszenie Biogazu)
- Romania (Asociatia Romana Pentru Biogaz)
- Sweden (Svenska Biogásföreningen)
- Switzerland (Biogas Forum Schweiz)
- Spain (Asociación Española de Biogás)

### Associated Members: 8 companies and research centers

- Netherlands (DSM Biogas)
- Germany (BTA International GmbH)  
(Schaumann Biotic Consult)  
(Prof.dr.-Ing.F.Scholwin, German Biomass Research Centers)
- Austria (Biogest Energie- und Wassertechnik GmbH)  
(University of Natural Resources and Applied Life Sciences)
- Switzerland (Greenfield AG)
- Ireland (Sustainable Energy Authority of Ireland)



# Biogas – Multitalent



# Content

- Status Quo
- Pros and Contras
- Overall Targets
- Biogas share
- Biogas potential
- Support schemes for biogas
- Comments
- Conclusions

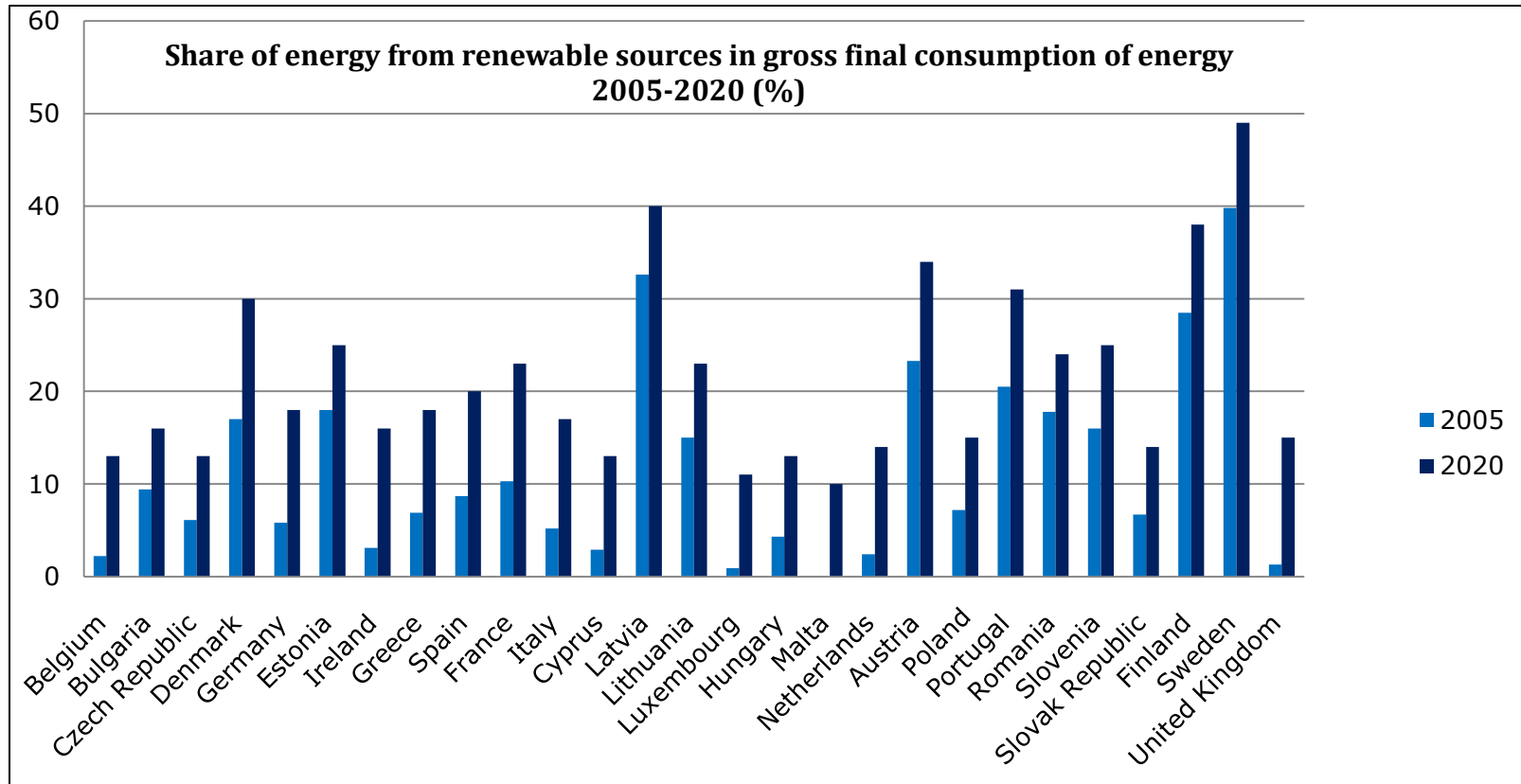
# Status Quo

- 21 NREAPs published in national languages (9 English versions) by 30 September
- 6 NREAPs to be submitted: Belgium, Estonia, Hungary, Latvia, Poland, Slovakia
- Translations into the English language are being provided for information purposes only. The European Commission does not guarantee the accuracy of the data or information!
- More information:  
[http://ec.europa.eu/energy/renewables/transparency\\_platform/action\\_plan\\_en.htm](http://ec.europa.eu/energy/renewables/transparency_platform/action_plan_en.htm)

# Pros and Contrasts

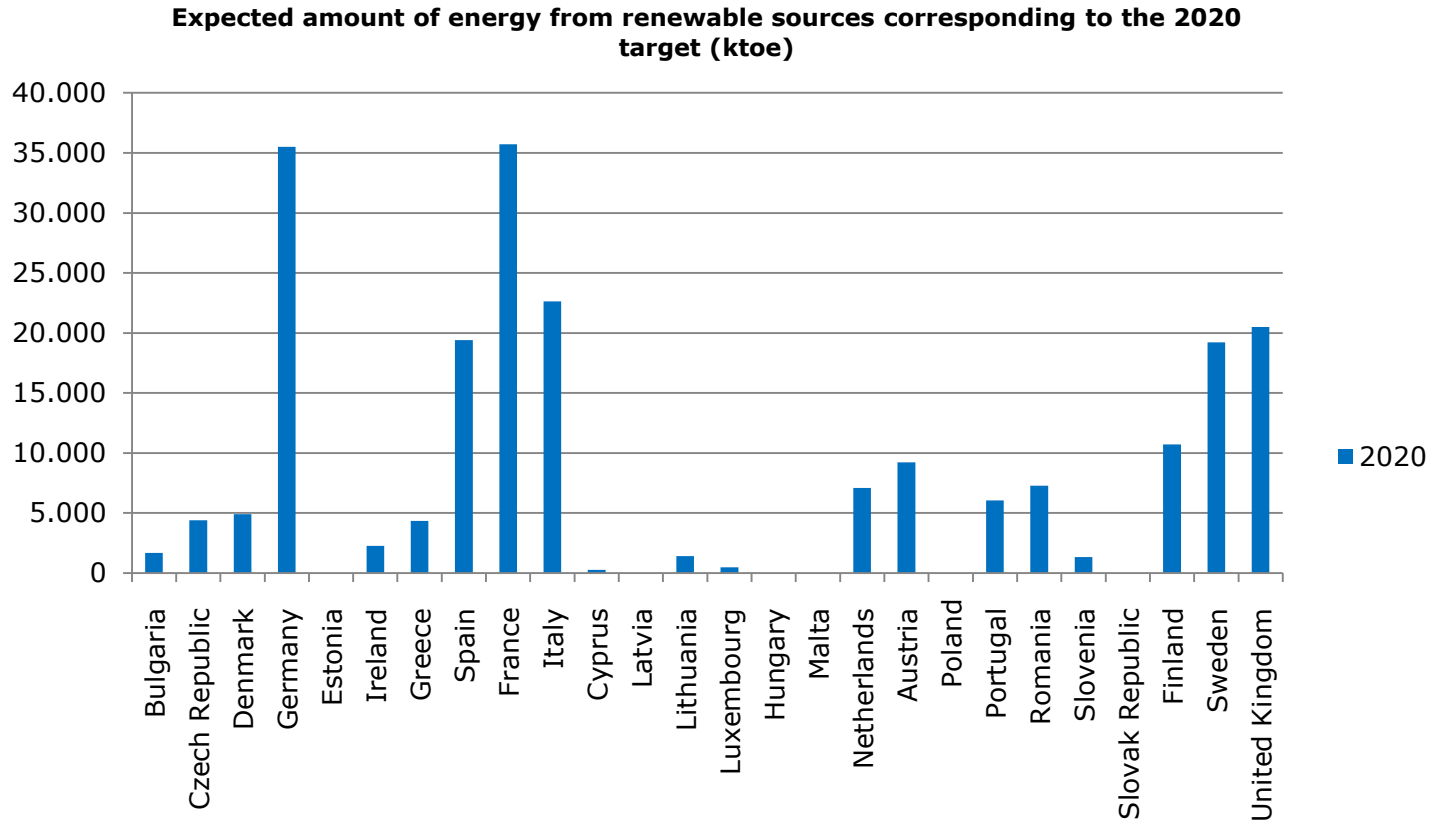
- Renewable energy as key solution
- Political importance: commitments of all Member States
- Integration of renewable energy sources into 2020/2050 goals
- Predictability of actions towards low carbon economy
- Legally binding all Member States
- Towards clear and stable energy policy and supply security
- Encourages joint projects
- Possibility to create better policies and share best practises
- Average increase of biogas share in renewable energy mix is under the average increase of other renewable energy sources
- Biogas potential especially in transport and heating & cooling is not enough taken into account
- NO penalty mechanism for failure to achieve the targets

