



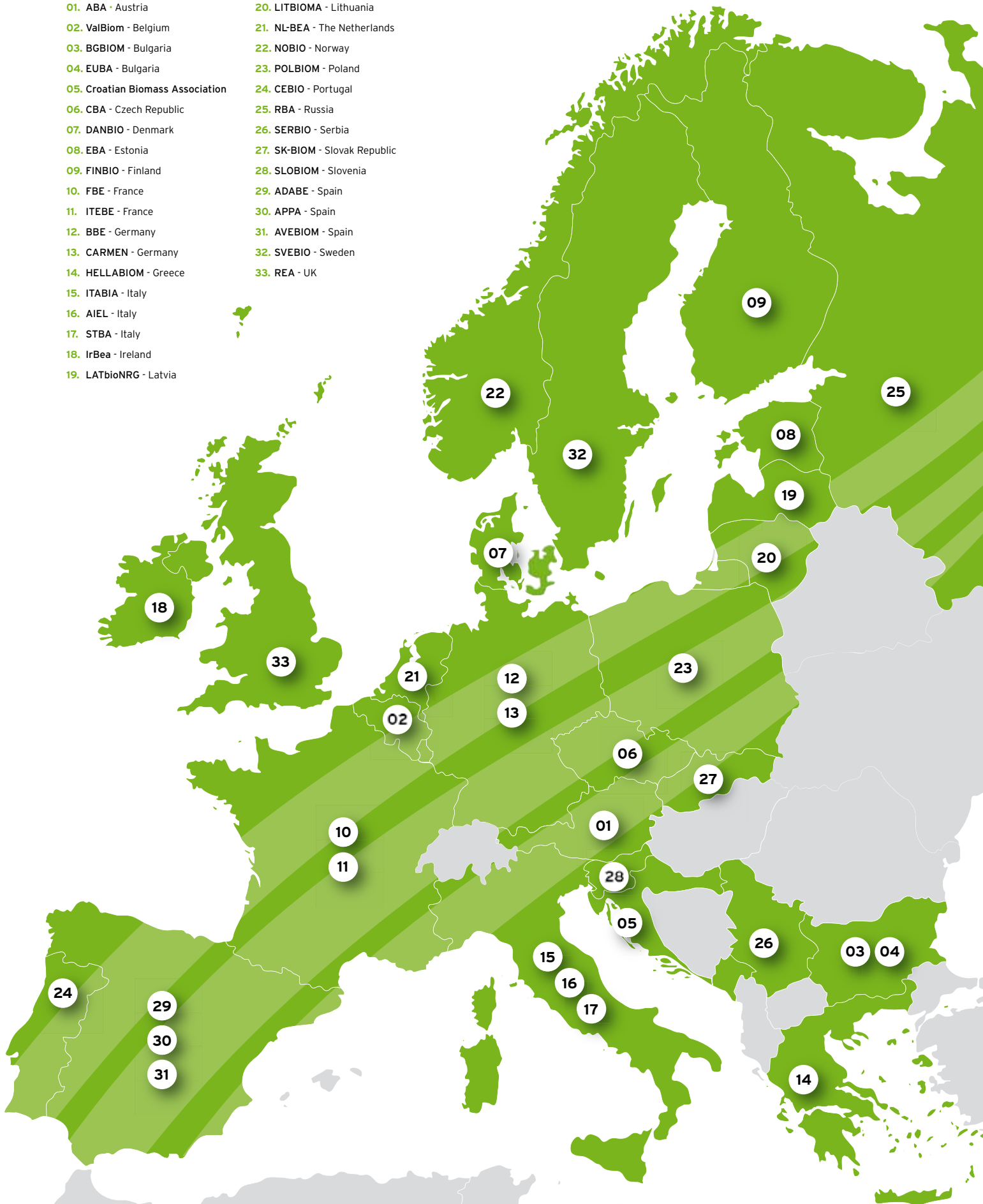
# A Pellet Road Map for Europe

November 2008



EUROPEAN BIOMASS ASSOCIATION

- 01. ABA - Austria
- 02. ValBiom - Belgium
- 03. BGBIOM - Bulgaria
- 04. EUBA - Bulgaria
- 05. Croatian Biomass Association
- 06. CBA - Czech Republic
- 07. DANBIO - Denmark
- 08. EBA - Estonia
- 09. FINBIO - Finland
- 10. FBE - France
- 11. ITEBE - France
- 12. BBE - Germany
- 13. CARMEN - Germany
- 14. HELLABIOM - Greece
- 15. ITABIA - Italy
- 16. AIEL - Italy
- 17. STBA - Italy
- 18. IrBea - Ireland
- 19. LATbioNRG - Latvia
- 20. LITBIOMA - Lithuania
- 21. NL-BEA - The Netherlands
- 22. NOBIO - Norway
- 23. POLBIOM - Poland
- 24. CE BIO - Portugal
- 25. RBA - Russia
- 26. SERBIO - Serbia
- 27. SK-BIOM - Slovak Republic
- 28. SLOBIOM - Slovenia
- 29. ADABE - Spain
- 30. APPA - Spain
- 31. AVEBIOM - Spain
- 32. SVEBIO - Sweden
- 33. REA - UK



# AEBIOM

## European Biomass Association



The European Biomass Association is a non profit Brussels based international organisation founded in 1990 whose mission is to represent bioenergy at EU level. AEBIOM brings together 33 national associations and about 65 bioenergy companies (as associate members) from all over Europe. AEBIOM with its 33 national associations indirectly represents more than 4000 members including companies, research centres and individuals.

AEBIOM activities are managed via General Assembly, Steering Committee and a Board. They range in scope from project management, EU affairs, events organisation to information dissemination and communication using tools such as bi-monthly newsletter, yearly journal "Biomass News" among others.

The main goal of AEBIOM is to promote the production of biomass as well as its' application throughout Europe. AEBIOM is spreading a message that a wider use of biomass will bring tangible benefits in the fields of energy, agriculture, forestry, environment and employment.



