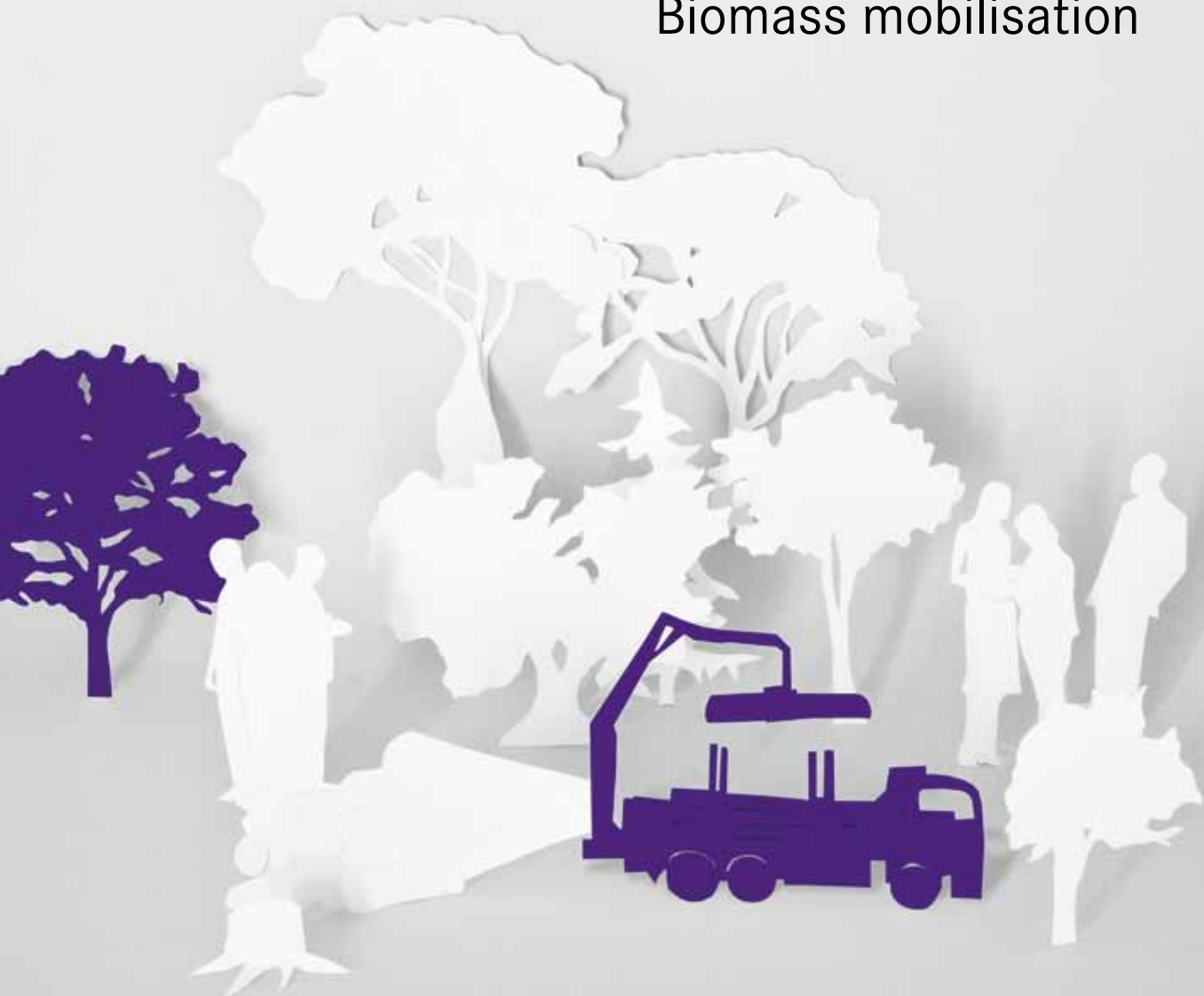


# CA-RES

WORKING GROUP 9

## Biomass mobilisation



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# In a Nutshell

Unlike all other working groups (WG) in the Concerted Action on the Renewable Energy Sources Directive (CA-RES), which is aimed at supporting the implementation of the RES Directive, this WG 9 on Biomass Mobilisation and Sustainability has had no articles in the directive to implement.