# Overall targets (%), Directive 2009/28/EC



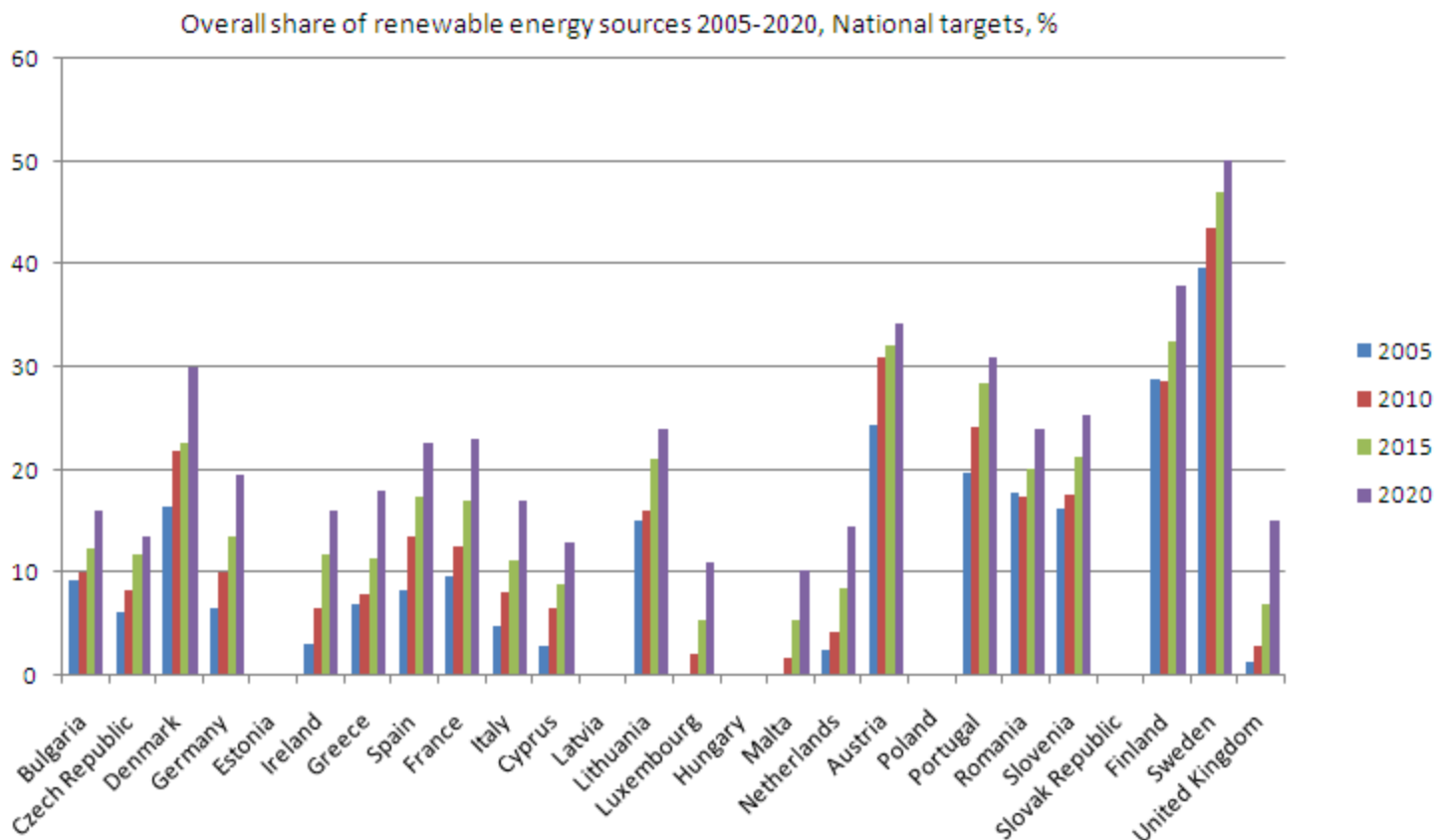
Ambitious targets, especially LUX, UK, BE, IE