## Become AEBIOM member

Companies are welcome to join AEBIOM, and get the following services:

- First hand information on EU legislation.
- Invitation to several workshops per year.
- Opportunities for new business contacts.
- Reinforce our lobbying activities in favour of your business sector.

[www.aebiom.org](http://www.aebiom.org)



# Content

|  |    |
|--|----|
| <b>Summary</b> .....   | 5  |
| • Aim of this Road Map   |    |
| • Pellets - a successful technology  |    |
| • The economics of using pellets   |    |
| • Energy security and social cohesion  |    |
| • Potential for pellets  |    |
| • Policy recommendations   |    |
| <b>Pellets - a new energy carrier for Europe</b> .....                         | 6  |
| <b>The economics of pellets use</b> .....                                      | 7  |
| <b>Pellets - a versatile fuel</b> .....  | 8  |
| <b>Environmental advantages</b> .....  | 9  |
| <b>Status of pellet markets in Europe</b> .....                                | 10 |
| <b>Scenario for future development</b> .....                                   | 11 |
| <b>Conditions for sustained market growth of European pellet markets</b> ..... | 12 |
| • Awareness .....  | 12 |
| • Incentives .....   | 13 |
| • Legislative support .....  | 13 |
| • Quality of products and services .....                                       | 13 |
| • Monitoring programmes & competitions .....                                   | 14 |
| • Reliable and stable supply and distribution systems .....                    | 14 |
| • Consumer confidence .....  | 14 |
| • Competition with the fossil fuel industry .....                              | 14 |
| <b>Policy recommendations</b> .....  | 15 |
| • Recommendations for policies at EU level .....                               | 15 |
| • Recommendations for policies at national and regional levels .....           | 17 |



# Summary

## AIM OF THIS ROAD MAP

Pellets – a modern form of densified biomass offer huge opportunities for the increased use of renewable energy in Europe. Today pellets are fully competitive with fossil fuels, particularly oil. European companies have undisputed technology leadership both for domestic pellet heating appliances, for commercial and industrial boilers and for large plants turning pellets into electricity and heat. Europe is also a global leader in pelletizing machinery, pellet logistics know how and in terms of production volume. However market development is still limited to a fairly small number of member states. The purpose of this Road Map is to create awareness of the fascinating potential of this new way of biomass use. Its intention is also to show member states how to successfully develop national pellet markets.

## PELLETS - A SUCCESSFUL TECHNOLOGY

Pellets are a solid fuel produced from biomass, at present mainly from wood residues. They are produced by a simple and fairly cheap process of milling, drying and compacting which requires small amounts of energy.

The key advantage of pellets compared to unprocessed biomass are high density and high energy content, standardized properties and consequently reduced cost for transport storage and handling. The huge opportunity of pellets lies in the fact that technologies for pellet production and pellet use are fully developed and ready for the market. Moreover they are highly competitive and have a wide range of benefits compared to the use of fossil fuels. What is still missing is a general awareness of the potential and the opportunities associated with pellet use.

## THE ECONOMICS OF PELLETS USE

Europe is using about 90 million tons oil equivalent of oil for heating purposes every year for households and services. By August 2008 wood pellets cost about 60% less than heating oil. While fuel costs are significantly lower, the investment costs for pellet heating systems are substantially higher and represent a considerable barrier for market uptake. Therefore public financial incentives are important for the development of a successful pellet industry.

## ENERGY SECURITY AND SOCIAL COHESION

Pellets used for residential or commercial heating replace predominantly heating oil and natural gas and thus contribute directly towards improving energy security in Europe.

In member states with a high share of electric heating pellet stoves provide a great possibility in replacing electric heating. Again the benefit in terms of energy security and cost reduction is significant.

High fuel prices are creating a threat of energy poverty for millions of European citizens. These people will not be able to properly heat their homes in winter due to the high price of heating oil. Pellet stoves offer a solution for many of these households, to cover their basic need for heat in an efficient, environmentally sound, and convenient way at affordable cost. At present €10-12 a week are needed in order to keep a living area comfortably warm with a pellet stove.

## POTENTIAL FOR PELLETS

AEBIOM estimates that by 2020 up to 80 million tons of pellets could be used in the EU – this corresponds to 33 million tons oil equivalent. As pellets can be produced from various sources of biomass it is very difficult to estimate the overall biomass potential in the EU for pellet production. However, in view of the great cost advantages of pellet use, particularly for heat production, it is likely that 15-20% of EU biomass resources will take the pellet route until 2020.

## POLICY RECOMMENDATIONS

- Create **stable and reliable incentives** for investment in pellet boilers and stoves.
- Implement **communication programs** that create awareness for the benefits of using pellets both in professional communities and among consumers.
- Ensure a **high quality level of products and services** for using pellets as a heating fuel. An efficient/high quality technology can be introduced by linking quality requirements to subsidies, via labelling schemes, competitions, training programs and monitoring projects.
- Apply **regulatory policies** that remove existing barriers for pellet use and that create obligations for minimum levels of renewable energy use in buildings.
- Pay attention to the **opportunities for alleviating energy poverty** by making pellet stoves available to low income households.

# Pellets - a new energy carrier for Europe

Wood pellets are a convenient and clean fuel produced from saw dust and wood shavings compressed under high pressure. In recent years in some places also log wood from thinning is used to produce pellets.

Pellets are cylindrical in shape and usually 6 - 10 mm in diameter. The average length is about 10 - 30 mm. Due to their high energy content and the convenient delivery and storage feature, pellets are an ideal fuel for replacing heating oil or gas. They are, beside biomass district heating, a key technology for increasing biomass utilisation in Europe and thus replacing fossil fuel, natural gas or electricity in the heating sector.

| Key characteristics of pellets |  |
|--------------------------------|--|
| Heating value                  | 4,8 kWh/kg pellets<br>or 0,41 toe/t pellets<br>or 2 t pellets = 1000 l heating oil |
| Water content                  | below 10 %   |
| Ash content                    | below 0,5 %  |
| Density                        | 0,65 t/m <sup>3</sup>  |

The production of pellets from solid biomass is a technology which transforms biomass to an energy carrier efficiently. Biomass is milled, dried, and densified. The result is a homogenous solid fuel with a much higher energy density. State of the art technology of pellet production can achieve overall conversion losses both for drying, milling and densification that are lower than 10%. Excess heat from the production is recycled and used for drying the raw material for new pellets.