WG 9 was instead created to respond to the spirit of the full RES framework directive, a directive aimed at facilitating the increased share of renewable energy.

For a long time biomass has been an important renewable energy source in several Member States (MS). Based on the National Renewable Energy Action Plans (NREAP) and input from MS during CA-RES, it is also clear that biomass will be a key source of energy for meeting national objectives and EU targets for 2020. At the start of CA-RES the European Commission voiced a concern that although biomass is expected to account for such an instrumental part of the target fulfilment, it seemed as though there were uncertainties amongst some MS as to how this was to be achieved.

Achieving an increase in the use of biomass for energy is associated with different kinds of challenges. Within WG 9 these challenges have been identified and measures to address them have been discussed from various aspects. The knowledge gained through WG 9 can contribute to the design of both national policies and measures at EU level in the fields of sustainability and mobilisation.

The scope of WG 9 covers the mobilisation of all kinds of biomass feedstocks<sup>1</sup>. Biomass is a very diverse feedstock (forest, agriculture, waste) as well as energy source (biomass has an important role in all three end using sectors - heating and cooling, electricity and transport). During the course of CA-RES it has become even more evident that biomass mobilisation involves many different sectors or policy areas, not only energy but also e.g. agriculture, forestry and waste, and that more crossover policy understanding and interaction at both national and EU level between energy policy makers and policy makers in agriculture, forestry and waste is important.

<sup>1</sup> The RES directive defines 'biomass' as the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste.

## One Topic in the Spotlight

We can also conclude that when taking actions regarding biomass mobilisation it is important to consider the whole value chain (in order e.g. to achieve cost efficiency throughout the chain and interaction between different actors). There are many different biomass value chains from feedstock to energy end use, and from start to finish there are several different steps, depending on the value chain (e.g. cultivation, trade, processing, conversion). There is also a wide range of maturity across the landscape of biomass technologies and value chains. We have identified and compared barriers, drivers, challenges and solutions for several value chains, both more mature ones and those under development. The small scale nature of many supply side actors and how to tackle this is an example of what has been discussed. MS value chains are often local or regional but in some cases they are global.

There are large differences between MS not only in resource bases but also in how far MS have come in the development of their value chains. For some of the value chains (such as waste) it is evident that MS can learn from each other to increase the sustainable mobilisation. In other cases (such as co-firing) we learned that there are differences in how MS view and want to approach the issue, largely based on national circumstances and political situations.

Sustainability has been and will continue to be important, but there are different ways of handling it. We found that there are several parallel on-going processes aimed at ensuring sustainability, and that it is important that views from both importing and producing countries are sought. Sustainability is not foreseen to constitute any major problems within the own country or within countries in the EU. National environmental and forestry legislations in the EU MS are deemed sufficient. Sustainability problems are foreseen by a smaller number of MS that are expecting to be dependent on imports from outside EU.

Topic: Biomass for reaching the 2020-targets: Co-firing (incl. full conversions), trade and other current policy developments (Prague 2012)

At the fifth meeting, which took place in November 2012 in Prague, the topic of co-firing<sup>2</sup> and full conversions of existing fossil plants to biomass was discussed. With this topic a closer look was taken at some of the larger-scale biomass users in the spectrum of potential biomass mobilisation applications, at least if we consider the full conversions of fossil electricity only plants to biomass. Note that the focus this time was not on plants such as biomass CHP which from the start are built dedicated to biomass, but instead on co-firing and full conversion of dedicated fossil plants to biomass. Co-firing and full conversions could potentially increase renewables rapidly and significantly, but there are differences in views amongst MS. Fossil fuels, in particular coal, can be replaced by biomass in existing plants either through co-firing or through full conversions of existing fossil plants to biomass. There are several drivers for this; the large combustion plant directive and the EU ETS to mention a few. Year 2020 is approaching fast and investment costs, lead times and the economic climate might also contribute to co-firing and full conversions to biomass might be seen by some as one of the better ways to meet the different targets (reduce CO<sub>2</sub> and other emissions and increase renewables etc.).

