



European Biomass Industry Association

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BIOMASS ACTION PLAN FOR MALAYSIA
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SUSTAINABILITY INDICATORS



Sustainability criteria in EU RES directives

Renewable Energy Directive articles 17-19

EU sustainability criteria for biofuels

- GHG saving of at least 35% (50%-60% from 2017/18) compared to fossil fuel
- Calculation methodology and 'default values' included
- No conversion of land with high carbon stock
- Continuously forested areas, wetlands, peatlands
- No raw material from land with high biodiversity value
- Primary forest, nature protection areas, highly biodiverse grasslands

Have to be met in order to:

Count toward the targets (10% and the '20%')

Count toward obligations (put on suppliers)

Be eligible for financial support (for their consumption)

Mandatory requirement for biofuels since 2011

To date 7 certification schemes approved by the European Commissions

Sustainability criteria in EU RES directives

Renewable Energy Directive articles 17-19

EU sustainability criteria for biofuels

- Harmonization (identical for all 27 Member states)
- No competition distortion

Food-Feed-Forest-Fiber-Fuel: reasonable & harmonized criteria at EU level for use of biomass for energy purposes vs. other industrial applications

- **Level field -No discrimination**
 - between RES-E technologies (e.g. wind vs. biomass)
 - between RES-E & conventional power plants (e.g. balancing)
- **No penalization of large scale biomass installations**
- **National regulatory framework should not restrict the use of biomass for energy purposes (e.g. emission limits)**
- **Use of biomass for RES-E and RES-H : *Opportunities for our government sponsored enterprises (design/construction/O&M) + quid for RES-T ?***

Sustainability criteria in EU RES directives

Renewable Energy Directive articles 17-19

EU sustainability criteria for solid biomass and biogas

- The introduction of sustainability criteria is left at the discretion of Member States
- EU recommendation to use national sustainability criteria similar to those mandated for biofuels and bioliquids
- Waste exempted from GHG saving recommendation
- Energy installations below 1 MW exempted from recommendation Review of by the end of 2011

Ongoing work for the review

External study on **benchmarking biomass sustainability criteria** for energy purposes, impacts of national vs European approach on biomass costs and availability.

To list, compare and contrast **national rules and regulations related to biomass sustainability and to determine the impacts of these rules on biomass availability and cost, GHG savings, size of economic operators etc.**



The Global Bioenergy Partnership Sustainability Indicators for Bioenergy

Partners & Observers
of GBEP

developped



24 sustainability indicators for
bioenergy

FUNCTIONS:

- as a product of the only multilateral initiative that has built **consensus** on the sustainable production and use of bioenergy among a wide range of national governments and international organizations.
- as a means towards meeting national goals of sustainable development.

GOALS:

- to inform policy-making
- to assess the relationship

Production &
use of modern
bioenergy



Sustainable
development

The indicators are **value-neutral**, do not feature directions, thresholds or limits and do not constitute a standard, nor are they legally binding.



The Global Bioenergy Partnership Sustainability Indicators for Bioenergy

PILLARS

Environmental	Social	Economic
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THEMES

<ul style="list-style-type: none">•Greenhouse gas emissions•Productive Capacity of the land and ecosystem•Air quality•Water availability•Land-use change, including indirect effects	<ul style="list-style-type: none">•Price and supply of a national food basket•Access to land•Water and other natural resources•Labour conditions•Rural and social development•Access to energy•Human health and safety	<ul style="list-style-type: none">•Resource availability and use efficiencies in bioenergy production•Conversion•Distribution and end-use•Economic development•Economic viability and competitiveness of bioenergy•Access to technology and technological capabilities•Energy security / Diversification of source and supply•Energy security/Infrastructure and logistics for distribution and use
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The Global Bioenergy Partnership Sustainability Indicators for Bioenergy

PILLARS

Environmental

Social

Economic

INDICATORS

- Lifecycle GHG emissions
- Soil quality
- Harvest levels of wood resources
- Emissions of non-GHG air pollutants, including air toxics
- Water quality
- Biological diversity in the landscape
- Land-use and land-use change related to bioenergy feedstock production

- Price and supply of a national food basket
- Allocation and tenure of land for new bioenergy production
- Change in income
- Jobs in the bioenergy sector
- Change in unpaid time spent by women and children collecting biomass
- Bioenergy used to expand access to modern energy services
- Change in mortality and burden of diseases attributable to indoor smoke
- Incidence of occupational injury, illness and fatalities

- Productivity
- Net energy balance
- Gross value added
- Change in consumption of fossil fuels & traditional use of biomass
- Training in re-qualification of the workforce
- Energy diversity
- Infrastructure and logistics for distribution of bioenergy
- Capacity and flexibility of use of bioenergy

EU biomass-related policies



EU biomass-related policies

➤ **1997 - RES White Paper**

To double the share of renewable energy from 6% to 12% of gross energy consumption in Europe (EU-15) by 2010.

Biomass contribution to GIC guideline for 2010: **135 Mtoe**
(of which 230 TWh for power generation)

➤ **2000 - Green Paper on security of supply**

The EU imports 50% of its energy requirements and if no measures are taken within the next 20 to 30 years this figure will rise to 70%.

➤ **2001 - RES-E Directive (promotion of electricity production from renewable energy sources)**

To establish a framework to increase the share of renewables electricity from 14% to 22% of gross electricity consumption by 2010.

EU biomass-related policies

➤ **2002 - Council Decision concerning the approval of the Kyoto Protocol**

EU Member States shall reduce collectively their GHG emissions by ~8% between 2008 and 2012 in comparison with the 1992 level.

➤ **2003 - Directive on liquid biofuels**

To achieve a share of 5.75 % of biofuels for transport in the total amount of fuels in Europe by 2010.

➤ **2003 - Directive on the taxation of energy products**

Tax exemption possible on renewable energy sources, including biofuels.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005**

It is part of the new EU energy policy set out in the Green Paper on energy published in March 2006. Most of the recommendations it contains were supported by EU Heads of State or Government at the spring European Council of 23 and 24 March 2006. Developing safe, competitive and sustainable energy is therefore one of the EU's priorities in relaunching the Lisbon Strategy.

This communication sets out a coordinated programme for Community action, including measures to:

- improve demand for biomass from wood, wastes and agricultural crops, creating market-based incentives
- improve supply
- overcome technical barriers
- and develop research.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005**

This action plan is a first, coordinating step. It sets out measures* to promote biomass in:

- Heating
- Electricity
- Transport
- Biomass Supply
- Financing
- Research.

*More detailed information are provided in Annex I

➤It is accompanied by a general impact assessment. As a second step, individual measures will be brought forward subject to specific impact assessment in line with Commission rules.

➤The action plan draws on widespread consultations with interested parties. Their response to the idea of a vigorous Community approach in this area has been largely, and often powerfully, positive on a coherent European energy policy.

EU biomass-related policies

➤ Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

- This Directive, which came into force on 25 June 2009, establishes a common framework for the use of energy from renewable sources in order to limit greenhouse gas emissions and to promote cleaner transport. To this end, national action plans are defined, as are procedures for the use of biofuels.
- Each Member State has a target calculated according to the share of energy from renewable sources in its gross final consumption for 2020. This target is in line with the overall '20-20-20' goal for the Community.
- Moreover, the share of energy from renewable sources in the transport sector must amount to at least 10 % of final energy consumption in the sector by 2020.