There are some additional reasons why pellets should be supported in order to improve our energy system and decrease environmental burdens of fossil fuels.

- Significant reduction of CO<sub>2</sub> compared to fossil fuels.
- Pellets can play a significant role in reducing the dependence of Europe on oil imports.
- Pellet production can create jobs in rural areas.

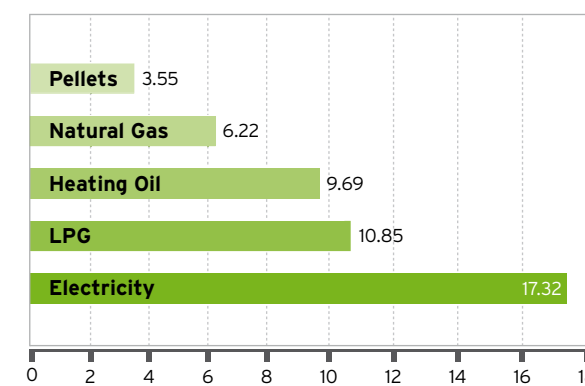


Pellets, a clean homogeneous energy carrier with very high energy content.

# The economics of pellets

One of the most economic ways to use pellets is to burn them as fuel for domestic heating. Energy costs from pellets are currently 60% lower than the energy costs of fuel oil (for 2008).

Fuel costs for residential heating (cent/kWh)

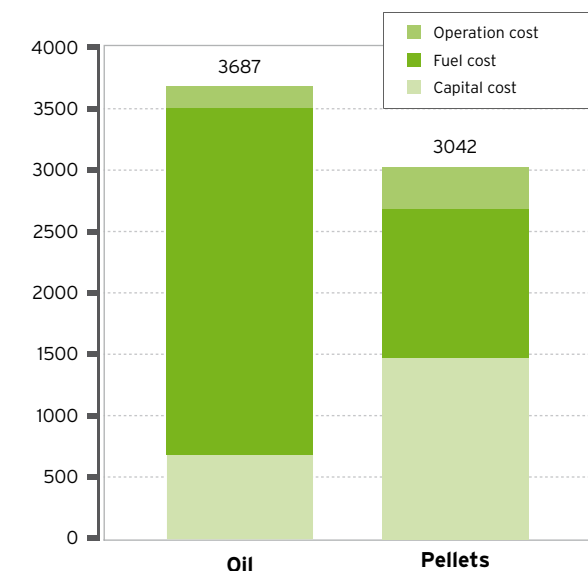


Source: E-Control, IWO, Primagaz, proPellets Austria; August 6<sup>th</sup>, 2008

A full cost analysis shows the still existing barrier for the introduction of wood pellet heating. Investment costs for a state of the art pellet boiler system including all side costs amount to €14,000 - 17,000. These high capital costs result in an economic situation that does not represent a strong incentive to replace existing oil heating systems that are still working well. The high investment does not only limit the economic benefit but is also a serious constrains for the liquidity of households. For this reason investment subsidies are vital to achieve a fast market introduction. A similar situation exists with respect to pellet stoves. While pellet stoves are much smaller in investment compared to pellet boiler systems they could be acquired by families with lower incomes, those that would not buy such stoves without investment support.

It should be mentioned at this point that a 30% investment grant of €4000 for a domestic pellet boiler system would result in a subsidy of about €6 per MWh of energy produced over the lifetime of the boiler. It also means a (public) cost of reducing the CO<sub>2</sub> emissions lower than €20 /t CO<sub>2</sub> equivalent. In addition the heating fuel cost for the household would be reduced by about €1000 per year.

Total heating cost with pellets is much lower compared to oil, even if capital cost is higher\*



\* case of a single family house 15 kW boiler

Thus directing public money to support a change of the heating system from oil to pellets is cheaper than buying CO<sub>2</sub> certificates with many additional advantages such as:

- Improved security of supply.
- Less expenses for households.
- Incentives for the regional economy including job creation.

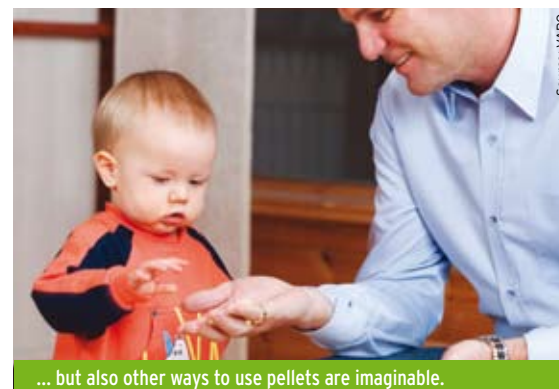
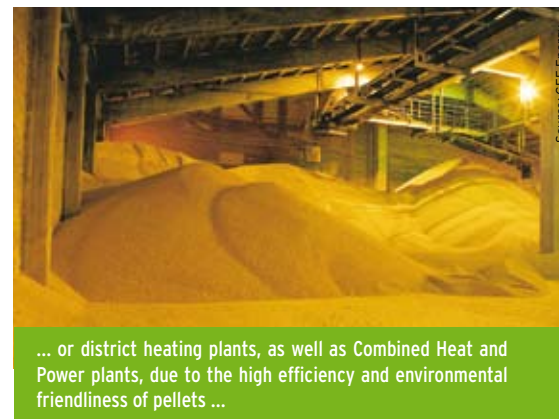


# Pellets - a versatile fuel

Pellets have been used in domestic heating applications since they were invented after the first oil crisis. Later they were also used in district heating networks. Recently the use of pellets for electricity production has also increased significantly.