Policy-makers from EU MS met in Prague to shed some light on the issue of co-firing and full conversions of existing fossil plants to biomass. MS strategies, support solutions, expected developments, sourcing and views on co-firing and full conversions were compared. The views on co-firing and/or full conversions vary between MS based on national circumstances and political situations. Depending on the MS it was seen as either:

- A short or long-term bridge to more efficient ways to produce renewable electricity
- A doubtful short-term way to decrease CO<sub>2</sub> emissions and increase the share of renewable electricity
- An unclear option, as the conditions for co-firing are missing in MS (e.g. lack of fossil plants) or for other reasons
- A more or less long-term solution e.g. because of new coal plants.

<sup>2</sup> Co-firing i.e. firing a mix of fossil fuels and biomass in electricity only generating plants, in combined heat and power plants and/or in heat only plants in district heating.



## Challenge Meets Solution

Currently biomass for co-firing and/or full conversions is supported in many but not all MS. Support schemes for co-firing and full conversions are normally part of the general feed-in or electricity certificate systems applied in different MS. As such, there are large differences between MS' different RES electricity support schemes.

There are also other differences in what is promoted and supported. Some MS support electricity and/or heat from biomass in co-firing and/or in full conversions and some don't. Some are considering to make it mandatory and some to abolish it. Some MS have specific requirements or conditions attached. Several MS promote co-firing in CHP-installations over electricity-only plants (e.g. to ensure higher efficiencies) and some don't. Some MS promote full conversions over co-firing and some do the opposite.

There are also differences in the sourcing of the biomass. Several MS promote co-firing in CHP and they expect the sourcing to be mainly domestic. Three MS expect they will depend mainly on sourcing internationally and here the co-firing and/or full conversion will be predominantly in electricity only plants. Coal fired condensing power plants are large-scale and those who use them are used to sourcing their fuel on a large-scale.

We can currently see signs of developments from a few MS governments on the issue, in particular in two large MS where the development goes in opposite directions. Poland has experience of co-firing in electricity only plants but is now moving away from supporting that, for reasons such as that it does not innovate the electricity system, and that they want to source biomass domestically and mainly from agriculture. UK on the other hand will promote full-conversions of electricity only plants as a cost-effective way of reducing greenhouse gas (GHG) emissions, simultaneously reducing the use of fossil fuels and maintaining energy security post 2015 when the large combustion plant directive will otherwise require some coal condensing plants to shut down.<sup>3</sup> The major initiatives planned in UK will, if they materialize, provide a major new actor in the international biomass market.

It seems as though it is the development of co-firing and full conversions of electricity only plants from fossil fuels to biomass in a few MS and their subsequent need to import from outside EU that has triggered and influenced DG Energy's approach on sustainability (see also Chapter 3 and the topic of sustainability covered in the second meeting).

<sup>3</sup>To ensure that biomass electricity delivers across these goals, the UK is bringing in sustainability criteria for biomass, including a mandatory GHG lifecycle emissions target.

During the course of the three years of CA-RES, challenges regarding biomass mobilisation and sustainability have been identified and discussed. This chapter provides a short overview of the main topics covered in the six WG 9 meetings.

### **Topic: Policies and measures for (sustainable) biomass mobilisation and use (Vienna 2010)**

The purpose of this first meeting was to lay a foundation for the future work in WG 9 by creating a first common map over the different resource bases of MS and their projections to 2020, and of the choices made by MS as regards the different policy measures at hand in the whole bioenergy value chains. The meeting took place before the NREAPs were translated (and before some NREAPs were even submitted).