EU RES directives



EU RES directives

		RES-E Directive 2001/77/EC	RES Directive 2009/28/EC
<i>Biomass definition</i>		biodegradable fraction of : -products, waste and residues from agriculture (including vegetal and animal substances), forestry and related industries, -industrial and municipal waste	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, -industrial and municipal waste
		Definition applicable for purpose of RES-E Directive	“General definition”, i.e. not restricted to RES-E
<i>Sustainability Criteria</i>		Left to subsidiarity	Biofuels& otherbioliquids SolidBiomass

EU RES directives

Horizon	Reference	EU RES Target (% total energy consumption)	EU RES-E Target (% total electricity consumption)	EU RES-H Target (% final heat consumption)	EU RES-T Target (% final fuels consumption)
2010	White paper 1997 RES-E Directive 2001 RES-T Directive 2003	12 % (*) <i>Non binding</i>	21 % (**) <i>Non binding</i>		5, 75% (**) <i>Non binding</i>
2020	New RES Directive 2009	20 % <i>Binding</i>	~34%?(***) <i>Non binding</i>	~18 %(***) <i>Non binding</i>	at least 10% in each MS <i>Binding</i>

(*) 8,5% 2005

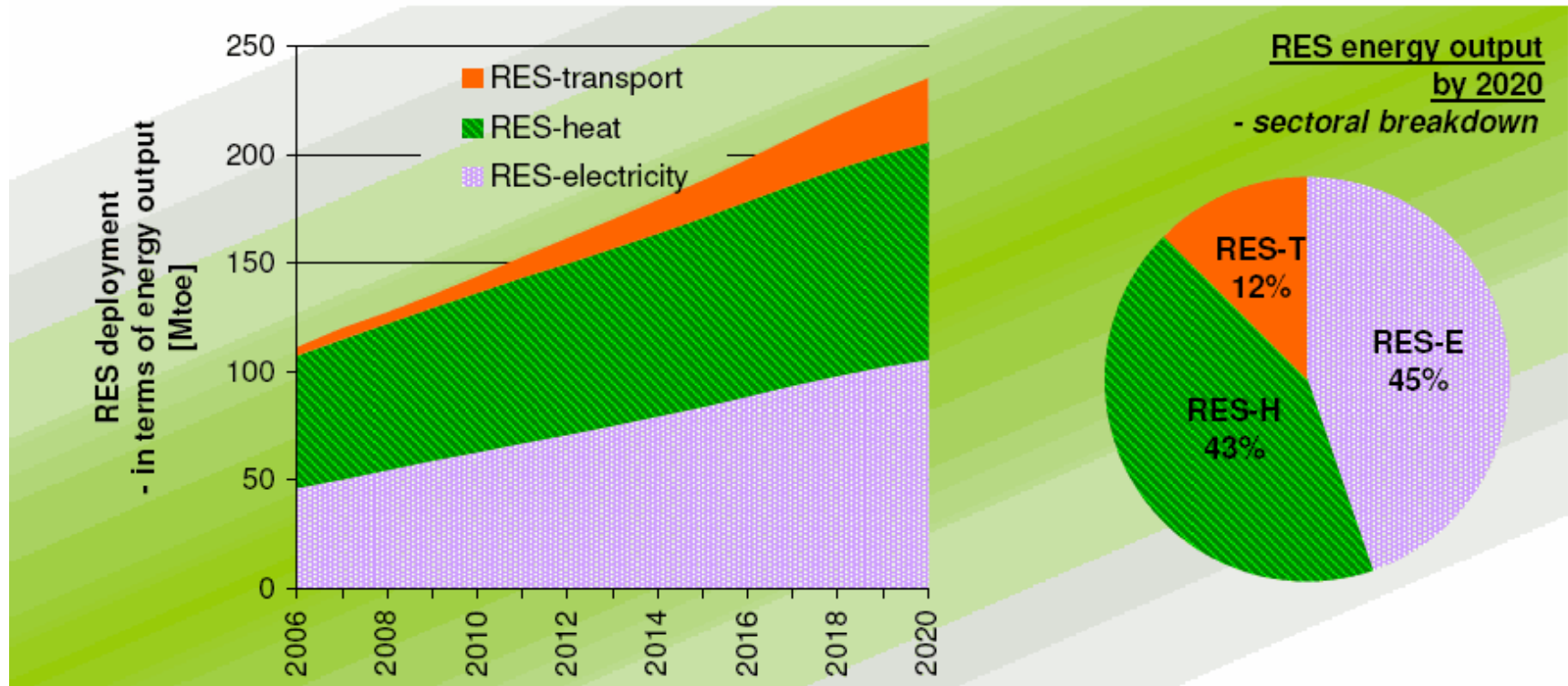
(**) RES-E share: 15.7% (2006), expected 19% (2010)

RES-T share: 2,6% (2007); expected 5% (2010)

(***) indicative figures

EU RES directives

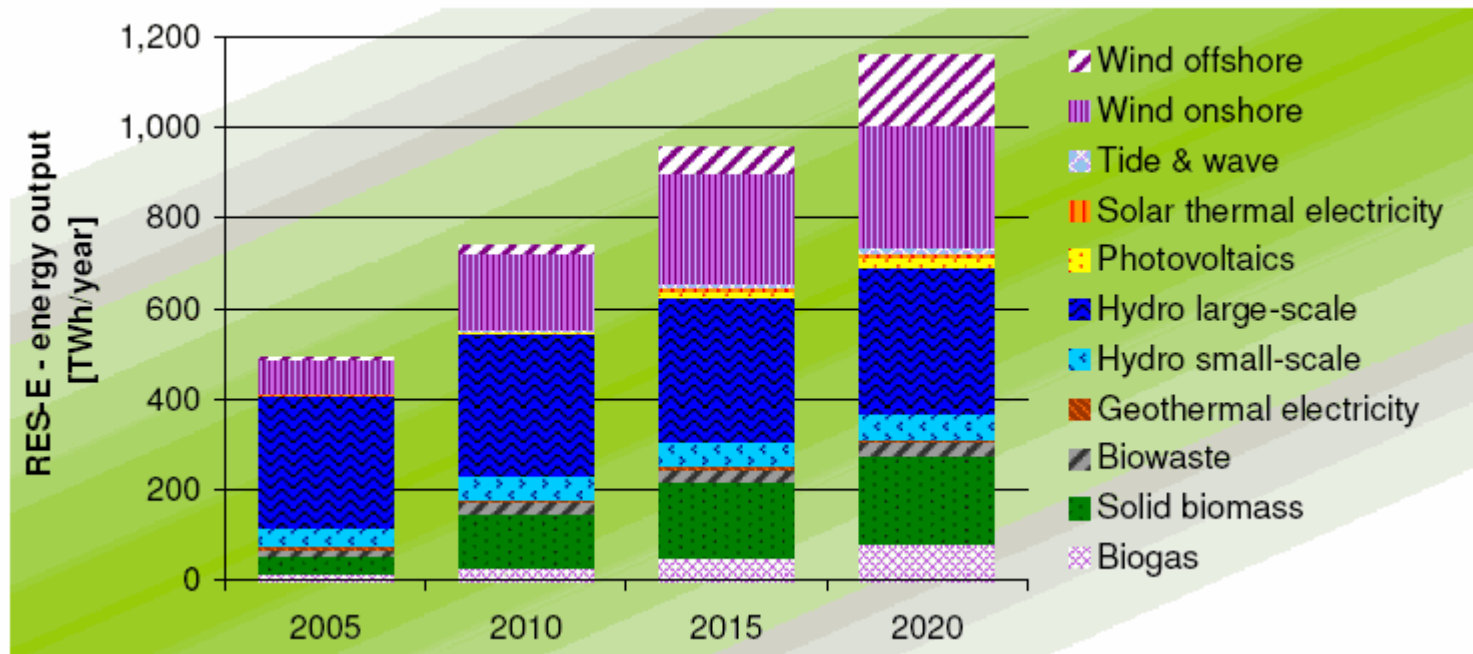
➤ RES ENERGY OUTPUT BY 2020



Source: PROGRESS "Promotion and growth of renewable energy sources and systems" Final report, Ecofys et al., March 2008