# Expected amount of renewable energy 2020 (ktoe)



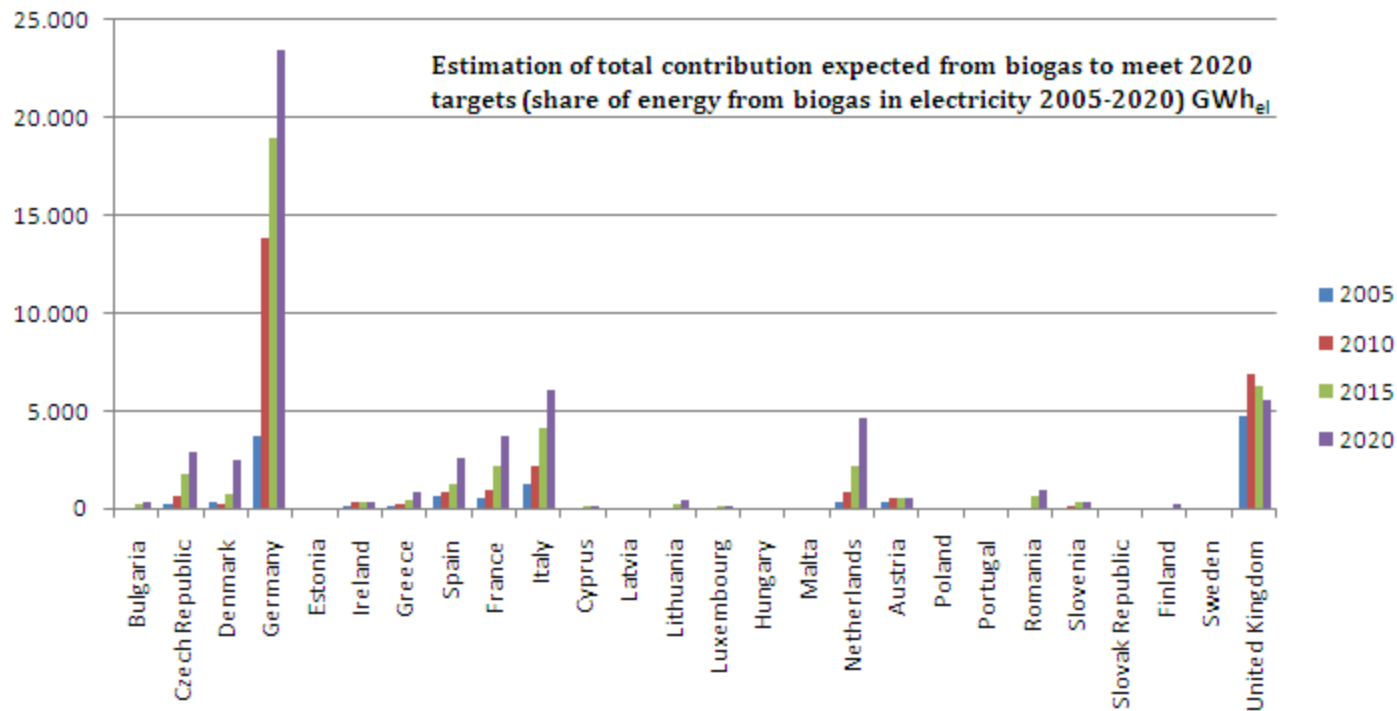
Potential in DE, FR, IT, ES, UK, SE

# National 2020 target from renewable energy in heating, cooling, electricity and transport

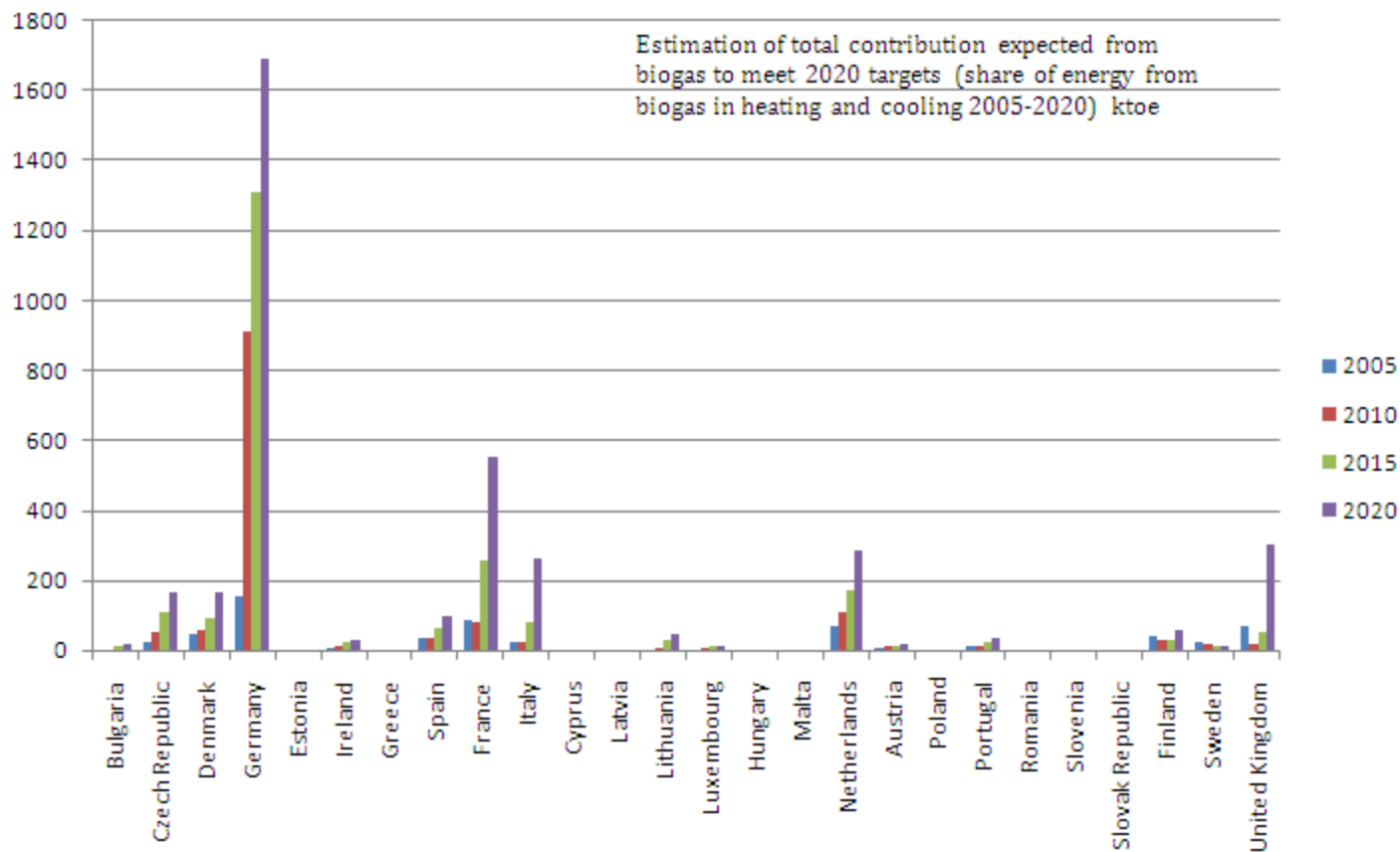


CZ, DE, ES, LT, NL, SE – national targets beyond Directive targets