MS differ in what resource bases they have and how these are used/developed/managed, how much biomass they use for energy purposes (and other purposes) and how they use it (electricity, heating, cooling, transport, conversion efficiencies, use of wastes and residues, etc.), and which policies and measures MS have chosen along the whole biomass value chains.

Biomass is the energy source that contributes the most to the share of renewable energy in the EU today and in projections for 2020. The biomass supply can be grouped into biomass from forest, agriculture or waste with subgroups for direct and indirect supply. In 2006, forest was the predominant source of biomass, representing 72%. The indirect<sup>4</sup> supply of forest biomass was the largest subgroup, even larger than total agriculture and total waste. In the projections for 2020 the domestic supply of agricultural biomass and waste were expected to increase more than the forest biomass, for the EU MS in total. In 2020, forest biomass was projected to represent 49% of total biomass domestic supply, agriculture 32% and waste 19%. However, there are large differences between MS, both in total amount of biomass use and by type.

<sup>4</sup> Indirect supply of forest biomass includes e.g. residues from saw mills, woodworking, furniture industry (bark, sawdust) and by-products from the pulp and paper industry

The sector using the most biomass is the heating and cooling sector. The majority of countries stressed the importance of increasing the biomass use in all three sectors (electricity production, heating and cooling, and transport) in order to meet their 2020 targets. Most countries stated that their policies and measures for biomass mobilisation and use are focusing on the demand side (pull). These policies are not only focused on biomass but are often broader e.g. feed-in tariffs for electricity or electricity certificate schemes are common for promoting renewable electricity including electricity from biomass. In a few countries their focus lies rather equally on both the demand and supply (push) side. Many MS see a need for increased attention also to the supply side of biomass, i.e. mobilisation of domestic resources, but some MS also regarding mobilisation of sustainable imports.

#### **Topic: Sustainability (Lisbon 2011)**

In light of the decision by the Commission to revisit and report on the issue of sustainability for solid and gaseous biomass in December 2011 (then anticipated by December 2011, but later postponed) sustainability was chosen as the topic for the second WG9 meeting in Lisbon in May 2011. Views from both importing and producing countries were sought. Policy developments for sustainable biomass production regardless of use were also to be covered, including on-going processes at EU level (e.g. Illegal Logging Regulation, Green Paper on Forest Protection and Information, etc.) and international level (e.g. Forest Europe, REDD, LULUCF). The aim of the Lisbon meeting was formulated as: To better understand each other's points of view and concerns, and to identify and analyse problems, challenges, opportunities and possible solutions and to see what can be agreed on.

Conclusions from the MS answers to a questionnaire and from the meeting included:

- Sustainability is not foreseen to constitute any major problems within the own country or within countries in the EU.
- National environmental and forestry legislations in the EU MS are deemed sufficient.
- Sustainability problems are foreseen by those MS that are expecting to be dependent on imports when importing from outside EU.
- A small number of MS are projecting to be dependent on imports of biomass for electricity and heating/cooling. The majority of MS are not foreseen to be heavily dependent on imports.

- A small number of MS have already introduced or plan in the near future to introduce sustainability requirements to their support schemes. The majority have not introduced sustainability requirements to their support schemes and do not plan to do so. The MS that have already introduced or are planning to introduce sustainability requirements to their support schemes are typically countries which depend and/or will depend heavily on imports and expect to import from outside EU. The MS that are not planning to introduce requirements are typically biomass producing countries and they are expected not to be dependent on imports from outside EU.
- There is a substantial potential for biomass mobilisation within the EU.
- No sustainability aspect is seen as more problematic than the others in 3<sup>rd</sup> countries<sup>5</sup>. Aspects of biodiversity, GHG, soil and water, and social aspects are seen as equally problematic. MS that expect to be dependent on imports seem instead to be especially concerned about deforestation in 3<sup>rd</sup> countries. Deforestation that would have effects on biodiversity, GHG, soil and water, and social aspects.
- From where the biomass, that will be imported from outside EU, will come is difficult to project. Imports of biomass could come from several different countries/regions. It also seemed impossible at that time to identify certain countries or regions as more problematic than the others.
- Monitoring and knowledge of the used biomass is deemed more problematic (or at least as problematic) as the actual expected sustainability problems.