EU RES directives

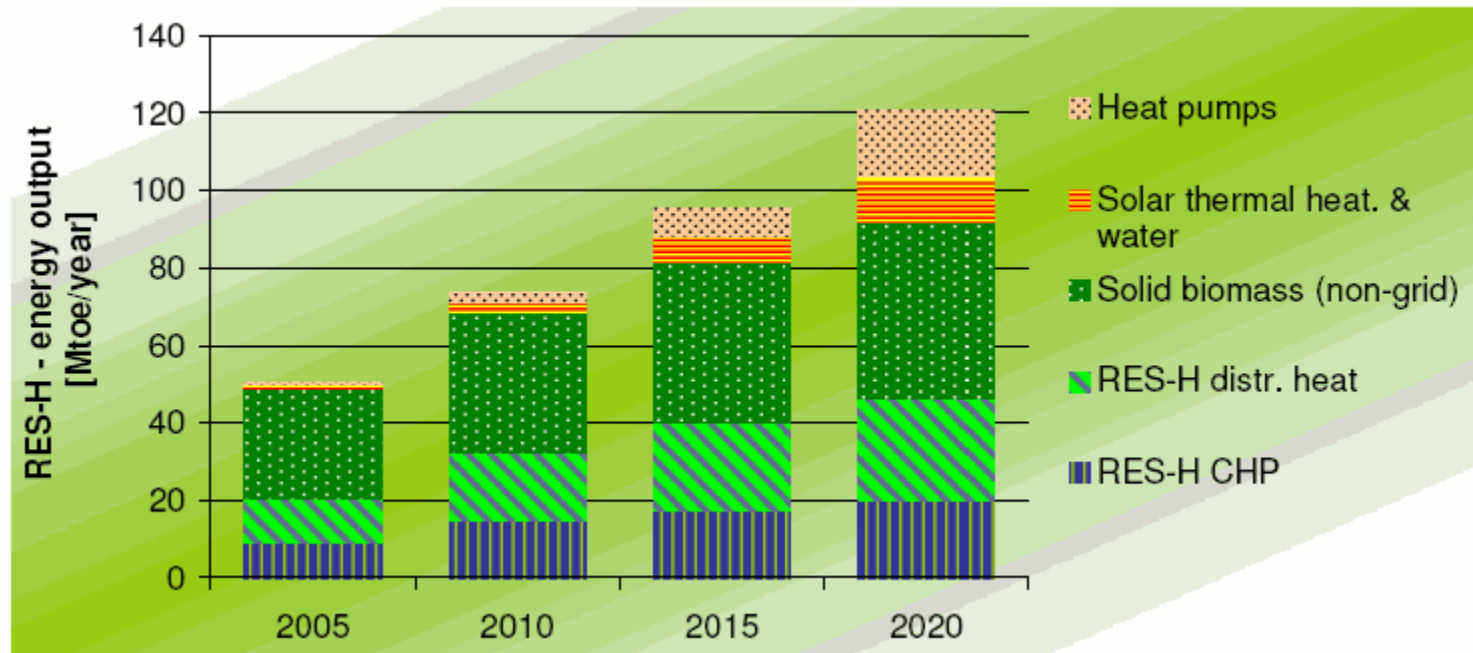
➤ RES ENERGY OUTPUT BY 2020



RES-E generation up to 2020 in the European Union (EU-25) Source: PROGRESS "Promotion and growth of renewable energy sources and systems" Final Report, Ecofys et al., March 2008 9

EU RES directives

➤ RES ENERGY OUTPUT BY 2020



RES-E generation up to 2020 in the European Union (EU-25) Source: PROGRESS "Promotion and growth of renewable energy sources and systems" Final Report, Ecofys et al., March 2008

EU RES directives

OVERVIEW

- Mandatory EU target of 20% RES in the EU final energy consumption by 2020
 - Mandatory minimum target of 10% RES-T for each MS
- Scope: RES-E, RES-H & RES-T
- Mandatory RES national target by 2020 with intermediary indicative interim targets
- National RES target not based on MS potential
 - Partly linear (flat rate increase of 5,5% for each Member State)
 - Partly based on its GDP/capita.
- MS to adopt by mid 2010 a National Renewable Energy Action Plan (NREAP) incl. Share RES-E, RES-H, RES-T, based on a Commission template
- MS may use “Cooperation measures” to reach their targets, Review Clause 2014



Next steps: Following up on the RES directives

The European Commission's Role:

- ensuring that Member States respect indicative trajectories and 2020 binding targets.
- evaluating the NREAPs, adequacy of the measures in relation to reaching the 2020 target. The EC may issue a recommendation in response to a NREAP (Article 4(5)).
- a Member State which did not meet its indicative target, has to submit an amended national action plan to the Commission by 30 June of the following year. This action plan should set measures to rejoin the indicative trajectory (Article 4(4))
- the deadline for legal transposition of the RE Directive is 5/12/10, date by which Member States are supposed to have implemented all primary and secondary legislation to transpose the RE Directive into national law (cf. Article 27). Infringement proceedings before the European Court of Justice can be launched from 2010 onwards for:
 - failure to produce a credible national action plan
 - failure to implement all aspects of the Directive
 - significant deviation from plan or trajectory
 - valid complaints from any EU citizen regarding incorrect implementation or enforcement by Member States



Next steps: Following up on the RES directives

Important Dates following the RES Directive

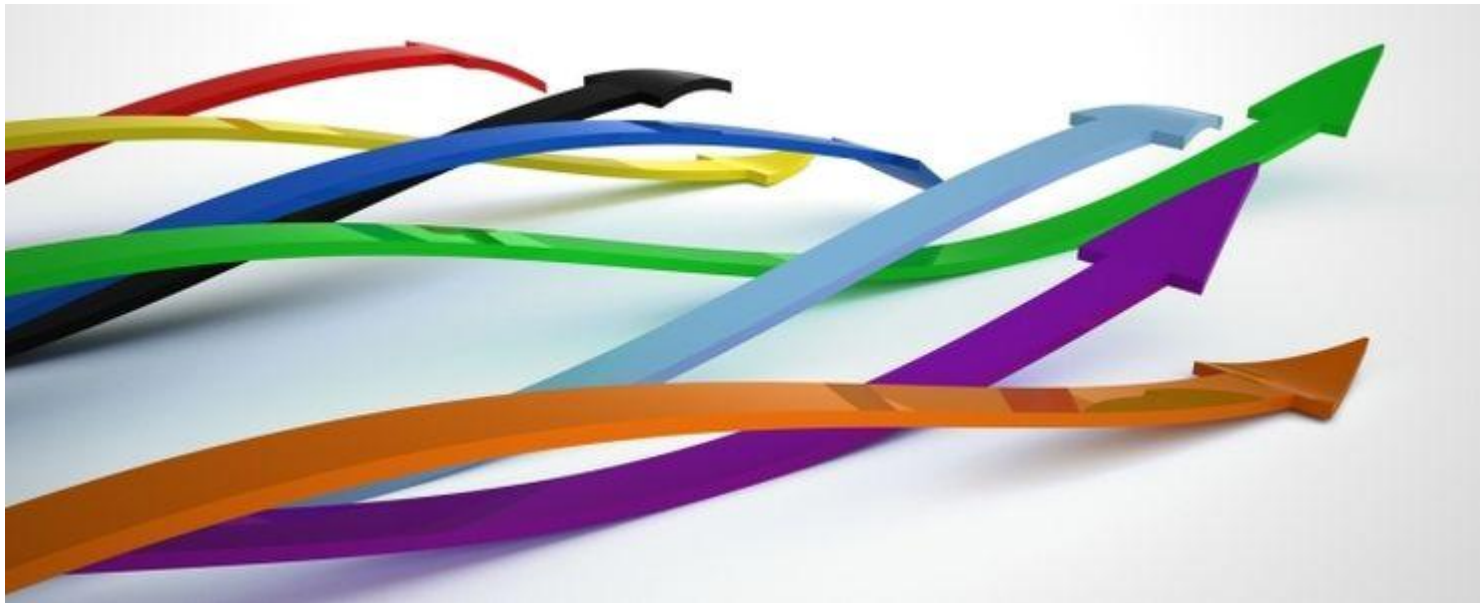
5 /12/2010	Member States have to transpose the Directive's provisions into national law & communicate to the Commission how the Directive has been transposed
31/12/2011	Member States start to report every 2 years (December 2011, 2013, 2015, 2017, 2019, 2021) on progress in reaching national objectives.
2012	The EC starts to report every two years (from 2012 to 2022) on progress made in reaching the RES Directive's objectives. It may propose corrective actions.
30/06/2013	Member States who are below the biannual milestones of the indicative trajectory have to submit an amended action plan by June of the following year.
31 /12/ 2014	The European Commission has to report on the evaluation of implementation of the Directive (notably on the cooperation mechanisms & review the greenhouse gas emissions threshold in article 17(2)).
2018	Report by the European Commission proposing a Renewable Energy Roadmap for the post-2020 period. It may be accompanied by legislative proposals
2021	Report by the European Commission reviewing the application of this Directive: NREAPs, forecasts, cooperation mechanisms, support schemes, etc.