Today we can distinguish between 3 types of users:

- **Small scale residential pellets users with a demand of less than 10 tons pellets per year.** They use pellets for the heating of individual houses on the basis of pellet stoves, like for example in Italy, or in pellets boilers for warm water heating systems. The delivery is organised using bags (for pellet stoves) or automatic blow in systems, where trucks blow the quantity needed for one year in a pellet storage room or container.
- **Medium scale users with a demand between 10 and 1000 tons per year.** Typical users in this size are companies, hotels, the service sector, bigger residential units. This market share is growing rapidly due to the escalating prices of heating oil.
- **Large scale users with a demand above 1000 tons/year.** Power plants, industries, big district heating companies; they might use several hundred thousands tons of pellets per year in a single plant.



# Environmental advantages

Pellets are an excellent fuel for residential and commercial heating. Europe is using about 90 Mtoe of oil and more than 170 Mtoe of natural gas for heating purposes every year for households and services (Eurostat). Heating with pellets is much cheaper than heating with fuel oil. The rapid conversion of existing fuel oil heating systems by pellet heating systems can play a significant role in reducing the dependence of Europe on oil and gas imports.

Pellet stoves for residential heating are also well suited to replace electric heating. Given the vast amounts of electricity used in Europe for heating there is a particular advantage of introducing pellet use to reduce electricity demand in winter. Pellet stoves also offer fairly low investment costs (approx. €2000) while producing quite significant amounts of renewable heat.

Pellets are also used for the production of green electricity. The advantage of pellets is that they are very easy to use in existing coal fired power plants. The utilisation of pellets in power plants could support balancing supply and demand fluctuations in the heat sector, making pellets a future large worldwide energy commodity.

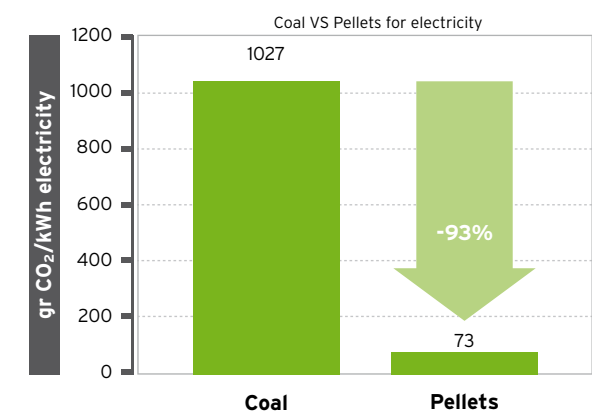
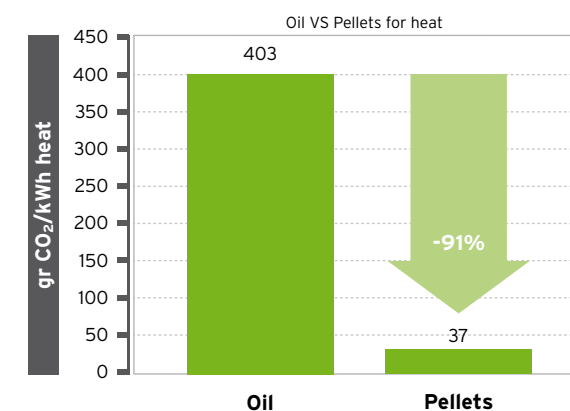
A particular advantage of pellet utilisation is the low environmental impact which is obvious both in the production process, during transport (zero environmental damage in case of spillage) and also in use. Modern pellet combustion equipment produces extremely low amounts of air pollution. Pellets contain much lower amounts of sulphur than oil or coal. They do contain certain amounts of nitrogen which leads to slightly higher NOx emissions. It must be kept in mind however, that the NOx is recycled in the same way as carbon: plants take up nitrogen from the soil as a nutrient; it is stored in the biomass and released during combustion to be returned to the soil by the rain again.

Due to perfect combustion control the small amount of dust that is emitted is composed of inorganic salts, most of which are water soluble and pose a significantly lower risk to health than other types of fine dust.

Pellets are also a very effective way to reduce CO<sub>2</sub> emissions. The combustion in modern pellet boilers can reach more than 90% of efficiency which allows the replacement of a high amount of heating oil and natural gas. High greenhouse gas savings also apply when using pellets in dedicated CHP plants where they replace coal. The CO<sub>2</sub> emitted during the combustion of biomass originates from CO<sub>2</sub> taken up by the forest (closed carbon cycle) which means that it doesn't increase the overall CO<sub>2</sub> emissions in the atmosphere.

Pellets offer opportunities for very large CO<sub>2</sub> savings both within the heat and electricity sectors.

Source: Jungmeier, 2008



# Status of pellet markets in Europe

Pellet utilisation in Europe is currently focussed on a small number of member states including Sweden, Denmark, the Netherlands, Belgium, Germany, Austria and Italy. Only in these countries pellets have been able to achieve a significant market penetration so far. In a number of other member states markets are still in an early stage of development with very low market penetration but signs of dynamic growth. Experiences in existing markets show that pellet utilisation can grow extremely fast, if the proper frame conditions exist. In Italy for example the market of pellet stoves grew within 10 years from virtually zero to over 250,000 stoves sold per year. In Austria the market share of pellet heating systems grew within 10 years to over 12% of all new sold boilers for residential heating.