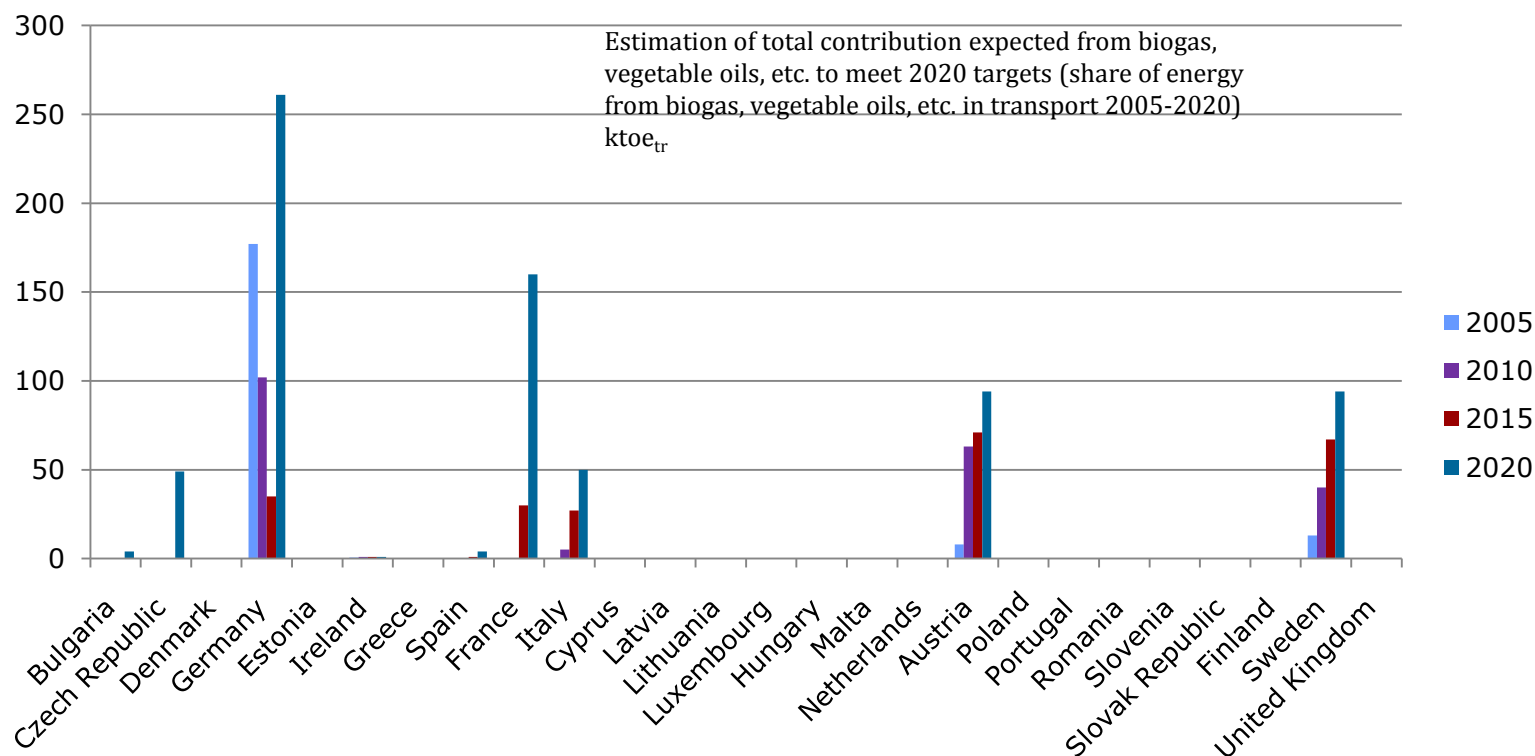
# Biogas share in electricity supply 2005-2020, GWh<sub>el</sub>



# Biogas share in heating and cooling 2005-2020, ktoe<sub>th</sub>



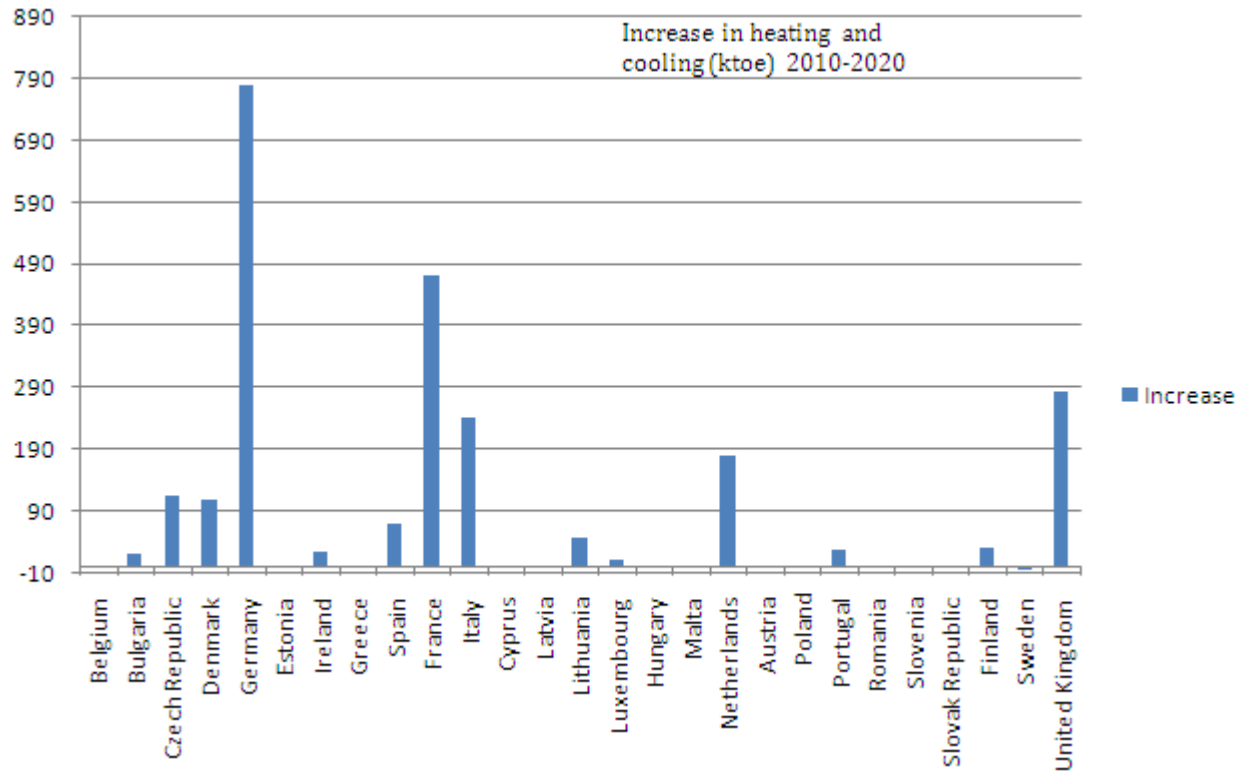
# Biogas and etc. share in transport 2005-2020, ktoe<sub>tr</sub>



‘Others (as biogas, vegetable oils, etc.)’ – please specify (RES Directive 2009) !