Next steps: Following up on the RES directives

Concerted Action on the Renewable Energy Sources Directive (CA-RES)

Profile	structure for the confidential dialogue of representatives of national authorities responsible for the implementation of the Directive
Goal	ensure a good transposition and implementation of the RES Directive
Time range	started in July 2010 for a period of three years.
Action	Member States exchange experiences and best practices and develop common approaches
Coordinator	Austrian Energy Agency
Partners	organisations from the 27 EU Member States, Norway, Croatia.

The European Strategic Energy Technology Plan (SET – Plan)



The European Strategic Energy Technology Plan (SET – Plan)

➤ **Joint Strategic Planning**

- INFORMATION SYSTEM (SETIS)
- STEERING GROUP

➤ **Effective implementation**

- European Industrial Initiatives: strategic technology research & development industry – led partnership
- European Energy Research Alliance – research institutes led joint programmes
- Trans-European Energy Networks and System of the Future – planning the transition towards the 2050 vision

➤ **Reinforce international cooperation**

➤ **Increase in resources, both financial and human**

The European Strategic Energy Technology Plan (SET – Plan)

➤ Effective implementation

EUROPEAN INDUSTRIAL INITIATIVES (EIIs)

✓ Bioenergy (among others)

What: second generation biofuels

How: large demonstration plants of alternative thermochemical pathways

Cost: 9 bn€



Core activities

- Bio-energy EII
- Bring to commercial maturity by 2020 *innovative bioenergy value chains* with large market potential, based on significantly different feedstock and technological options

- Led and implemented by *industrial actors*

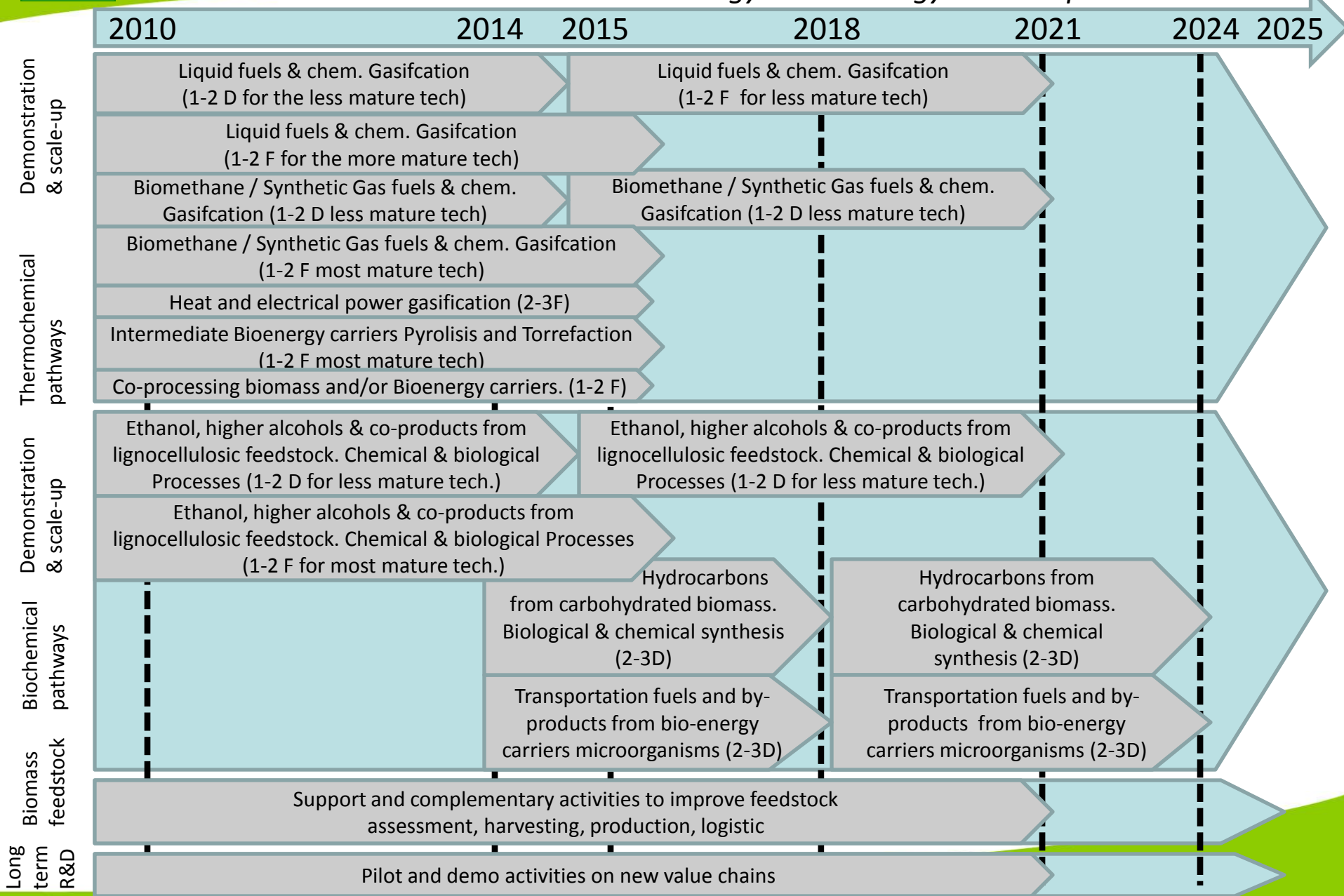
Complementary measures and activities

- Set of initiatives on *biomass feedstock for bio-energy*
- *Longer term R&D&D* on emerging and innovative bioenergy value chains
- Not implemented directly by EIBI Industry stakeholders



European Biomass Industry Association

Bioenergy – Technology Roadmap 2010-25





REPAP

2020

**Renewable Energy Policy Action Paving the Way
towards 2020**

Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

- The European Renewable Energy Council (EREC) is the project coordinator.
- Partners in the projects are:
 - EUFORES – The European Forum for Renewable Energy Sources
 - Kuhbier Law Firm
 - EEG – Vienna University of Technology, Energy Economics Group
 - Fraunhofer Institute Systems and Innovation Research
 - BEE – Bundesverband Erneuerbare Energie, Germany
 - APER – Associazione Produttori Energia da Fonti Rinnovabili, Italy
 - EDORA – Fédération de l'Énergie d'origine renouvelable et alternative, Belgium
 - REA – Renewable Energy Association, United-Kingdom
 - SERO – Sveriges Energiföreningars Riksorganisation, Sweden
 - PIGEO – Polish Economic Chamber of Renewable Energy, Poland
 - APREN – Associação de energias renováveis, Portugal
 - SER – Syndicat des Energies Renouvelables, France



Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

The REPAP project has been providing essential support for Member States to prepare and deliver, high quality and effective National Renewable Energy Action Plans. Within REPAP, the EU Industry Roadmap provides a vital insight into how policy and practice connect from the industry's point of view. It provides a crucial guide to policy makers and technology developers on the impact of the EU renewables legislation on industry.

Mapping Renewable Energy Pathways towards 2020

EU ROADMAP

The EU roadmap confirms the EU Member States ambition to generate a significant share of their energy supply with renewable energy sources. It compares the vision of governments with those of the renewable energy industry. Both private and public sector need to work closely together to make the agreed targets become reality over the next ten years. The European Renewable Energy Council (EREC) and its members will continue to collaborate with national associations, governments as well as the EU institutions to support this target implementation process.