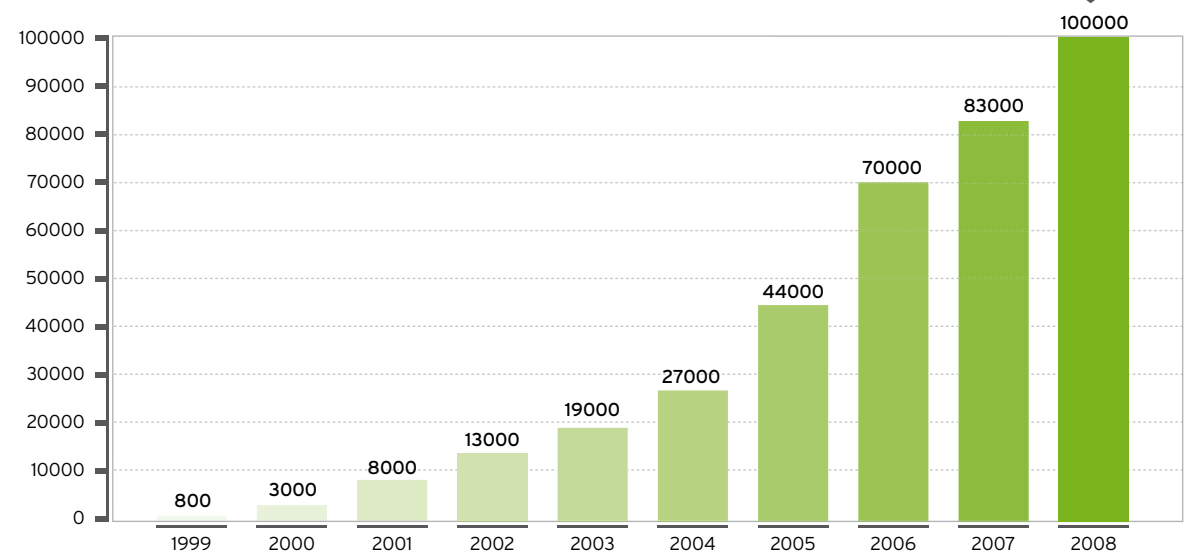
Three different types of pellet markets have developed in Europe. Pellet markets that are dominated by the utilisation in power plants – this is the case for Belgium and the Netherlands. The U.K. could become another large power plant market for pellets.

A second group of markets combines large scale and small and medium scale use - this is the case in Sweden and Denmark. In the third type of market pellets are predominately used for heating in residential or commercial buildings. Within this last sector again stove markets can be distinguished from markets where pellets are used also in boilers or commercial applications. Typical stove markets are Italy or the U.S.A. In these markets pellets are only distributed in bags.

In Austria and Germany pellets are predominately used in residential and commercial boilers for heating. In these countries bulk delivery is the rule.

The fact that only few countries are currently using pellets extensively is due to dedicated policies supporting market development. It is a common experience that new energy technologies cannot penetrate existing markets without significant political support. Existing barriers are usually too high and competition from fossil fuel industries too strong to allow strictly market driven diffusion.

A nice case study: Total installed domestic pellet boilers in Germany



Source: Bentele, DEPV 2008



# Scenario for future development

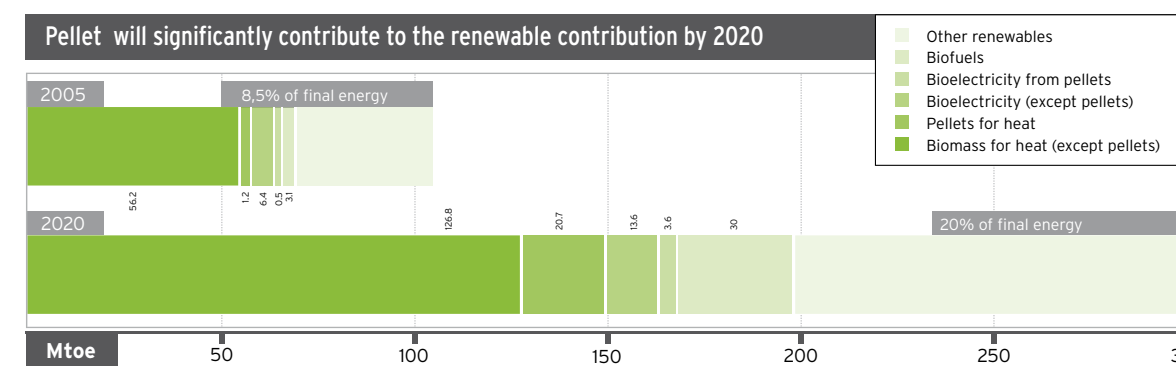
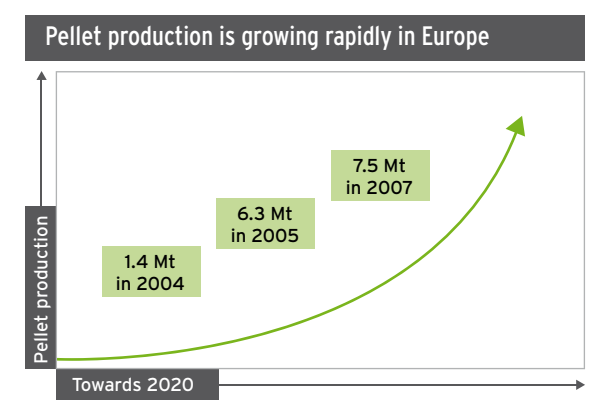
Up to now the raw material for pellets production was mainly sawdust and wood shavings of big saw mills and wood processing companies. In some countries with an already well developed pellets industry, like in Scandinavia, this source is in many cases already in continual use. This makes it necessary to open other feedstock resources for pellets production. The potential for that is very large. It ranges from wood residues, wood from forest thinnings and short rotation coppice to the use of agricultural residues, which also can be used to produce pellets. This wide range of feedstocks allows that up to 2020 a target for pellets production of 60 to 80 million tons seems achievable. At the moment (2008) more than 440 pellet plants in Europe produce about 7.5 million tons of pellets per year and secure a reliable supply. The number of plants is increasing continually due to the dynamic market development.

The European Directive on Renewables sets the target of a 20% share of renewable energy by 2020. In 2005 bioenergy contributed to 66% of all renewables and it will still contribute very significantly in 2020. Biomass for heat and derived heat from biomass (heat from district heating and cogeneration plants) is by far the main renewable energy source in Europe with 57.5 Mtoe in 2005.