#### **Topic: Biomass mobilisation – barriers, drivers and value chains (Madrid 2011)**

The focus of this third meeting was on biomass mobilisation and the sessions were structured to cover forest, agriculture and waste.

Value chains were explored, including the main biomass value chains which exist in the MS today and those which could mobilise most of the remaining biomass potential in the different MS in the future. Drivers, barriers and ways to overcome barriers were shared and discussed.



<sup>5</sup> The term "third countries" is used within EU when referring to countries outside EU.



**MS presentations included:**

- Wood flow in Austria and the value chain of small private forest owners (potential, barriers, measures, etc.) which represent the main remaining biomass potential in Austria.
- Two value chains of renewable energy produced from agricultural biomass in France – the value chain of conventional transport biofuels is already successful but the value chain of biogas (from agricultural residues) is under development.
- Woody agricultural residues in Spain (pruning of olive trees, vines and fruit trees) – potential and challenges
- Willow (Salix) cultivation in Sweden
- Waste (municipal) for energy purposes in the UK

It was noted that there are still large biomass potentials to be mobilised, but there are also major challenges. These challenges include economic, market, technical, logistical/infrastructure and administrative barriers. The small-scale nature of many potential biomass producers, such as private forest owners and farmers, is an important barrier. There are also important cultural barriers, such as attitudes and behaviours.

To achieve increased biomass mobilisation also requires value chains that are well-functioning and viable in the whole chain, from feedstock production through e.g. trade, logistics and processing to conversion and end-use. Participants recognised the importance of biomass in reaching the 2020 targets, and agreed that the work to achieve increased biomass mobilisation should continue.

DG AGRI was invited to describe their role and activity in biomass mobilisation of forestry, agriculture and waste. DG AGRI concluded among other things:  
Talk to the people dealing with forests!

**Topic: Bringing farmers and forest owners into the value chain of bioenergy (Tallinn 2012)**

At the meeting in Tallinn a specific focus was put on measures targeting and enabling the often smaller-scale potential supply side actors of biomass mobilisation, such as farmers and private forest owners, with the aim of bringing them into the value chains of bioenergy.

In EU MS an important current support measure for mobilisation of farmers into bioenergy is the Rural Development Programme (RDP) that is part of the Common Agricultural Policy (CAP). All MS have RDPs and these are targeted at the farmers and forest owners, but there are differences between MS as to the extent and how the measure is used for biomass mobilisation and bioenergy purposes.

The responsibility of the RDPs usually lies under the Agricultural Ministries/Agencies, and Energy Ministries/Agencies are not as involved in or familiar with the RDPs. Furthermore, the information about the biomass mobilisation and bioenergy possibilities under the RDPs are not always as accessible or target group adapted or easy to understand. One fundamental conclusion is that there is a need for more crossover policy discussion/cooperation between policy makers in energy, agriculture and forestry.

Experiences were shared on how the RDPs are used in different MS when it comes to areas connected to biomass mobilisation and bioenergy, and specific examples in MS that receive support were highlighted. MS should consider taking better advantage of the RDP for biomass mobilisation and bioenergy, and aspects to consider to that end were listed.

Two outside speakers were invited to give a closer perspective from the actors themselves. The private forest centre of one MS described a desired trend to change the role of forest owners associations in this MS from not only supporting forest owners to also representing and mobilising forest owners in forest management and business activities.