Comparing the Binding Targets with Member State Forecasts in the NREAPs & Forecasts by the RES Industry

	National Binding Target established by the 2009/28/EC Directive	Renewable Energy Share in Final Energy Consumption forecast in the NREAPs	Renewable Energy Share in Final Energy Consumption forecast by the RES Industry (based on demand assumptions from the NREAPs)
AT	34%	34.2%	46.4%
BE	13%	13%	14.5%
BG	16%	18.8%	20.8%
CY	13%	13%	14.5%
CZ	13%	13.5%	13.7%
DK	30%	30.5%	30.5%
DE	18%	19.6%	26.7%
EE	25%	25%	25%
EL	18%	20.2%	25.2%
ES	20%	22.7%	28.3%



Comparing the Binding Targets with Member State Forecasts in the NREAPs & Forecasts by the RES Industry

	National Binding Target established by the 2009/28/EC Directive	Renewable Energy Share in Final Energy Consumption forecast in the NREAPs	Renewable Energy Share in Final Energy Consumption forecast by the RES Industry (based on demand assumptions from the NREAPs)
FI	38%	38%	42.3%
FR	23%	23.26%	23.6%
HU	13%	14.7%	18.3%
IE	16%	16%	16%
IT	17%	16.2%	19.1%
LT	23%	24.2%	31.7%
LU	11%	8.9%	10.4%
LV	40%	40%	46.4%
MT	10%	10.2%	16.6%
NL	14%	14.5%	16.8%



Comparing the Binding Targets with Member State Forecasts in the NREAPs & Forecasts by the RES Industry

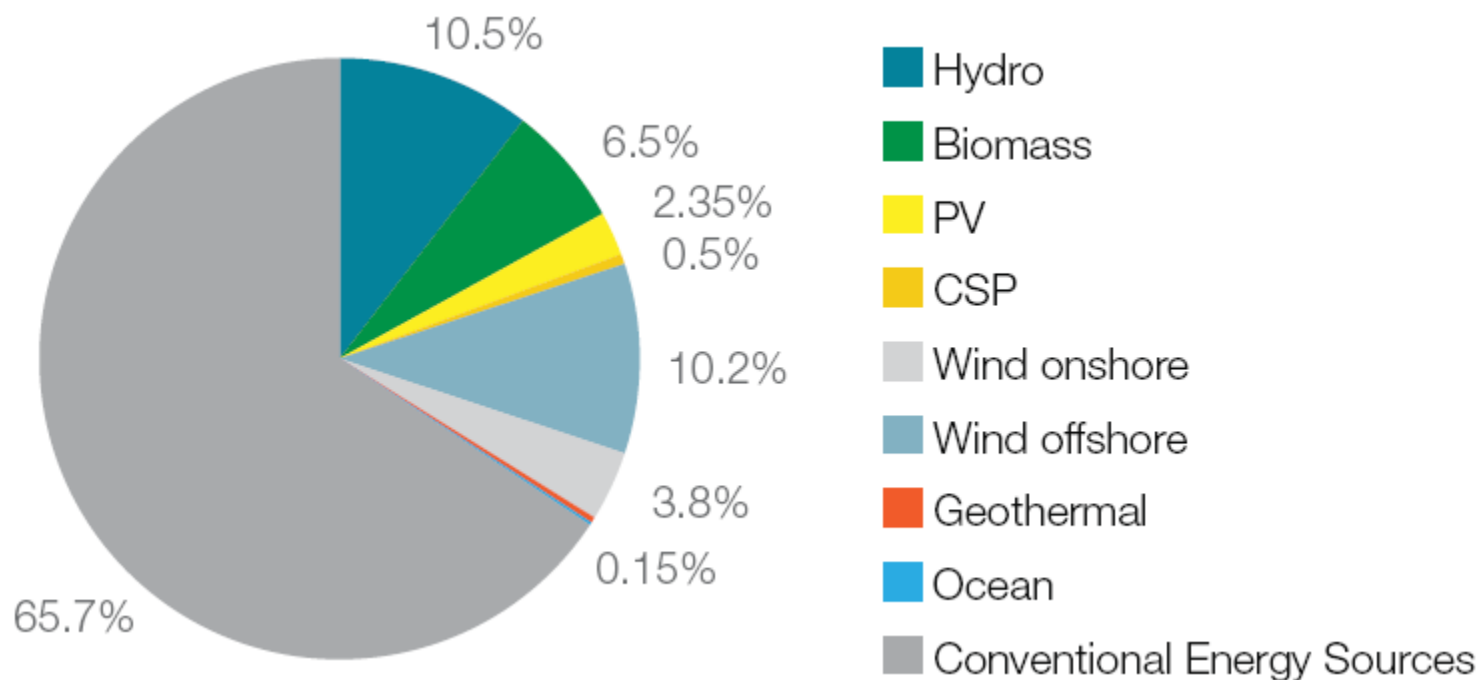
	National Binding Target established by the 2009/28/EC Directive	Renewable Energy Share in Final Energy Consumption forecast in the NREAPs	Renewable Energy Share in Final Energy Consumption forecast by the RES Industry (based on demand assumptions from the NREAPs)
PL	15%	15.5%	18.4%
PT	31%	31%	35.3%
RO	24%	24%	24%
SL	25%	25.25%	34.1%
SK	14%	15.3%	26%
SE	49%	50.2%	57.1%
UK	15%	15%	17%
Tot EU	20%	20.7%	24.4%