To reach the 2020 target AEBIOM estimates that 147.5 Mtoe biomass should be used in the heat sector (including derived heat). Pellets are still playing a minor role but taking into account the experience of a few leading countries and provided a biomass heat policy is implemented, pellets use is growing much faster than traditional technologies.

Therefore it can be estimated that the use of pellets for heating purposes in the residential, services and industrial sectors might reach 50 Mt in 2020, corresponding to 22 Mtoe. Demand will also increase for power production and the future development in this sector depends on political decisions. It might reach additional 20 to 30 Mt pellets or more if current policies stay in place, what corresponds to 10 Mtoe biomass and about 1/3 bioelectricity if converted in a coal fired power plant.

It should be noted that targets are nowadays calculated as percentages of the final energy consumption, what favours very much heat and cogeneration compared to sole electricity production.





# Conditions for sustained market growth of European pellet markets

## AWARENESS

The recent exorbitant increase of fossil fuel costs has led to a situation, in which the use of pellets is highly competitive. Due to the fact that this development is very recent, only few people have yet realised, how advantageous a switch to pellets would be. The result is an oversupply of pellets and still hesitant market development in many countries in 2008.

The lack of awareness regarding the role of energy supply for heat production is present at all levels:

- **The political level**

The EU has in the past only issued legislation regarding biofuels and the electricity market.

- **The level of potential customers**

A small young industry does not have the capacity to address and inform potential customers about the advantages of their product in a similar way as large utilities or oil companies can.

- **The level of related professionals**

The lack of awareness also applies to the relevant professional communities such as architects, planners, installers, construction industries, etc. These communities involve millions of persons EU wide that need to be addressed and informed.

A solution for the above mentioned problems would be publicly funded comprehensive communication programmes, highly viable demonstration projects, studies that highlight the economic impacts and the market potential, etc.

A first communication programme would need to be launched at the European level addressing policy makers of member states. They need to be informed about the significant potentials of this sector and about supportive policies that have proven to be successful in the countries with advanced market development.

It would be necessary to investigate at the national level, which market segments are most promising in the particular national context in terms of climatic situation and the existing structures of heat supply. Based on these investigations focussed approaches can be applied to address the most promising market segments and the related professional communities that offer services to these segments.

If significant market penetration is to be achieved, professional public relations and advertising campaigns are needed to speed up the diffusion of information on the benefits of pellet heating among the respective target groups.



## INCENTIVES

High investment costs for pellet heating systems are the most important barrier for market introduction. All countries that have seen a dynamic market development have either stimulated market development by high taxes on fossil fuels or by financial incentives for pellet heating systems (or both). Successful incentives must fulfil a number of criteria:

- **Predictability:**

Sudden changes, such as discontinued subsidies have a profoundly disturbing effect on markets. From this point of view tax credit can be very effective, as all potential customers benefit in the same way and the administrative hurdle is minimised.

- **Quality criteria:**

Successful financial support schemes have linked the availability of the support to quality criteria, both for the installed appliances and also for the services of installation.

- **Monitoring programs:**

Monitoring programs are necessary to evaluate the quality of the established installations and support learning processes, particularly for the involved professional communities.

- **Communication programs:**

If communication programs are linked to subsidy programs the effect on market development can be enhanced significantly. Very often the communication aspect is neglected and only few typical innovators are benefiting from the subsidy schemes.

## LEGISLATIVE SUPPORT

An interesting new approach regarding supporting regulations has been realised in the U.K., in Spain and in Germany. This approach is based on legal requirements for buildings to meet a certain share of their energy demand with renewable energies. It remains to be seen how successful such regulations are and if they are also able to enhance the use of renewable energy in existing buildings.

In Germany a binding requirement to replace heating systems that are above a certain age or that cannot comply with certain efficiency or emission regulations has been introduced to mobilize the market. Of course regulatory support can also involve the removal of barriers in terms of building regulations etc.

## QUALITY OF PRODUCTS AND SERVICES

The careful management of the quality of products and services is a fundamental precondition for the sustained success of a new energy technology. Particularly in a situation where markets are growing fast due to political incentives, there is a significant danger, that poor products and services cause heavy damage to the reputation and image of a new technology. Many examples in the past show that these problems can lead to a sudden collapse of markets, and very slow recovery processes. "Profit hunters" trying to make quick money can cause these problems. As a consequence it is inevitable that policies are in place that ensure only high quality products enter the market.

### LABELLING OF PELLET APPLIANCES

Key elements of a successful quality management are the establishment of certification and labelling schemes for pellet boilers and stoves. Labelling schemes are important to allow potential customers to distinguish good from bad products.

### THE IMPORTANCE OF PELLET STANDARDIZATION

Today there are several national pellet standards in use among pellet producers throughout Europe. Pellets produced according to a standard need to comply with certain quality criteria such as ash, sulphur and moisture content of the fuel. Different market segments require different quality levels.





Pellets truck delivering pellets to a private household.

Source: VAPU

The highest quality is needed for small scale pellets stoves, the lowest for pellets used for co-firing in big coal power plants.

The new European standardization work on solid biofuels has a great potential to streamline terminology, quality and other aspects that are vital for a functioning European pellet market. A new European standard for pellets (CEN 335) is under way which will fulfil the needs of the market.

### MONITORING PROGRAMMES & COMPETITIONS

Extensive monitoring programmes should be established in an early phase of market deployment that evaluate realized projects, check customer satisfaction, measure the annual efficiency of heating systems in the field and identify potential quality problems. Monitoring projects should be organised in a way that lead to direct feed back to the involved industry and service sectors. Competition has often been a successful way of creating attention for quality issues.

### RELIABLE AND STABLE SUPPLY AND DISTRIBUTION SYSTEMS

The establishment of effective supply and distribution systems requires significant upfront investments. It is important to give clear signals to supply side industries that give them the confidence that these investments are worthwhile and supportive public policies will not be discontinued shortly. International trade will be an important element

to secure a reliable and substantial supply of raw materials. Large biomass resources exist in countries with availability of land and beneficial climate conditions. The establishment of constructive models of cooperation with such countries will be an important element of securing long term supply with pellets.