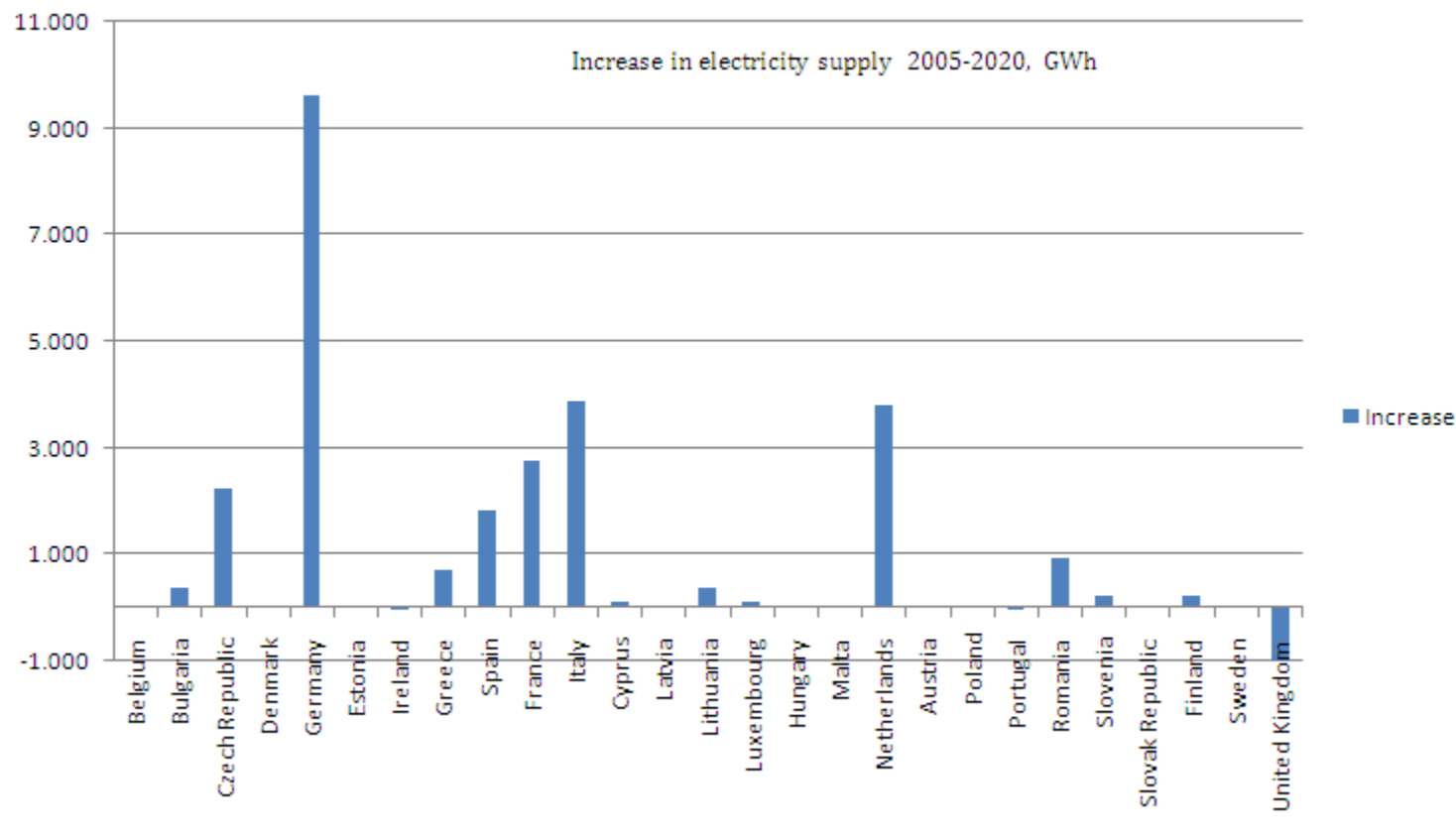
N.B: DE

# Biogas increase in heating and cooling (ktoe<sub>th</sub>) 2010-2020



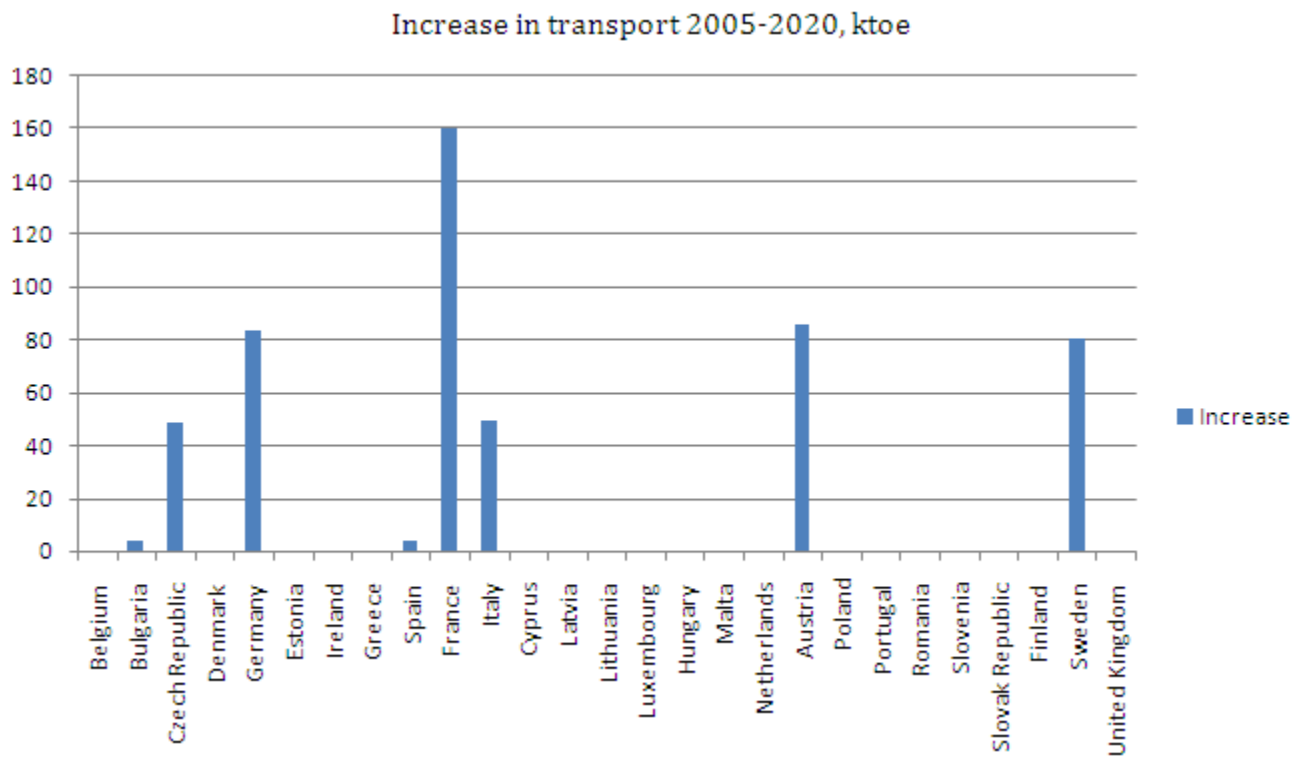
N.B:SE

# Biogas increase (GWh<sub>el</sub>) electricity supply, 2005-2020

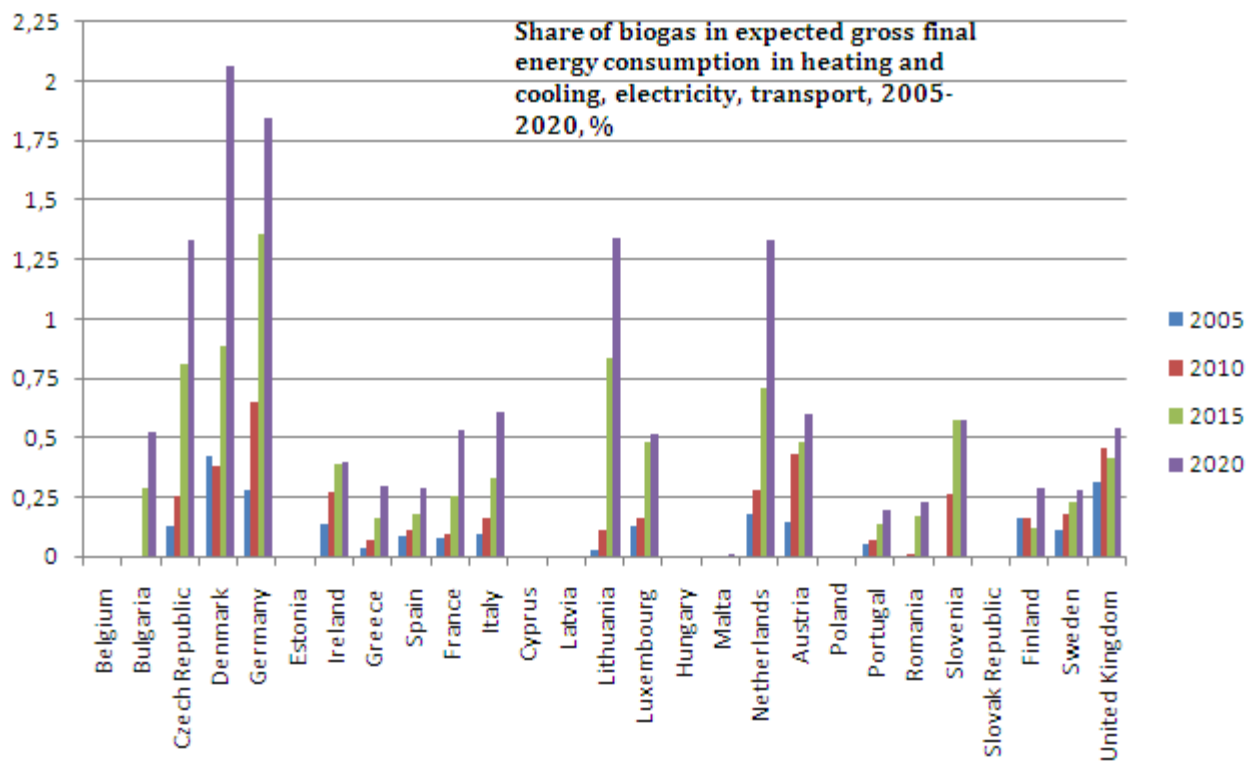


N.B:UK

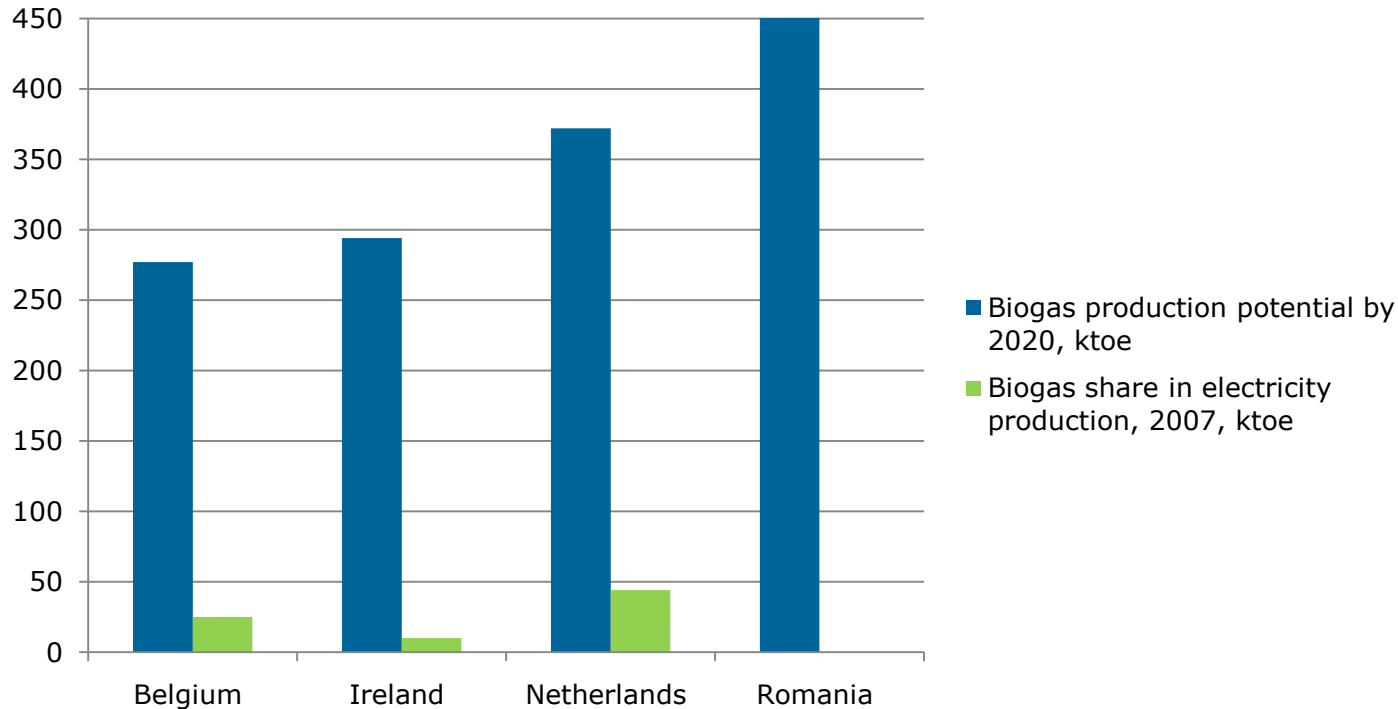
# Biogas and etc. increase in transport (ktoe<sub>tr</sub>), 2005-2020