Source : EREC

Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

Renewable Energy Sources in the Electricity Mix in 2020

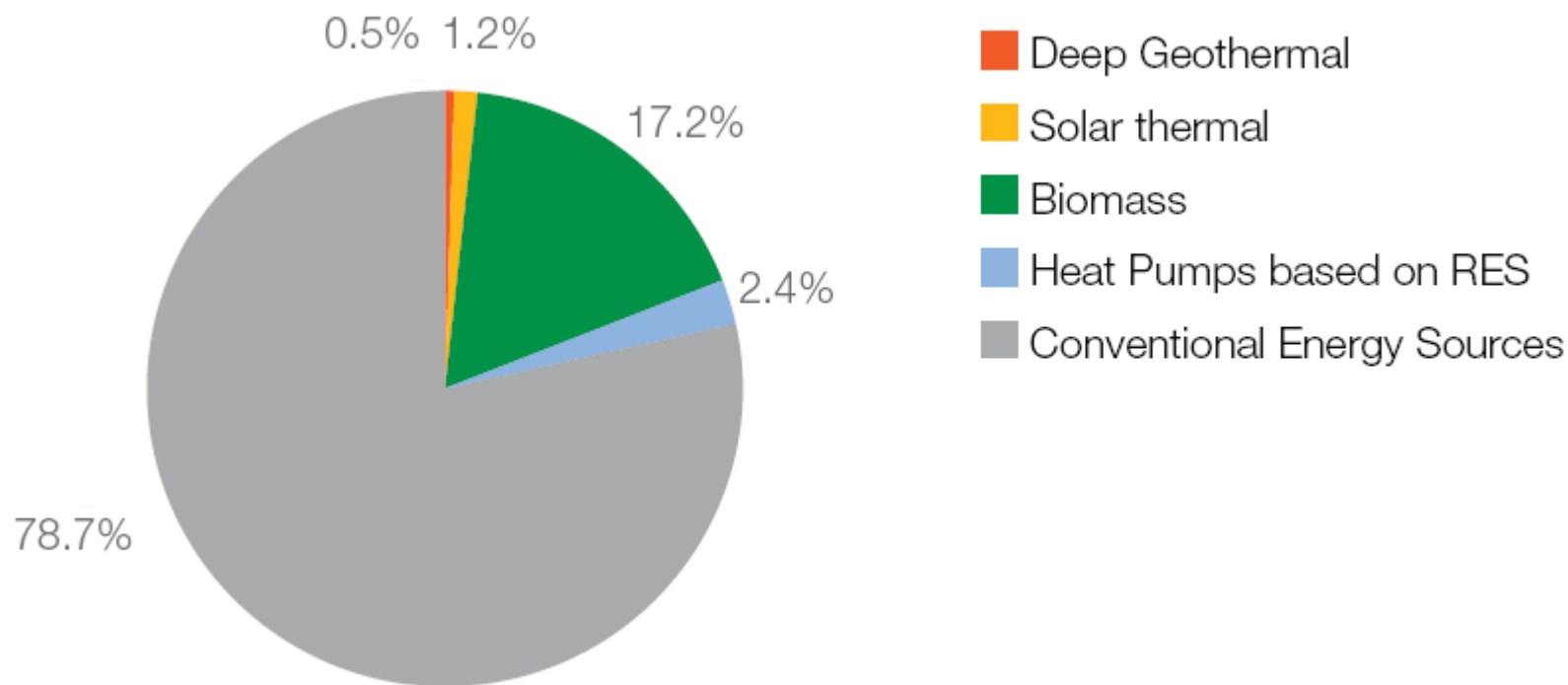


Source: EREC based on the NREAPs

Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

Renewable Energy Sources in the Heating and Cooling Mix in 2020

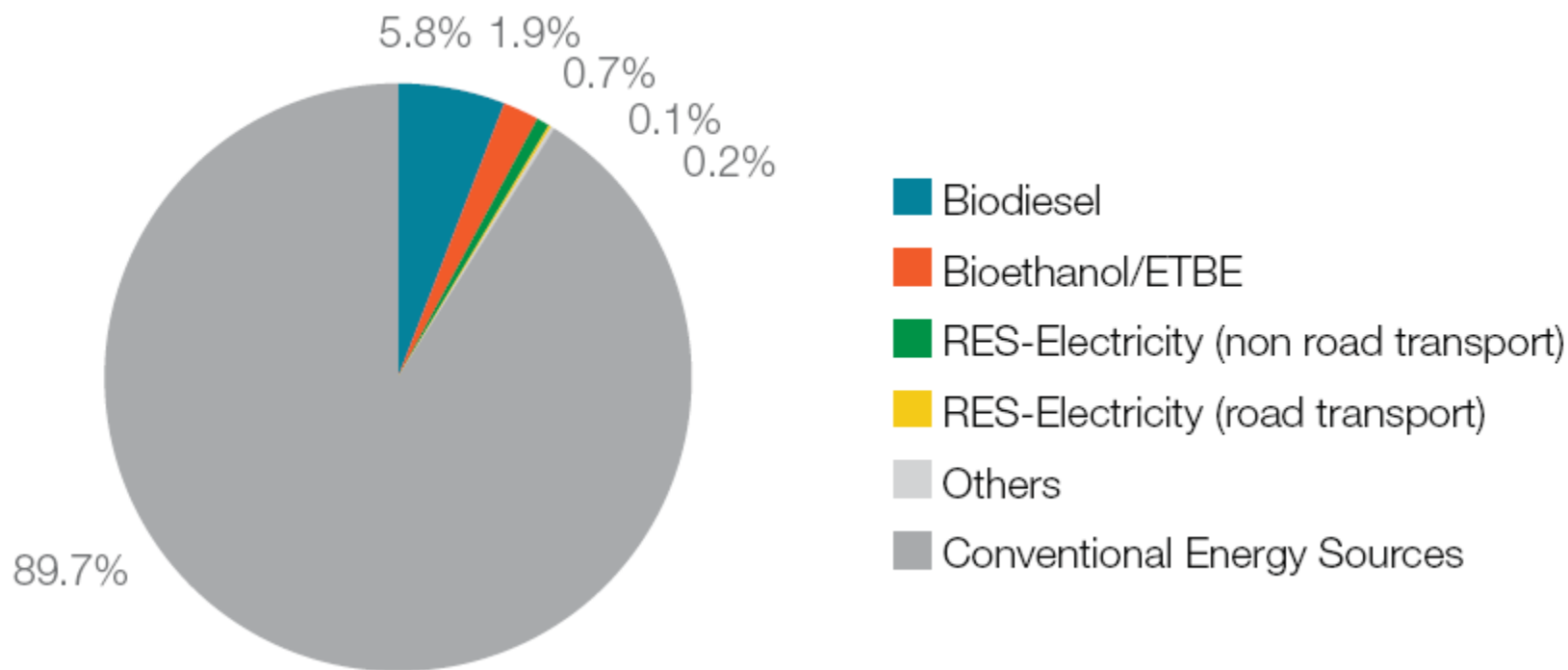


Source: EREC based on the NREAPs

Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

Renewable Energy Sources in the Transport Mix in 2020



Source: EREC based on the NREAPs



Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

Biomass is planned to represent 17.2% of the planned EU heating and cooling mix and 6.5% of electricity consumption in 2020. According to the NREAPs, the main bioenergy markets in 2020 will be Germany, Sweden, Spain, Italy, UK, Finland and France, Poland and the Netherlands. However, projected growth rates in Austria, the Czech Republic, Germany, Denmark, and Sweden are disappointing when compared to the growth in previous years. This is due to the fact that the targets for these countries are not ambitious enough. Furthermore, the existing controversy regarding the use of biomass for food or energy production did not encourage policy-makers to propose ambitious targets.



Renewable Energy Policy Action Plan

Paving the Way towards 2020 - REPAP 2020

✓ Biomass for Heat

According to the NREAPs, biomass heat production will reach 88.8 Mtoe in the EU in 2020 (compared to 63.8 Mtoe in 2008) instead of 124 Mtoe as the AEBIOM had projected. The heat sector is underestimated in almost all the NREAPs, despite its high degree of efficiency.

✓ Biomass for Electricity

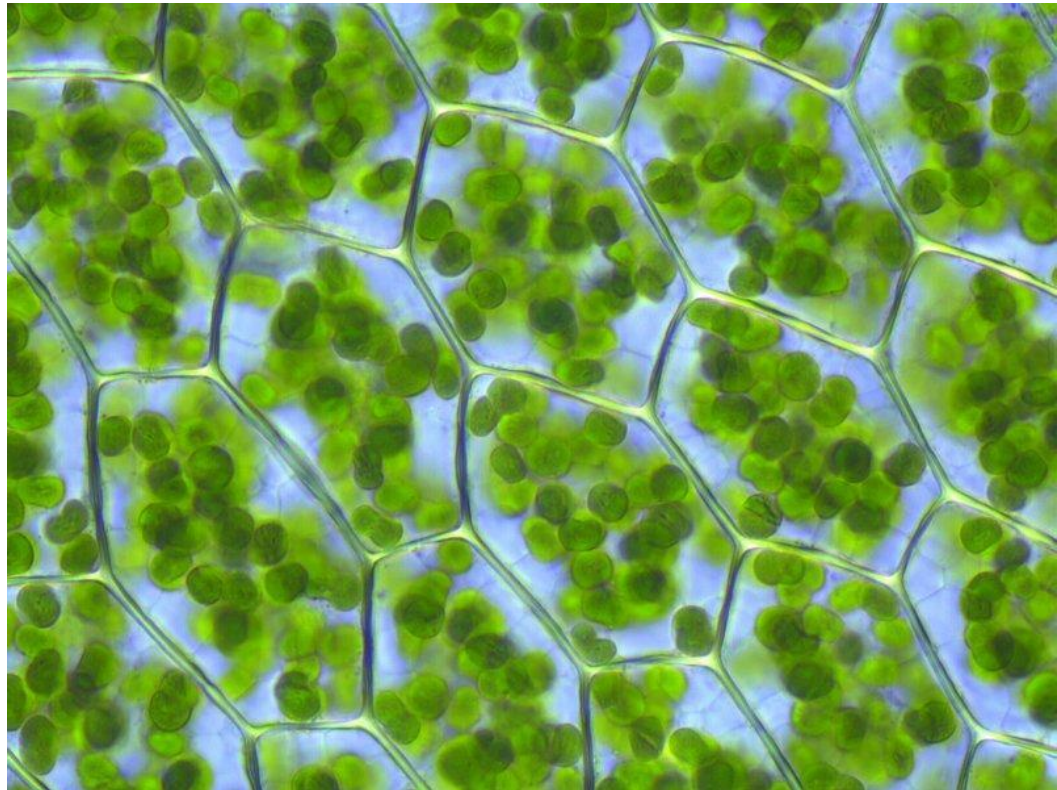
Most NREAPs focus on electricity using biomass rather than the use of biomass for heating and cooling and for transport. The new main bioelectricity markets will be Germany, the UK, Italy, Poland and the Netherlands. According to the NREAPs, the EU power production using biomass will increase from 9.2 Mtoe in 2008 to 19 Mtoe in 2020.