Recent experiences have shown that short term changes of demand due to climate variations or sudden rapid market growth can cause significant challenges for supply structures and lead to sudden price increases with detrimental implications for further market growth. Storage facilities could play an important role for stabilizing and enhancing the security of supply.

### CONSUMER CONFIDENCE

At present in Europe several hundred thousand private house owners are using pellets – in the future this might be millions of houses. Large consumers such as district heating or power plants normally have the flexibility to switch between pellets and fossil fuels, while small scale users don't have this possibility. To gain the confidence of small scale users they have to get a priority in the delivery of pellets in case of a pellet shortage and they expect rather predictable prices as compared to fossil fuels. In any case, the supply security of small pellet users at a reasonable and competitive price is a very important issue in developing the market.

### COMPETITION WITH THE FOSSIL FUEL INDUSTRY

Experiences in countries, where pellets have already reached significant market shares show, that fossil fuel industries can launch rather destructive campaigns to damage the image of the new competitor. Given the vast financial resources of existing energy industry, the potential impacts are obvious. A way out of this problem could be to create incentives for these industries to enter the market themselves – e.g. by establishing possibilities to receive carbon credits also for small scale systems. Political agreements with the energy industry could be another way of preventing aggressive negative campaigning.

# Policy recommendations

## RECOMMENDATIONS FOR POLICIES AT EU LEVEL

### RES DIRECTIVE

The RES directive currently under discussion in the Council is a key step forward for renewable heat in Europe. For the first time renewable heat is considered within the European targets as well as in the national targets. National renewable actions plans have to be developed and it is certain that member states will realise the importance to address the huge heat market covering roughly 50% of the final energy consumption. Introducing minimum shares of renewable in new houses and certification of heat installers are other key features in this directive.

The directive is still under discussion (October 2008) and the following amendments would improve the market conditions for pellets:

- **Interim targets should be mandatory to ensure full commitment of the member states from the beginning.**
- **Guidelines for national actions plans should be as precise as possible to ensure that the heat market is not neglected.**
- **When planning heat installations in industrial and residential areas (article 12 paragraph 3), the use of renewable energy for heat should be mandatory.**

### QUALITY OF NATIONAL ACTION PLANS

In order to enhance the quality of national action plans with respect to developing the heat sector and the use of pellets as fuel in particular the Commission could initiate a road show addressing national policy makers and supply them with examples of good and successful policies.

A very important instrument is also the briefing of policy makers about the direct impacts of policy measures and the costs/benefits of different policy measures. It is of great interest to offer this kind of information in an understandable way.

## LABELLING SCHEMES FOR HEATING DEVICES

The labelling of household devices has been a great success in terms of transforming markets towards more efficient appliances. It should be implemented in a similar way for biomass heating devices. It is fundamental, that the labelling scheme is specific for the different types of heating devices such as pellet stoves, pellet boilers, etc. Both efficiency and emission levels of appliances should be considered in labelling schemes.



© istockphoto.com





Source: VAPD

### EU CERTIFIED PROFESSIONAL EDUCATION SCHEMES

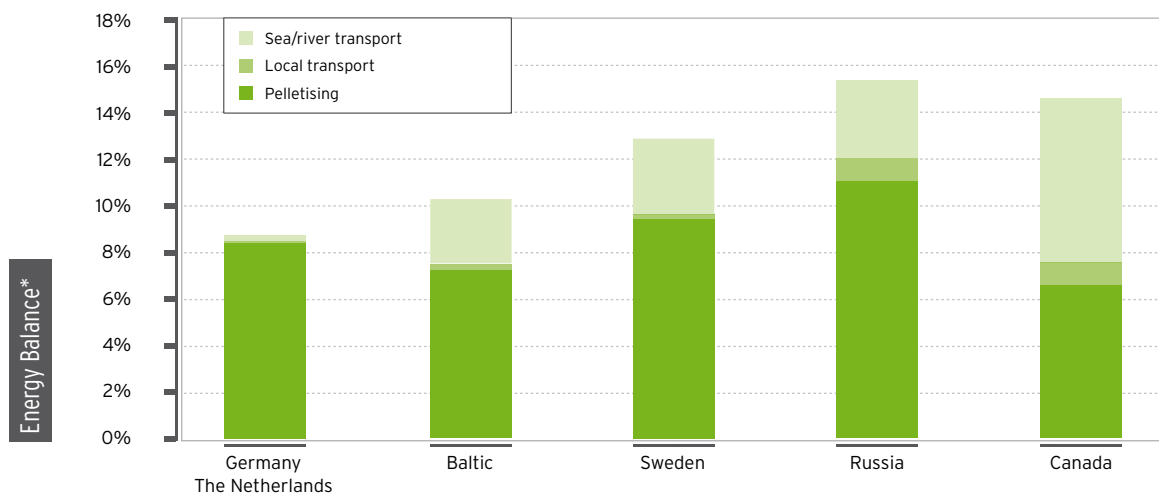
Similar to the European Computing Drivers License ECDL that has become a widely accepted standard it should be considered to establish a “EU biomass heating drivers licence” for installers, that makes sure that all key issues for the efficient installation and operation of biomass heating systems are known.

### COOPERATION PROGRAMS WITH COUNTRIES WITH HIGH BIOMASS POTENTIAL

In the medium term European biomass resources may need to be complemented with biomass resources from countries with high production potential in terms of climate and available land. In view of already visible trends towards resource nationalism access to such sources can only be secured by long term policies of cooperation that establish mutual benefits.

Important will be the assurance that imported biomass is produced in a sustainable way. Therefore there is a need of certification schemes which are easy to use, effective and affordable in order to guarantee an environmentally sound production chain of pellets, whatever its origin (imported or locally produced).