A big energy company in another MS gave a presentation on one of the currently few commercial examples of large scale value chains for biomass from agriculture to electricity/heat

(residue straw to CHP and co-firing) and how they have organised the incentives and logistics to collect the biomass for heat and power production. Adaptions in utilities as well as close collaboration with local farmers have been important for the use of residue straw.

**Topic: Support measures for second-generation transport biofuels: Pilot and demonstration plants (Tallinn 2012)**

Despite their benefits in terms of sustainability and diversification of feedstocks, the contribution of 2<sup>nd</sup> generation (ligno-cellulosic) biofuels to the 2020 target of 10% renewable energy in transport is expected to be small.

Why? 2<sup>nd</sup> generation biofuels are not yet at a commercial stage. Currently, only a few EU MS are supporting a limited number of pilot and demonstration plants. There is currently no dominating technology (or feedstock) for 2<sup>nd</sup> generation biofuels. Pilot plants are a necessary step to test new research results and methods before production can start in commercial facilities. Demonstration plants are the next step in the process in order to show the production in a full-scale plant. Limitations and problems can be expected when production is scaled up. Furthermore, 2<sup>nd</sup> generation biofuels also involve issues of combined output products as well as whole value chains. Full scale means large amounts and high risks. So far, profitability and investment conditions have not been good enough to start production on a commercial scale. For 2<sup>nd</sup> generation biofuels to develop further long term measures and stable conditions are important. MS are faced with challenges on how to design proper support measures moving forward.

**Topic: Biomass for reaching the 2020-targets: Co-firing (incl. full conversions), trade and other current policy developments (Prague 2012)**

See Chapter 2 “One Topic in the Spotlight”.

**Topic: Municipal waste to energy (Berlin 2013)**

Biomass comes from forestry, agriculture and waste and at the final meeting of CA-RES we took a closer look at one of these three main biomass areas, namely waste. Municipal waste to energy was the topic. The biodegradable fraction of municipal waste is defined as biomass and renewables according to the RES Directive, and the renewable share of the waste in MS lies between 40-60% (according to MS answers to the questionnaire). Biomass resource bases differ between MS but all MS produce waste.

EU MS can be divided into three groups: (i) about 12 MS still use landfilling as their main form of treatment (70-100%) of municipal waste, (ii) 6 countries have come far and basically already meet the waste directives, and finally (iii) a middle group of MS lies in between. The large proportion of MS that still use landfilling to a large extent gives an idea of the remaining

potential. Likewise, mainly electricity and far less heat is produced from the waste in many MS, which also shows a potential for improvement. The NREAPs' forecasts also show fairly large increases in waste biomass use until 2020.

Biomass mobilisation issues are closely intertwined with policy areas other than energy. It was concluded that DG Environment's (DG ENV) waste legislative framework is an ambitious driver for development. DG ENV does not focus specifically on energy issues, but their work impacts the energy sector and biomass mobilisation. Key waste directives include the Landfill Directive of 1999 (binds MS to phase out dumping biodegradable municipal waste in landfills to 35% of their 1995 level by 2016), the Waste Incineration Directive from 2000 (measures to prevent or reduce air, water and soil pollution through e.g. permits and emission limits), and the Waste Framework Directive (WFD) from 2008 (covering the waste hierarchy with prevention, recycling, energy recovery and as a last resort disposal, the definition of bio-waste and encouragement of separate collection thereof, waste management plans, and at least 60-65% energy efficiency to be considered energy recovery). The current major differences between MS in waste treatment development demonstrate a biomass mobilisation potential and opportunities for exchange of experiences.

It is interesting to see the differences in public opinion between MS. In some MS there is opinion against waste incineration plants as treatment whilst in other MS they have seen major improvements in environmental impact in recent decades, and now have several waste incineration plants including some in their capitals.

Municipal waste to energy includes incineration of municipal waste for electricity, heat and steam, and biogas from sorted bio-waste<sup>6</sup>.