✓ Biomass for Transport

The new biofuels markets will be the UK, Germany, Spain and Italy. According to the NREAPs, energy from ethanol, biodiesel and biogas will reach around 29 Mtoe by 2020, up from 11 Mtoe in 2008. In certain NREAPs (e.g. Poland, Bulgaria, Spain and the Czech Republic), Member States do not foresee enough biomass supply to meet their biomass targets. And furthermore do not specify the quantity of biomass to be imported.

BIO-BASED PRODUCTS

Policy Frameworks
and
Market perspectives





Policy Framework For Bio-based Products and Biochemicals

- **Bio-based products** – chemicals and materials (pre-norm CEN/BT/WG 209: “biobased product = product wholly or partly bio-based (=”derived from biomass”))
- Include all kind of bio-based chemicals, bio-based plastics and additives – biodegradable plastics and insulation material, and also the traditional products of the timber industry.
- Bio-based products are used in construction & insulation, packaging, automotive and consumer goods. From a technical point of view almost all industrial materials made from fossil resources could be substituted by their bio-based counterparts.

There are numerous initiatives in EU to support the development of a biobased economy and the production of bio-based products

However the policy framework still doesn't support the industrial use of biomass as much as it does for the energy use. There is still a lack of clear and stable framework

However many R&D projects in the field of biorefineries are going on and delivering promising results



Policy Framework For Bio-based Products and Biochemicals

Mandatory requirements set at EU level

- ***Energy Star Regulation (2008)***: it requires EU institutions and member states' governmental authorities, when purchasing office equipment, to use energy efficiency criteria no less demanding than those defined in the Energy Star programme
 - ***Directive on the promotion of clean & energy efficient road transport vehicles (2009)***: it aims at a broad market introduction of environmentally-friendly vehicles. Requires that energy and environmental impacts linked to the operation of vehicles over their whole lifetime are taken into account in all purchases of road transport vehicles, as covered by the public procurement Directives and the public service Regulation.
 - ***Energy Performance of Buildings Directive***: the main legislative instrument at EU level to achieve energy performance in buildings. Under this Directive, the Member States must apply minimum requirements as regards the energy performance of new and existing buildings, ensure the certification of their energy performance and require the regular inspection of boilers and air conditioning systems in buildings.
- New Energy Efficiency Directive?*
New Public Procurement Directives?



Policy Framework For Bio-based Products and Biochemicals

EU Green Public Procurement Policy, a young dynamic policy field

First national approaches in the early 1990s

2008 Commission Communication ***Public Procurement for a Better Environment***

Voluntary target: 50% of tendering procedures to be “green” by 2010

EU GPP criteria development for priority products/services groups (18 today)

Guidance: GPP Training Toolkit

The situation today

- An uneven uptake of GPP between and within Member States
- Different product groups and sets of criteria
- Different legal requirements
- Different ambition levels
- Different attitudes
- Different levels of knowledge



European Lead market Initiative for Bio-based Products

- The Lead Market Initiative is the European policy for important sectors that are supported by actions to lower barriers to bring new products or services onto the market.
- Six markets have been identified: eHealth, protective textiles, sustainable construction, recycling, **bio-based products** and renewable energies.
- The European Commission, Member States and industry work together to carry out the action plans for the 6 Lead Markets.
- The policy instruments deal with **regulation, public procurement, standardisation and supporting activities**

**ACTION PLAN OF THE LEAD MARKET INITIATIVE IN THE AREA
OF BIO-BASED PR**

Action Plan of the Lead Market Initiative in the Area of Bio-based Products

Published in 2007, describes the implementation of the Lead Market Initiative in the field of *Bio-based products: innovative use of renewable raw materials*.

Main statements:

- Bio-based products are made from renewable, biological raw materials such as plants and trees.
- The market segment includes non-food new bio-based products and materials such as bio-plastics, bio-lubricants, surfactants, enzymes and pharmaceuticals.
- It excludes traditional paper and wood products, but also bio-mass as an energy source.

However, there are important interlinks between some bio-based products and bio-energy which influence the degree and timing of introduction of bio-products.

- Important interdependencies and complex value chains across a wide range of products characterise this market segment making it difficult to estimate its financial volume, although significant.

Strong industrial integration among bioenergy and bio-based products



Action Plan of The Lead Market Initiative in the Area of Bio-based Products

Main statements (continued):

- Europe is currently well placed in the markets for innovative bio-based products, building on established knowledge and a leading technological and industrial position.
- Perceived uncertainty about product properties and weak market transparency however hinder the fast take-up of products.
- **Communication, standardisation, labelling and certification** could be used to overcome this.
- **Environmental regulations** have a clear role to play by providing **incentives** for the emergence of the bio-based product market.
- Encouraging the Member States and private investors to set up **demonstration plants could be a possible way** to increase the knowledge available on the market for bio-based products.

Lots of efforts at EU level in demonstration activities

Action Plan of the Lead Market Initiative in the area of Bio-based Products

Policy Instruments	Objectives	Actions	Timetable	Actors
Legislation	Ensure the coherent, comprehensive and coordinated development of policies and regulations that impact the development of bio-based product markets	Establish a high-level advisory group, including Member States and industry, to assist the thematic inter-service task force on bio-based products in the follow-up of the present action plan and including in the analysis of the impact of legislative proposals in relevant policy domains on the development of markets for bio-based products..	2008	EC Stakeholders
Public procurement	Encourage Green Public Procurement for bio-based products.	Establish a network between public purchasers of biobased products to apply the Commission guide on public procurement for innovation, to identify good practices in the field of biobased products and promote their application across the EU. The network would inter alia: – Provide an overview of standards or technical features of bio-based products – Collate a best practice catalogue and put it on the Web, – Initiate training programmes	2008-2010	EC Member States Industry
		Member States to consider developing milestones and roadmaps for increasing the use of bio-based products within National Action	2008-2009	Member States



Action Plan of the Lead Market Initiative in the area of Bio-based Products

Policy Instruments	Objectives	Actions	Timetable	Actors
		Plans on Green Public Procurement.		
Standardisation, Labelling, Certification	Aggregate demand for bio-based products through a coordinated approach for standard setting and labelling.	Establish standards/labels for specific bio-based products involving all relevant actors by:		EC
		– analysing potential for bio-based products standards/labels,	2008	CEN
		– launching a mandate to CEN, in co-operation with Commission services	2008	Industry
		– developing standards/labels, including cost-effective assessment criteria and procedures, building upon the current work of the European Platform on Life-Cycle-Assessment	2008-2011	Other stakeholders
Complementary Actions	Communication of policies regarding bio-based products as well as the benefits of bio-based products.	Conduct an information campaign via different media with focus on SMEs.	2008-2012	EC
	Support access to finance for R&D&I.	Promote the establishment of strategically important bio-refinery pilot plants and demonstrators involving all actors and investments at EU, national and regional level.	2008-2010	EC Member States Stakeholders

Market Aspects of Bio-based Products in EU

In 2005 bio-based products accounted for 7% of global sales and \$ 77 billion in value within the chemical sector, with the EU industry accounting for approximately 30% of this value.

	2005	2010	2020
Volume of the new bio-based product markets	\$77 billion (global) \$23b (EU)	\$125billion (global)	\$250 billion (global)*
Jobs dependent on new products**	120.000	190.000	380.000

* conservative estimate assuming that best case scenario predicted by McKinsey for 2010, i.e. that 20% of chemical industry output is bio-based, is achieved latest in 2020.