# Share of biogas in final energy consumption, %

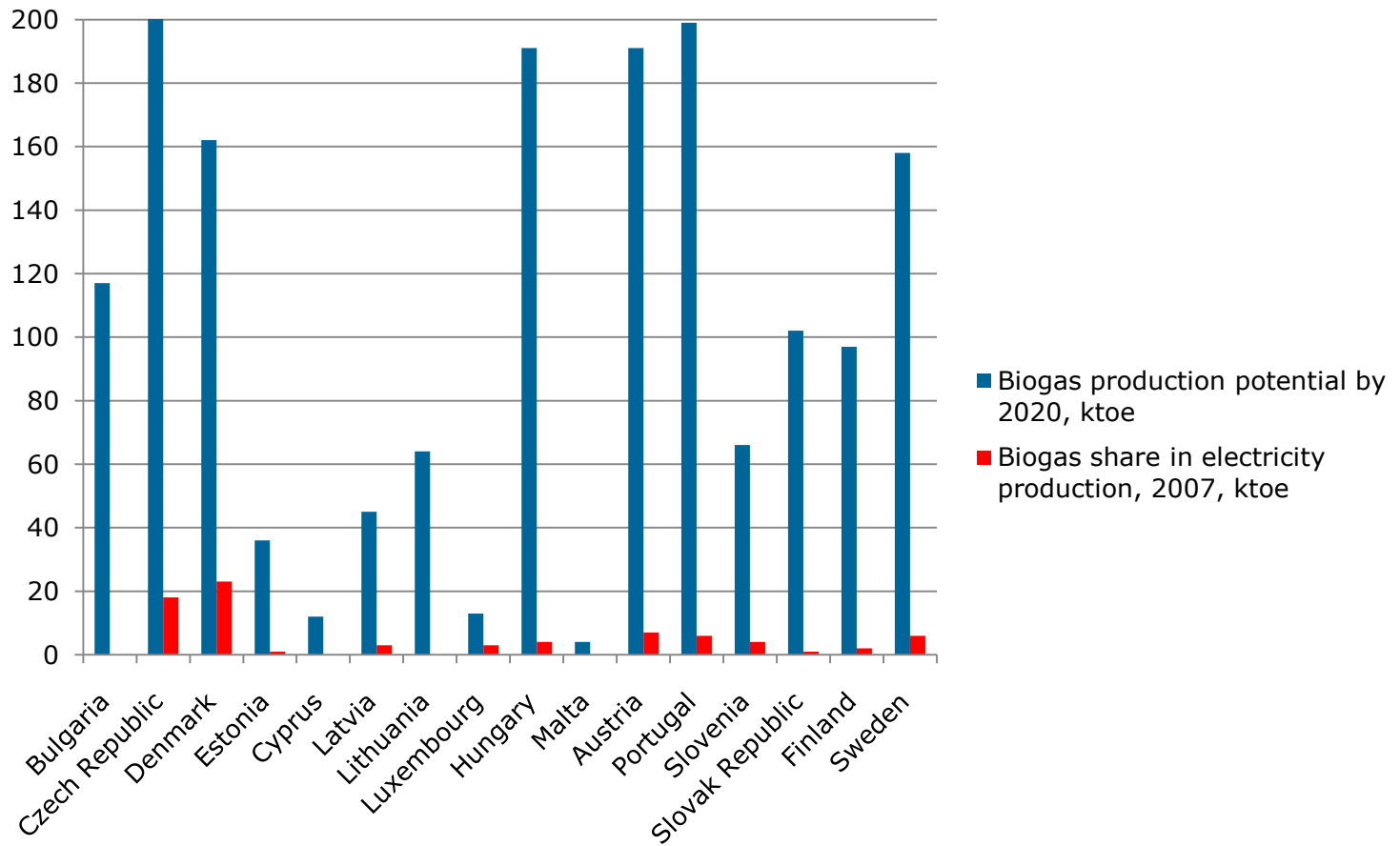


# Biogas Potential in electricity supply, ktoe \*

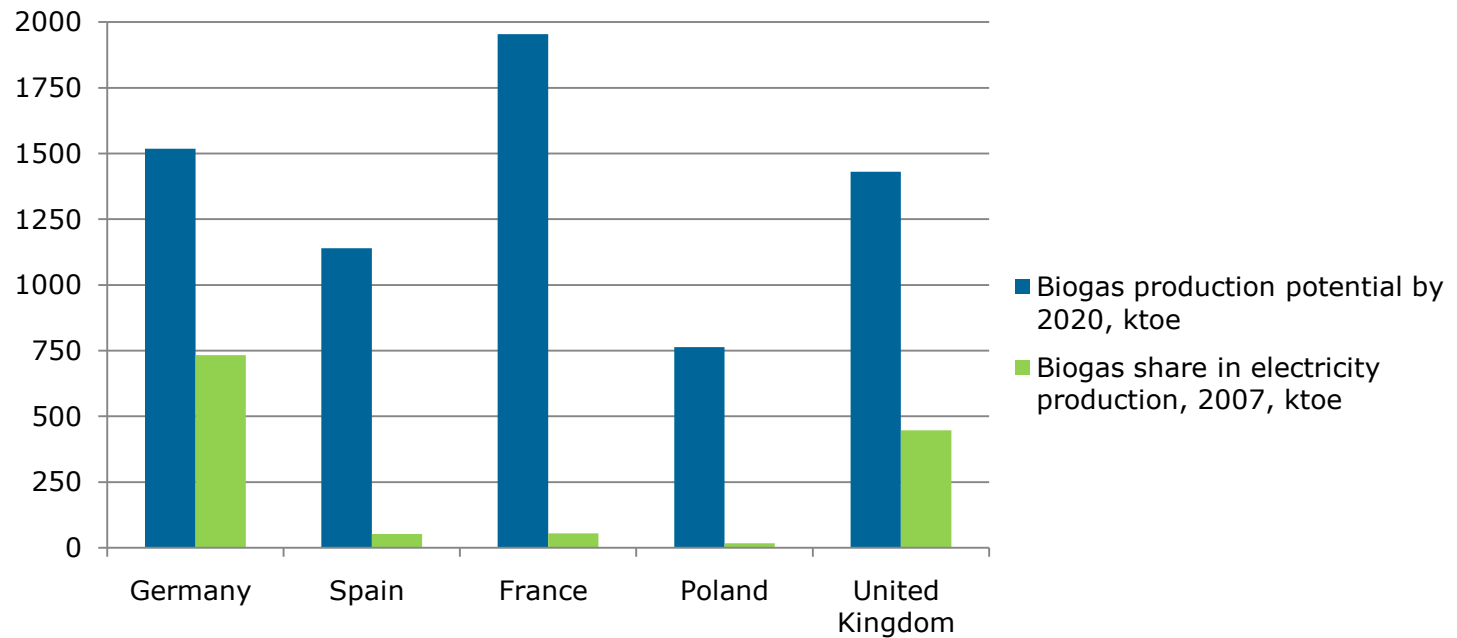


\* Renewable Energy Policy Country Profiles (prepared within the Intelligent Energy Europe project , 2009)