Waste incineration with energy recovery is an important and integral part of waste management systems in many MS and is expected to play a major role in MS where the waste is currently still landfilled.

Challenges that remain amongst the most developed group of MS include the increase of heat/steam generation to improve energy efficiency, increased sorting of bio-waste for biogas, and addressing overcapacity and border trade in the incineration sector. Challenges facing the group of MS that still use landfilling to a large part include lack of incentives to divert waste from landfills, public opinion, systems for collection and sorting of waste, inadequate waste infrastructure.

<sup>6</sup>'Bio-waste' is defined in the WFD as biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants.

# 4

## Main Findings and Achievements

The meetings of CA-RES provided an important platform for sharing experiences and best practices, and for the exchange of views on policy as well as technical issues related to the implementation of Article 15 of the RES Directive.

It has proven to be a 'pressure cooker' to help Member States think about implementation in a way that is coherent on a European level.

| Topic  | Issue   | Outcomes  | Future  |
|--|---|---|---|
| Policies and measures for (sustainable) biomass mobilisation and use | Purpose to lay a foundation for future work in WG 9.  | A first common map over the different biomass resource bases of different MS and their projections to 2020, and of the policies and measures in the different MS in their whole bioenergy value chains. | Valuable input for the understanding and future work of WG 9 and its participants.  |
| Sustainability   | In light of the decision by the Commission to report on the issue of sustainability for solid and gaseous biomass in December 2011, sustainability was chosen as topic. | A better understanding of each other's points of view and concerns, and a list of conclusions.  | The Commission is still due to report on its view on sustainability for solid and gaseous biomass (following Art 17(9) and subsequent reporting). |

| Topic   | Issue   | Outcomes  | Future  |
|---|---|---|---|
| Biomass mobilisation – barriers, drivers and value chains                                 | Identify and analyse MS biomass value chains, the more mature ones and the ones under development or which have the most potential, including their barriers and drivers.   | Increased biomass mobilisation requires value chains that are well-functioning and viable in the whole chain.<br><br>Sharing and comparing of good practices and common challenges.   | It was noted that there are still large biomass potentials to be mobilised, but there are also major challenges. Participants recognized the importance of biomass for reaching the 2020 targets, and agreed that the work to achieve increased biomass mobilisation should continue. |
| Bringing farmers and forest owners into the value chain of bioenergy                      | A specific focus on measures targeting the often smaller-scale potential supply side actors of biomass mobilisation, such as farmers and private forest owners, with the aim of bringing them into the value chains of bioenergy. | There is a need for more crossover policy discussion/cooperation between policy makers in energy, agriculture and forestry.<br><br>RDPs might be better used to get farmers and forest owners into the value chain of bioenergy.  | Enhanced understanding and crossover policy interaction between energy, forestry and agriculture at both MS and EU level.   |
| Support measures for second-generation transport biofuels: Pilot and demonstration plants | A reality check of the situation for the second-generation biofuels.  | Despite their benefits in terms of sustainability and diversification the contribution of 2 <sup>nd</sup> gen. (ligno-cellulosic) biofuels to the 2020 target (10% RES in transport) is expected to be small.<br><br>Reason: 2 <sup>nd</sup> generation biofuels are mainly still at research stage and few MS have pilot or demo plants. | For 2 <sup>nd</sup> generation biofuels to develop further, long term measures and stable conditions are crucial. MS are faced with challenges on how to design proper support measures moving forward.   |