Market Aspects of Bio-based Products in EU

- The total EU for soap, detergents and similar products amounts to about € 30 billion. 30-50% of the products include enzymes which are bio-based. Enzymes make it possible to reduce water and energy consumption in washing. There is a potential of increasing the use of enzymes in food, pulp and paper and textiles production.
- At EU level, 50,000 tons of bio-plastics were produced in 2005 which represent a limited market share (0.1%).
- Although bio-plastics are at present "niche markets" a dynamic market growth is forecast. Market shares in the order of 1-2% by 2010 and 2-4% by 2020 are projected.
- As regards specifically packaging plastics, it is estimated that in 2010 there is a potential market share of 5% of the total use of packaging plastics.
- Large supermarket corporations are currently giving increasing attention to the use of bio-based packaging materials.

Market Aspects of Bio-based Products in EU

- The current market share of bio-solvents in the EU is about 1.5 %. However, bio-solvents produced from vegetable oils and from starch progressively replace petrochemical solvents.
- One of the principal factors for their increased consumption is the Community legislation concerning the reduction of volatile organic compound (VOCs) emissions in the context of the air quality policy. Some estimations point at a potential share of approximately 12-40% of the solvents market.
- Packaging, health and care sector disposables, detergents, hygiene products, cosmetics and paints represent areas in which bio-based products could potentially reach a substantial market share. These are sectors which are strongly influenced by health and environmental concerns.
- The sales in the EU in these areas were roughly about € 250 billion in 2005 and in particular the health and care sector is expected to grow due to the ageing of the population.

Market Aspects of Bio-based Products in EU

Factors driving the future demand for bio-based products

- Limited availability and increased cost of fossil resources vs. renewable bio-based resources;
- Policy development, in particular climate change mitigation, sustainable production and consumption, Lisbon agenda, industrial policy and employment growth;
- A changing consumer demand based on the awareness of the need to ensure sustainable production and consumption.

Factors limiting the demand for bio-based products

- *Higher costs for and more complex value and production chains of bio-based products*
- *Lack of LCA data and product quality standards for bio-based products*

Market Aspects of Bio-based Products in EU

Bio-refineries

- There is still a need for financing integrated bio-refineries and setting up demonstrators for bio-refineries producing different outputs from a variety of biomass input.
- In the medium to long term, up-scaling of production processes is seen as the only way to realize cost-reductions. In advancing the bio-refinery concept, it is important not only to focus on bio-fuel production but also on other larger volume bioproducts.
- These could also be realized in conjunction with food, feed, paper, etc; production, i.e. by processing by-products or wastes.
- However, since there are still technological risks and as yet under developed markets, co-financing of such demonstrators within public-private partnerships is seen as the preferred option, also in trans-national and trans-regional partnerships and in particular in those areas where a large supply of biomass would fall together with the need for economic development of this region.

Market Aspects of Bio-based Products in EU



www.biosynergy.eu

The BIOSYNERGY project aimed to use BIOmass for SYNthesis processes (transportation fuels, platform chemicals) and enERGY production (power, CHP) by application of innovative, fully integrated, synergetic biorefinery concepts, using advanced fractionation and conversion processes, and combining biochemical and thermochemical pathways.



www.eurobioref.org

European Multilevel Integrated Biorefinery Design for Sustainable Biomass Processing

The results of these projects can be considered as benchmarks

Thank you for the **attention!**



Giuliano
Grassi

European
Biomass
Industry
Association
(EUBIA)



Annex I

Biomass Action Plan

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Biomass for heating

Even if heating is the sector which uses the most biomass, biomass is growing slowest in this sector.

Measures to improve this situation:

- adopting new specific legislation on renewable energy in heating;
- amending the directive on the energy performance of buildings;
- carrying out a study of how to improve the performance of household biomass boilers and reduce pollution.

However, it appears that renewable fuels are more suited for use in district heating than individual heating. Their use should therefore be promoted by making them more competitive, cost-effective and convenient to use.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Electricity from biomass

The Commission points out that there are many ways of generating electricity from renewable energy sources. Attention should focus on the Directive on electricity from renewable energy sources in this area.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Using biofuels in transport

As with electricity production, the transport sector is also governed by Community legislation in the form of the Directive on biofuels for transport.

The Commission presented a report in 2006 on the implementation of the Directive including the following issues:

- national targets for the market share of biofuels;
- the obligation to use biofuels;
- implementing a system to certify conformity with biofuels standards.

The Commission is set to put forward a legislative proposal for the vehicle market aimed at encouraging public procurement of clean vehicles. The strategy on the car industry, published in 2006, provides for various measures concerning:

- the use of biofuels;
- establishing tax incentives;
- providing consumer information;
- reducing congestion.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Using biofuels in transport

In terms of balancing domestic production and imports of biofuels, the Commission's approach is to:

- propose the amendment of standard EN14214 to facilitate the use of a wider range of vegetable oils for biodiesel, to the extent feasible without significant ill-effects on fuel performance;
- address the issue of amending the biofuels directive so that only biofuels whose cultivation complies with minimum sustainability standards count towards its targets;
- maintain market access conditions for imported bioethanol that are no less favourable than those provided by the trade agreements currently in force;
- pursue a balanced approach in ongoing free trade agreement negotiations with ethanol-producing countries/regions;
- support developing countries that wish to produce biofuels and develop their domestic markets;

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Using biofuels in transport

In terms of standards, the Commission has re-examined two areas of the fuel quality directive;

- impact on health and the environment;
- impact on the achievement of the objectives in the biofuels directive and the cost of achieving them.

The Commission also plans to remove unjustified or discriminatory technical barriers to using biofuels.

Lastly, as Europe is better at producing bioethanol than biodiesel, the Commission will encourage the use of ethanol (in place of methanol) to reduce demand for diesel.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Stimulating biomass supply

In terms of agriculture, the reform of the Common Agricultural Policy (CAP) introduced a special “aid for energy crops”. In 2006 the Commission will evaluate the implementation of this and, if necessary, will put forward proposals reflecting the Union’s objectives in terms of biofuels. In addition to this the Commission will fund an information campaign on the priorities for energy crops and the prospects for exploiting them.

Statistics for forestry show that around 35% of the annual growth in EU forests remains unused. To address this, the Commission is currently preparing an action plan, which should be adopted in 2006. The plan will, in particular, examine the matter of generating electricity from wood. The Commission will also review the impact of the energy use of wood and wood residues on forest-based industries.

Waste is also an underused energy resource. For this reason the Commission is currently developing a thematic strategy on preventing and recycling waste, and is preparing a proposal on the revision of the waste framework legislation.

EU biomass-related policies

- **2005 - Biomass action plan 2005:** Stimulating biomass supply
 - Animal by-products not destined for human consumption are increasingly being recovered for energy. Consequently, the Commission plans to review the regulatory framework governing such production processes, so that new sources of energy may be opened up while maintaining current levels of protection for public and animal health.
 - The Commission is also paying particular attention to the adoption of European standards for solid biomass fuels in order to facilitate trade, develop markets and increase consumer confidence. The European Committee for Standardisation is working to define these standards.
 - Regarding supply, a European trading floor for pellets and chips has been initiated with support from the EU Intelligent Energy for Europe programme (2003-2006). The Commission will also look at how the results can be improved, with a view to possibly establishing a Community-wide trading system.
 - Lastly, action plans making it easier to evaluate biomass at various levels (physical and economic availability, priorities for use, measures to be taken, etc.) are encouraged by the Commission both at national and regional level.

EU biomass-related policies

- **2005 - Biomass action plan 2005:** Financing biomass
 - Supporting the development of renewable and alternative energy sources is a key objective for the structural and cohesion funds. The EU and the Member States must therefore promote the development of renewable energy sources through regional policy.
 - The Commission also points out that support for biomass production and use must comply with Community state aid policy.

EU biomass-related policies

➤ **2005 - Biomass action plan 2005:** Biomass and research

- The Commission's proposal for the Seventh Frameworks Programme gives a high priority to biomass research.
- The Commission plans in particular to look at how best to take forward research into the optimisation of agricultural and woody crops for energy purposes, and into conversion processes.
- Lastly, through the Intelligent energy for Europe Programme (2007-2013), the Commission will support the dissemination of techniques that reflect European objectives for renewable energy.