# Biogas Potential in electricity supply

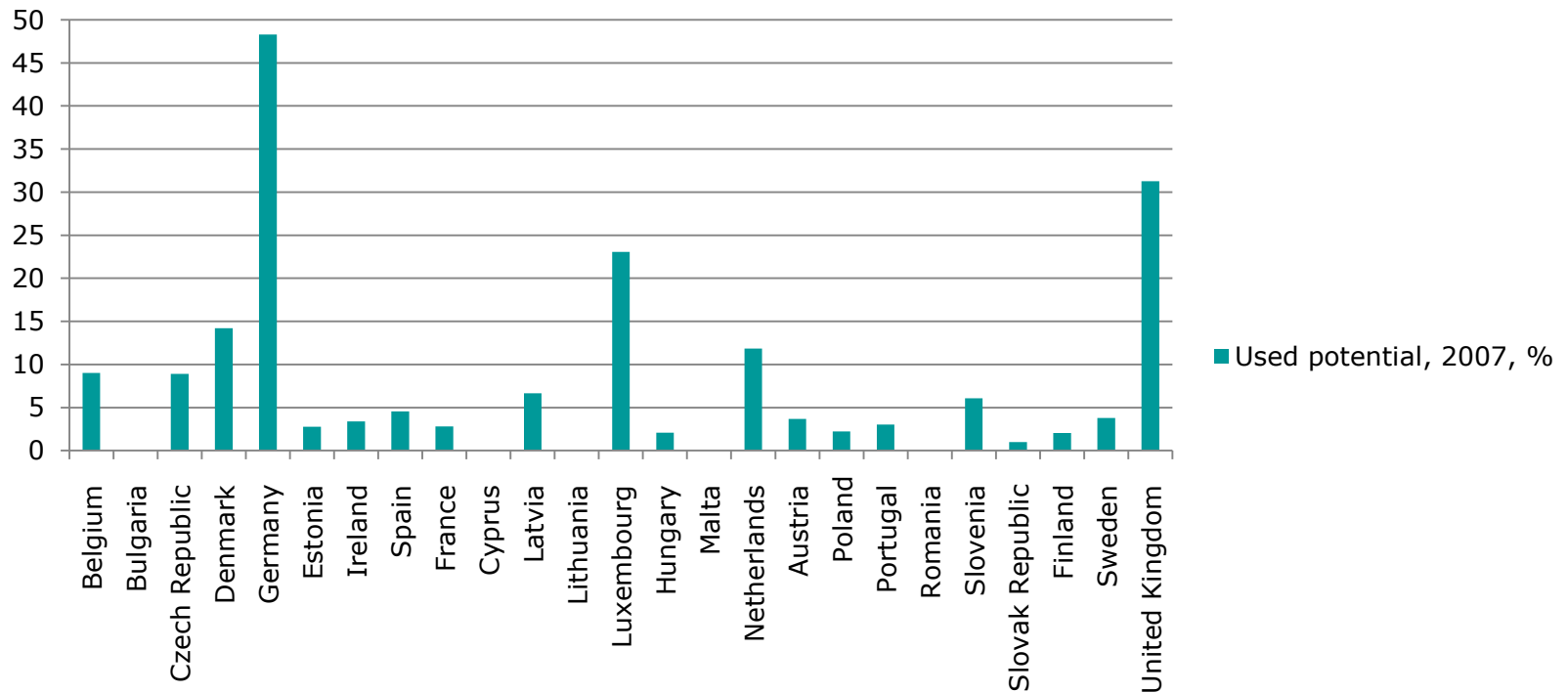


# Biogas Potential in electricity supply

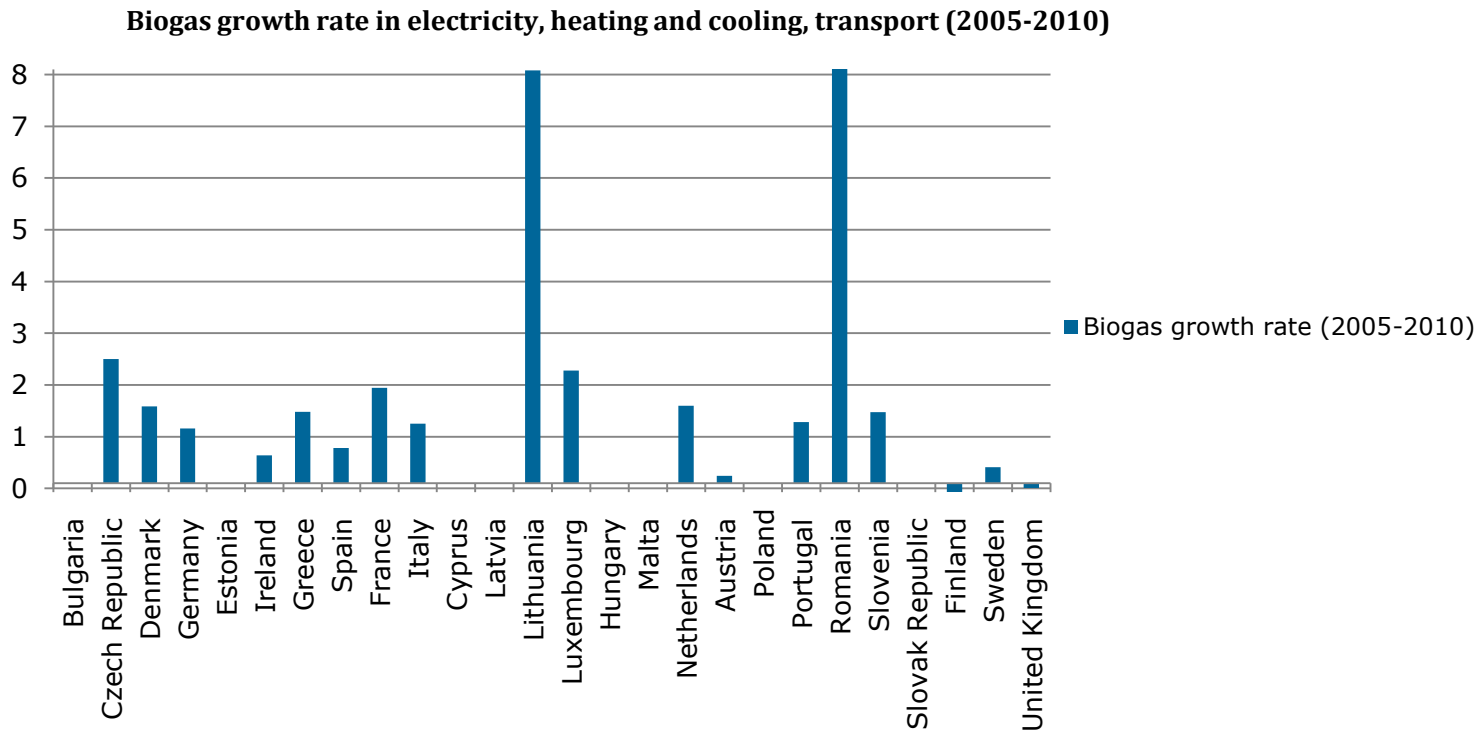


# Biogas Potential in electricity supply

## Used potential in 2007, %

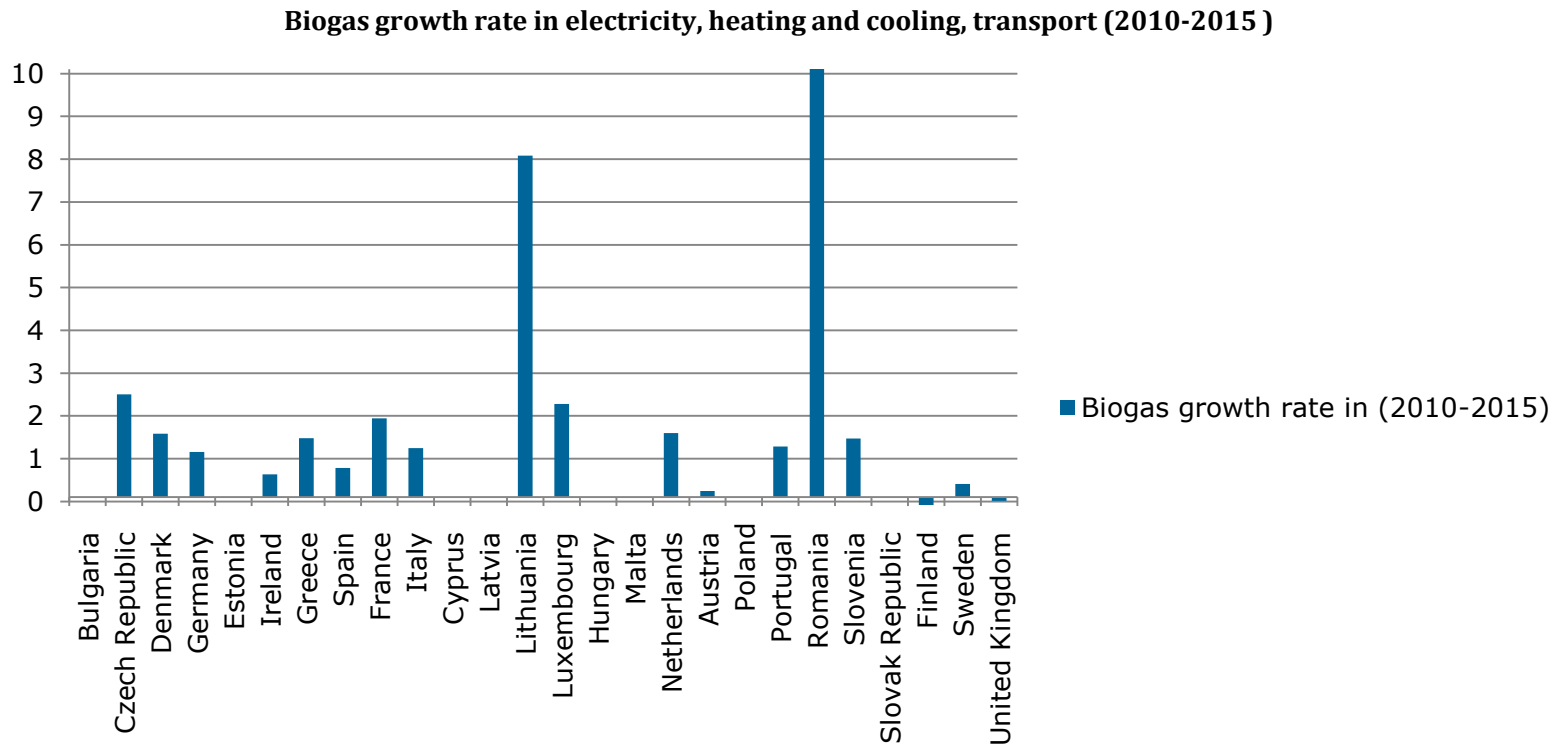


# Biogas growth rate (2005-2010)



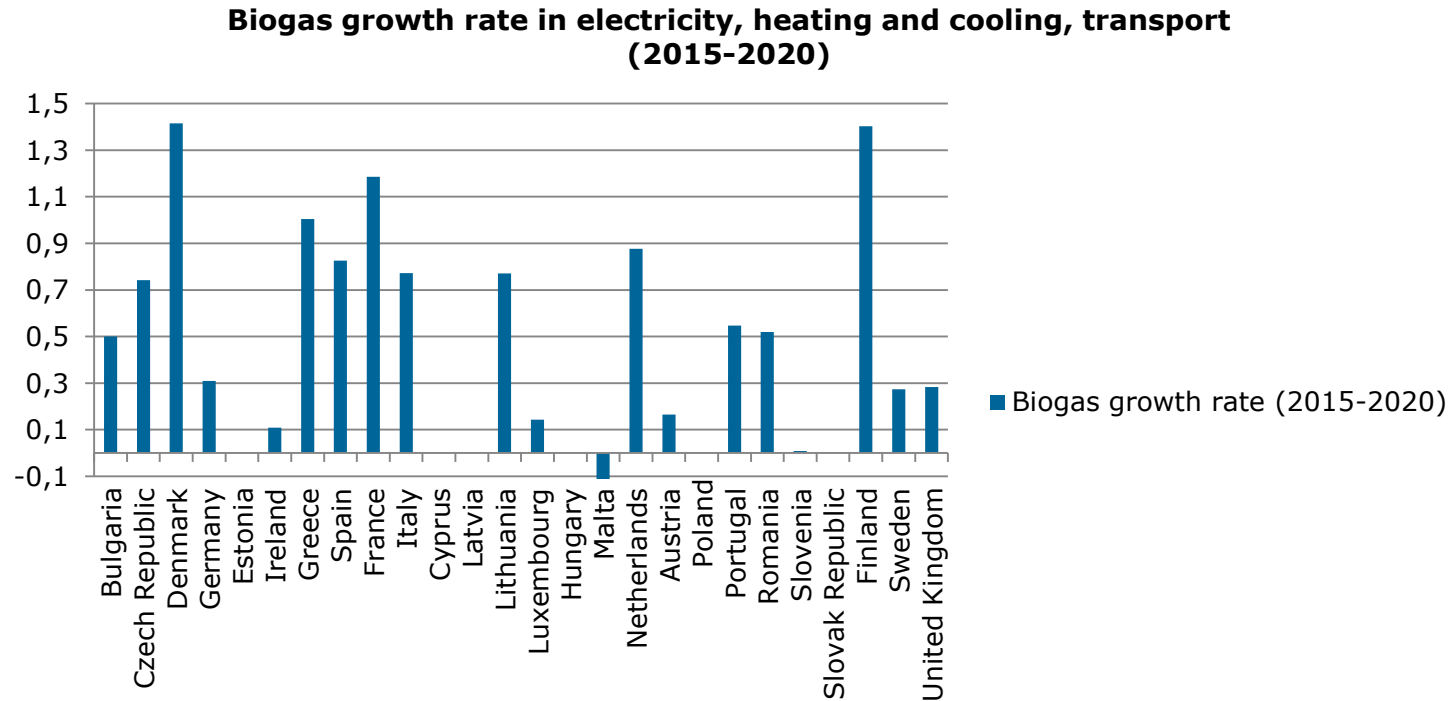
The Growth Rate indicates how many times biogas generation increased