## The Way Ahead

| Topic   | Issue   | Outcomes   | Future   |
|---|---|--|--|
| Biomass for reaching the 2020-targets: Co-firing and full conversions | Year 2020 is approaching fast and co-firing and/or full conversions of existing fossil plants to biomass might be seen by some as one of the better ways to meet the different targets. | We shed light on the current issue of co-firing and full conversions of existing fossil plants to biomass by comparing MS strategies, support solutions, expected developments, sourcing and views on co-firing and full conversions.  | The views on co-firing and/or full conversions vary between MS, depending on national circumstances and political situations. Different developments are expected.<br><br>If the planned major full conversions of electricity only plants materialize in the specific MS, then a major new actor (importer) of biomass from outside the EU can be expected. |
| Municipal waste to energy   | Mobilisation of municipal waste to energy. The biogenic part of municipal waste is defined as biomass and renewables according to the RES Directive.                                    | Understanding of the DG ENV waste legislative framework as an ambitious driver which affects the energy sector and biomass mobilisation.<br><br>Large differences between MS in waste treatment development show biomass potential and open up opportunities for sharing of experiences. | Valuable input for the further waste biomass mobilisation work in the participating MS.<br><br>Enhanced understanding and crossover policy interaction between energy and waste.   |

Possible topics for further work on biomass mobilisation and sustainability include:

### **Sustainability for solid and gaseous biomass in heat and electricity**

The Commission is still due to revisit and report on its view on sustainability for solid and gaseous biomass (following Art. 17(9) and subsequent reporting). Sustainability has been and will continue to be important, but there are different ways of handling it. It is important that views from both importing and producing countries are sought. Policy developments for sustainable biomass production regardless of use also need to be covered, including on-going processes at EU level (e.g. Timber Regulation) and international level (e.g. Forest Europe, REDD, LULUCF). There are several parallel on-going processes aimed at ensuring sustainability.

Sustainability is not foreseen to constitute any major problems within the own country or within countries in the EU. National environmental and forestry legislations in the EU MS are deemed sufficient. Sustainability problems are foreseen by a smaller number of MS that are expecting to be dependent on imports from outside the EU.

If mandatory sustainability criteria are agreed upon at the EU level, work will be needed on the implementation of such legislation.

### **Contribution to the national targets**

MS should continue to explore the role of bioenergy in meeting the national targets and learn from each other in the process. The new progress reporting from MS, due at the end of 2013, will play a part in this work.

### **Collaboration on biomass mobilisation strategies, including synergies between energy, agriculture, forestry and waste policies**

Options for enhancing biomass supply and value chains and promoting efficient biomass use across the EU should continue to be reviewed. Approaches which are planned or already implemented by the MS should be explored.

Specific attention should be given to synergies between energy, agriculture, forestry and waste policies at country level and related developments at EU level that could lead to improved mobilisation of biomass resources.

## Abbreviations

Barriers and challenges should be addressed and good practices for the development and implementation of policies, measures and support schemes for sustainable and efficient use of bio-resources should be exchanged.

### Trade / market

The continued developments in trade and in the creation of efficient markets for bioenergy should be followed. This might include e.g. trade flows, price developments, transparency in price information and developments of market places, developments of standards and certification schemes, logistics and infrastructure, the conditions for smaller producers, and effects of increased international trade in biomass.

There is a need to examine the policy implications of developments in biomass trade and markets in a future perspective, as well as looking for and exchanging best practices.



| Abbreviation | Full name   |
|--------------|---|
| CA-RES       | Concerted Action on the Renewable Energy Sources Directive  |
| CAP          | Common Agricultural Policy  |
| CHP          | Combined heat and power   |
| DG AGRI      | The European Commission's Directorate-General for Agriculture and Rural Development   |
| DG ENV       | The European Commission's Directorate-General for the Environment   |
| EU ETS       | European Union Emissions Trading Scheme   |
| GHG          | Greenhouse gas  |
| LULUCF       | Land Use, Land-Use Change and Forestry  |
| MS           | Member State  |
| NREAP        | National Renewable Energy Action Plan   |
| RDP          | Rural Development Programme   |
| REDD         | The United Nations collaborative initiative on Reducing Emissions from Deforestation and forest Degradation in developing countries |
| RES          | Renewable Energy Sources  |
| WFD          | Waste Framework Directive   |
| WG           | Working Group   |

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