Certification, including energy and CO<sub>2</sub> balances, is implemented in Belgium



\* Energy balance calculated as equivalent electricity and fossil fuels used for production and transport compared with net electricity produced from pellets. Source: Ryckmans, 2008



Source: GEE Energy

### RECOMMENDATIONS FOR POLICIES AT NATIONAL AND REGIONAL LEVELS

#### VISIBLE DEMONSTRATION PROJECTS

For countries that have seen no or very little market development the starting point for market development can be well communicated demonstration projects. Public buildings have particular advantages in terms of communication and creating trust and credibility for the technology.

#### PROCUREMENT POLICIES FAVOURING PELLET HEATING

Creating a market is the most important task at the beginning. Enterprises must have projects to start with. Procurement policies can be very supportive in this respect.

#### ASSESSMENT OF SUITABLE MARKET NICHE FOR PELLET USE

Before targeted national policies can start it must be clear, where particularly attractive opportunities for pellet use exist. Due to the profound differences in climatic conditions and heating habits these market niches can vary from member state to member state. Once they are identified policies can focus their support measures on these promising segments.

#### FINANCIAL INCENTIVES

Financial incentives are indispensable for market start up. Financial incentives should reduce the high upfront investment costs significantly, they should be predictable (predictably declining is fine), they should be linked to quality criteria and include both monitoring and communication programmes.

#### LINK EXISTING SUBSIDY SCHEMES TO RES USE

In some member states subsidy schemes may exist, that just need slight modifications in order to promote the use of pellets. Schemes supporting the construction of social housing e.g. could require renewable heating systems as precondition for the subsidy.

Experiences have been gained in the last years by power producers on certification of pellets. It includes traceability of the pellets along the production and transport chain. Several sustainability criteria have been taken into account like forest management, local environmental impacts of the pellets production plants, and even energy and CO<sub>2</sub> balances (for which the Belgian system is particularly advanced).



AEBIOM organised a workshop on pellets in June 2008 to discuss the content of this Pellet Roadmap.

#### QUALITY CRITERIA FOR PRODUCTS AND SERVICES

High quality products and services are a fundamental precondition for sustained market growth. The most effective way of enforcing adequate quality levels is, to link quality requirements with financial incentives. This has been demonstrated in many successful cases of supporting policies.

#### SUPPLY SECURITY AND TRAINING PROGRAMS

A dialogue with the pellet industry should be conducted on how security of supply can be guaranteed all the way from producer to end user. Adequate training of professional installers also needs to be implemented and has been implemented in most countries with successful market development.

#### MONITORING PROGRAMS FOR NEW INSTALLATIONS

Close monitoring of realised projects in the use of pellets is of fundamental importance to identify quality issues and stimulate learning processes among the involved professionals right from the start. The later monitoring takes place, the greater is the damage to the market caused by poor performing projects.

#### COMMUNICATION CAMPAIGNS

Once the appliance market and pellet supply is reasonably well established, communication programs are needed to create a general interest in the new technology. Such communication programs should be publicly financed as the involved companies are often too small to fund them. Also public communication is more credible than company advertisements.

#### REGULATORY POLICIES

Regulations requiring a minimum amount of renewable heat for new buildings are mentioned in the draft European directive on renewable and are considered as an effective way to promote the transformation of the heat market. Particular attention needs to be given also to the issue of existing heating systems that are outdated and should be replaced. Regulations that speed up the phasing out of old heating systems could be one approach to address this issue.

#### PROGRAMS ADDRESSING LOW INCOME HOUSEHOLDS

Energy poverty is rapidly becoming an issue with rising fuel prices. Support for low income households to buy pellet stoves is an excellent solution which achieves both environmental goals and social goals at a very reasonable price. Special programs for converting social housing blocks to pellet heating are another opportunity.

#### COMMIT FOSSIL FUEL INDUSTRY TO FAIR PLAY

National policy makers should consider addressing established energy businesses and committing them to fair play concerning renewable energies. Examples of "successful" dirty campaigning exist, that had very negative impacts on market development.

## Acknowledgement

AEBIOM would like to thank **Christian Rakos**, proPellets Austria, for his special contribution to the content of this Roadmap.

## How to contact AEBIOM

#### PRESIDENT

Kopetz Heinz

Franz Josef Kai 13  
A- 1010 Vienna  
Tel. +43 1 533 07 97 0  
Fax +43 1 533 07 97 90

Email. [kopetz@biomasseverband.at](mailto:kopetz@biomasseverband.at)

#### SECRETARY GENERAL

Jean-Marc Jossart

Croix du Sud 2 bte 11  
B- 1348 Louvain-la-Neuve  
Tel. +32 10 47 34 55  
Fax +32 10 47 34 55

Email. [jossart@aebiom.org](mailto:jossart@aebiom.org)

#### EUROPEAN AFFAIRS MANAGER

Edita Vagonyte

Renewable Energy House  
Rue d'Arlon 63-65  
B- 1040 Brussels  
Tel. +32 24 00 10 22  
Fax +32 25 46 19 34

Email. [vagonyte@aebiom.org](mailto:vagonyte@aebiom.org)

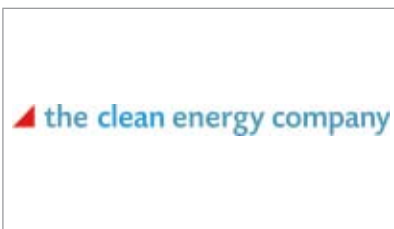
[www.aebiom.org](http://www.aebiom.org)





EUROPEAN BIOMASS ASSOCIATION

## Gold Sponsors



[www.thecleanenergycompagny.com](http://www.thecleanenergycompagny.com)



[www.vapo.fi](http://www.vapo.fi)



[www.gee-energy.com](http://www.gee-energy.com)

## Silver Sponsors



[www.expobioenergia.com](http://www.expobioenergia.com)



[www.bionovus.lt](http://www.bionovus.lt)



[www.latgran.com](http://www.latgran.com)