# Biogas growth rate (2010-2015)



The Growth Rate indicates how many times biogas generation increased

# Biogas growth rate (2015-2020)

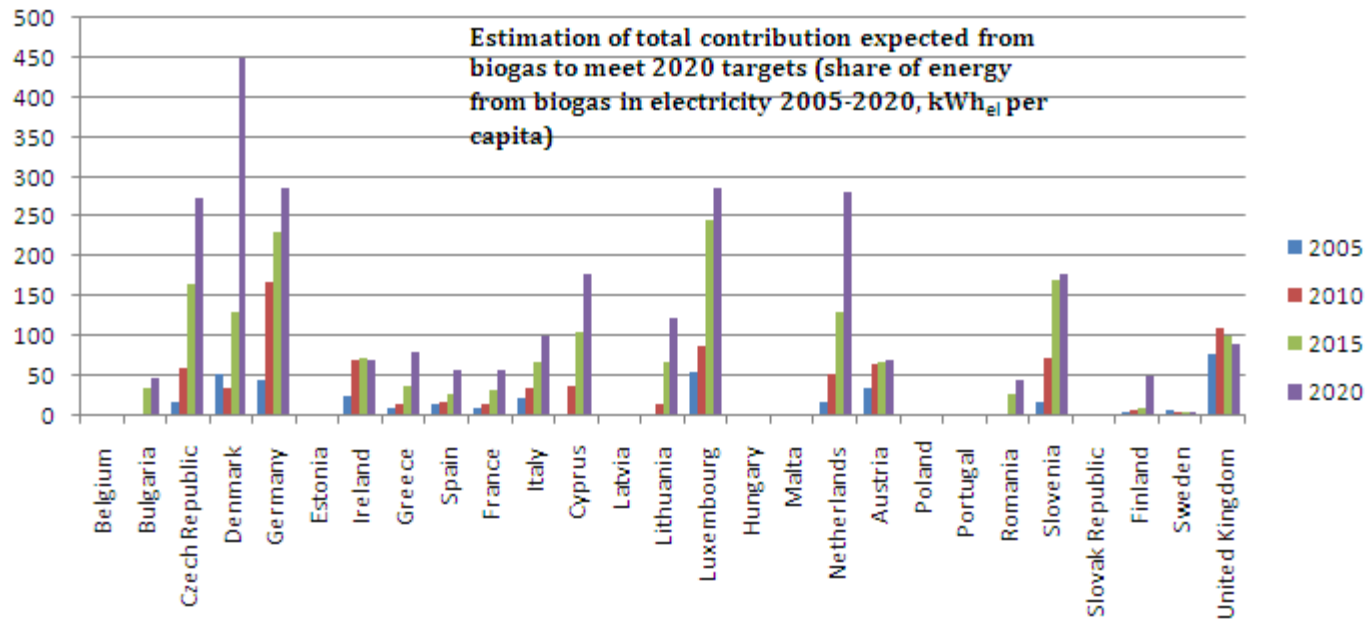


The Growth Rate indicates how many times biogas generation increased

# Biogas share in electricity supply

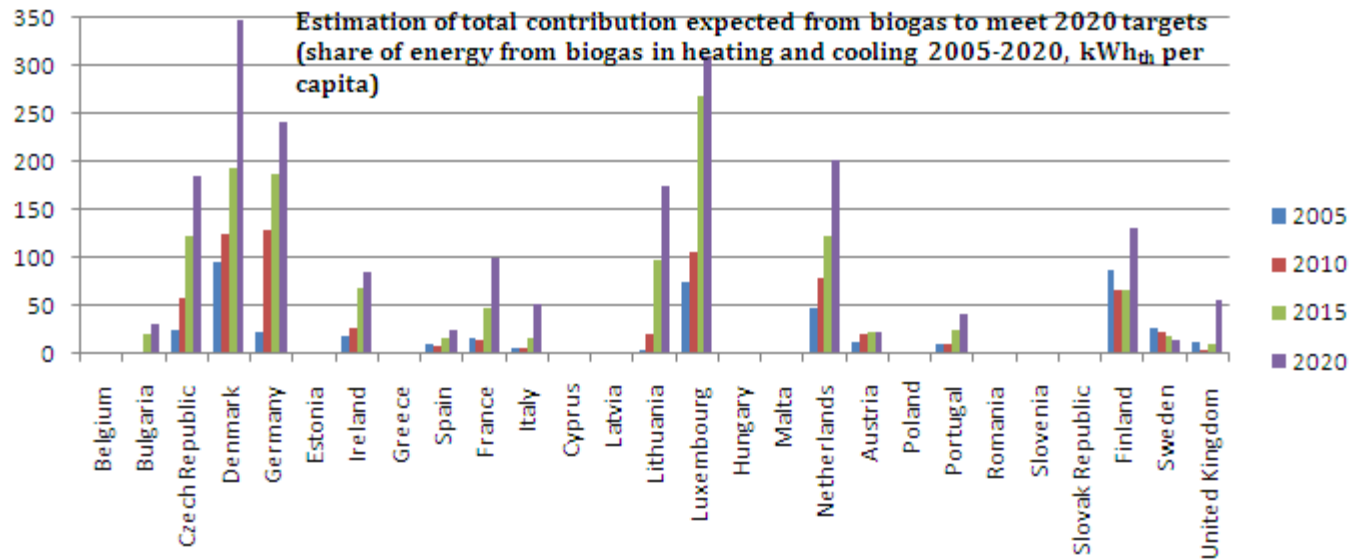
## $\text{kWh}_{\text{el}}$ per capita\*

### 2005-2020



\*Population data (Eurostat, 2010)

# Biogas share in heating and cooling kWh<sub>th</sub> per capita\* 2005-2020



\*Population data (Eurostat, 2010)

# Biogas Potential: towards 2020\*

| Origin (according to template for National Renewable Energy Action Plans)  | Potential Billion m <sup>3</sup> Biomethane | 2020                                 |  |                     |
|--|---|--------------------------------------|--|---------------------|
|  |   | Assumed percentage of use until 2020 | Primary energy Billion m <sup>3</sup> Biomethane | Primary energy Mtoe |
| <b>Agriculture</b>   | 58,9  | 62 %                                 | 36,4   | 31,3                |
| Agricultural crops directly provided for energy generation (5 % of arable land; calculation in annex)  | 27,2  | 100 %                                | 27,2   | 23,4                |
| Agricultural by-products / processed residues  | 31,7  | 28 %                                 | 9,2  | 7,9                 |
| • straw  | 10,0  | 5 %                                  | 0,5  | 0,4                 |
| • manure   | 20,5  | 35 %                                 | 7,2  | 6,0                 |
| • rest (landscape management)  | 1,2   | 40 %                                 | 0,5  | 0,4                 |
| <b>Waste</b>   | 19,0  | 50 %                                 | 9,5  | 8,2                 |
| Biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants) and landfill gas | 10,0  | 40 %                                 | 4,0  | 3,4                 |
| Biodegradable fraction of industrial waste (including paper, cardboard, pallets)   | 3,0   | 50 %                                 | 1,5  | 1,3                 |
| Sewage sludge  | 6,0   | 66 %                                 | 4,0  | 3,4                 |
| <b>Total</b>   | <b>77,9</b>                                 | <b>59 %</b>                          | <b>45,9</b>                                      | <b>39,5</b>         |

Source: AEBIOM

\*A Biogas Roadmap for Europe

# Support schemes for biogas

- SE: Financial, e.g. Investment support for biogas (2009-2011) through projects
- UK: Planned. Grant support to construct new composting and anaerobic digestion facilities to process food waste
- LUX: Planned. Support of biogas production and injection into natural gas network
- LT: Laws + support of biogas production under Rural Development Program 2007-2013
- DK: Planned. Promotion of biogas generation
- AT: Biogas and bio-methane strategy for the chain from application to marketing (2011)
- IT: Support of biogas integration into natural gas network
- SI: Biogas production using organic waste under Rural Development Program 2007-2013

# Comments on NREAPs

## France

- Long procedures determine a low number of submitted biogas projects
- Gas grid injection tariff and a new electricity tariff - highly expected!
- Safety studies in 2008 authorized injection for biogas except for biogas from industrial and wastewater plants, which have not been authorized yet (huge biogas production and potential!)
- 'Organic waste potential decreases between 2012 and 2015-2020'. In the contrary it should increase as waste sorting will be improved and organic waste will be collected better
- Anaerobic digestion is mixed with incineration
- 1 to 2 Mtoe biogas potential per year in 2020 is a low value. Many studies consider biogas potential higher (AFGNV 2008 for instance)
- The electricity target is small for the biogas compared to the general production (1,8 %)
- **The 10% of renewable fuels cannot be reached without biogas**

# Comments on NREAPs Czech Republic

- ✓ Biogas plants: guaranteed **redemption price 162 €/MWh**
- ✓ **No support** by the state aid programs and EU Structural Fund for injection of purified **biogas into the natural gas network**
- ✓ Energy Act: regulates all types of gases
- ✓ **Potential:** new heating systems in the smaller settlements (in particular biomass or biogas in sufficient quantity)
- ✓ Biogas plants: Green bonus 124 €/MWh
- ✓ Biofuel: no conditions for wider use of clean biofuels and high percentage biofuel mixtures

# Comments on NREAPs

## Austria

- ✓ Energy strategy 35,5 % by 2020 (EU Directive – 34% by 2020)
- ✓ Objectives: injection of biogas into natural gas networks + the sale of biogas at the gas stations
- ✓ Grassland: more potential to use
- ✓ Fixed feed-in tariff for 15 years + limitation of new biogas facilities per year
- ✓ The subsidy for environmental actions in Austria: heating sector

# Comments on NREAPs Spain

- ✓ Restriction to use the effluents in the lands – an obstacle for biogas projects.
- ✓ Biogas injection in the gas grid was NOT considered in the Planning of Gas Infrastructures
- ✓ AEBIG Evaluation: The injection of biogas in the Grid must be included in the Spanish
- ✓ Biogas projects need stimulating feed-in tariffs (or bonuses) and encouraging regulation during the first years
- ✓ Huge biogas potential untapped, especially agro-industrial biogas
- ✓ Bureaucracy and long lasting policy development - obstacle for the biogas sector
- ✓ Biogas plants produce thermal energy which can be used already now and not from 2012

# Comments on NREAPs Luxembourg

- ✓ NO clearly defined sustainability criteria for the biogas sector (growing energy crops, utilization of organic waste fermentation, substrate utilization, etc.)
- ✓ Short-term implementation goals
- ✓ The approval procedures are too slow (1-4 years) – extreme obstacle for the biogas projects
- ✓ The tariff structure in the generation of biogas is not clear
- ✓ Currently there are 3 different feed-in tariffs for electricity produced from biogas plants which are controlled by 4 regulations

# Comments on NREAPs United Kingdom

- ✓ New government grants have effectively ended and are replaced by Feed-In
- ✓ Tariffs, ROCs (Renewable Obligation Certificates) and the forthcoming Renewable Heat incentive (RHI). For medium to small AD, the feed in tariffs are not adequate, and when grants end, there will be very few developments
- ✓ ROCs - not sufficient to stimulate small to medium plant, however, larger plants will continue to develop
- ✓ Short term problem - government is re-assessing existing grant agreements for plants receiving ROCs and FITs, causing further delays and market uncertainties
- ✓ It is vital that the RHI is introduced on time by April 2011 – this will open a new range of opportunities for grid injection and for the use of heat from CHP, landfill and from heating&cooling plant

# Comments on NREAPs

## Italy

- ✓ Recent estimates confirm that the potential of biogas from sewage, by-products and plant biomass (5% of the UAA) in Italy is about 10% of the national consumption of natural gas
- ✓ Biogas potential expressed in the National Plan of Action is underestimated: it is possible to produce more than the 1200 MW laid down for 2020 considering the current growth trends and opportunities in the industry
- ✓ Biomethane development as a national energy system development target is positive, but a precise indication of the incentive mechanisms is lacking

# Conclusions

- Biogas potential underestimated
- Biogas potential in transport:  
10% of renewable fuels can't be reached without biogas
- Biogas growth rate in electricity:  
peak in 2015-2020!

