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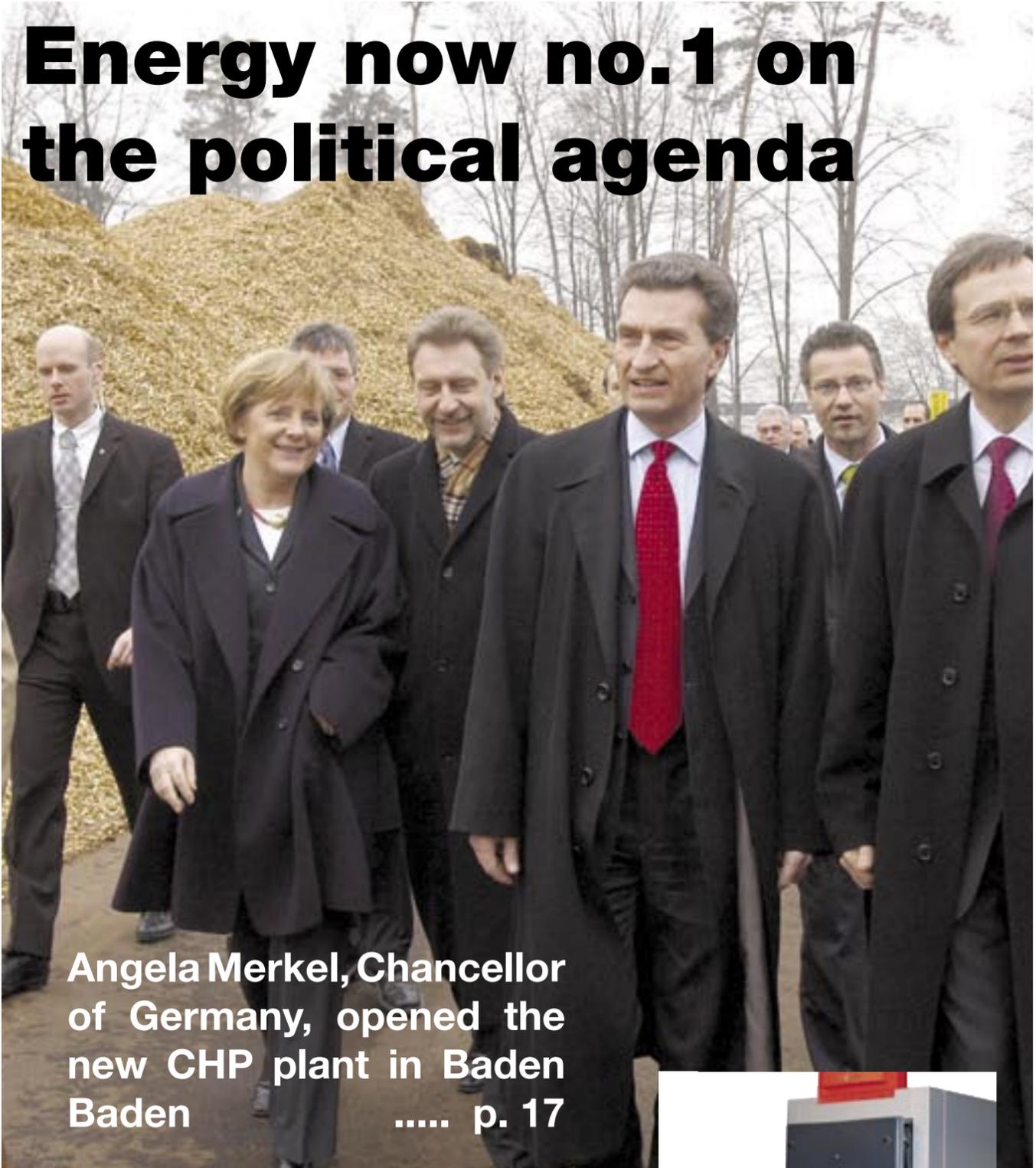
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Above You can see the Info - Navigator that is used in the internet version of the Bioenergy International.

Articles there are distributed in two ways. Either through the Editorial where all articles are produced or judged by an editor or through the Connection section, where professional can publish information concerning bioenergy. It is also possible to publish information in many major languages.

Welcome to participate in the Bioenergy International



## Energy now no.1 on the political agenda

**Angela Merkel, Chancellor of Germany, opened the new CHP plant in Baden Baden ..... p. 17**

### Bioenergy Technology Suppliers issue

For the first time we have presented a list of bioenergy technology suppliers. 90 companies are presented including web addresses and short description ..... p. 7

In the section Home heating + there is a presentation of 22 companies with products' range 40kW - 2 MW.... p.12



**W**elcome to another issue of the Bioenergy International, paper version. As You probably know, we do also have an internet based magazine which you will find at www.bioenergyinternational.com

Last year we increased the tempo in our production. The paper version is published 6 times a year and the plan is, already this year, to add one or two more issues. We do also establish cooperation in different countries with local editions. The first one is

already distributed in Poland and more are to follow. We invite interested professionals to become a reporter, an agent or a franchise taker.

We look forward to discuss this and other matters with our readers and advertisers. Please share with us Your ideas and views. Just contact me on my e-mail or phone.

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# Editorial

## World leader in biofuels



Vapo Pellets are produced at more than ten plants in Finland, Sweden and Estonia. Total production capacity will exceed 500,000 tonnes in 2005.

The product range consists of wood pellets, peat pellets, cat litter wood pellets and industrial wood and peat briquettes. The pellets are available in bulk, big bags, and small bags for retail.

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The network of pellet plants, extensive storage capacity and flexible logistics ensure that Vapo can provide reliable deliveries all over Europe.

Vapo seeks to work with its customers to build solid, long-term business relationships. It already has more than 60 years of experience as a producer and supplier of biofuels.



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### Vapo Pellets

- Plant of Vapo Group
- Partner's Plant



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# Pellets

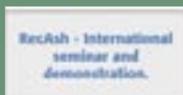
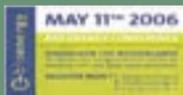
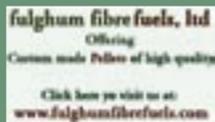
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The internet version of the Bioenergy International is updated almost every day.

Especially interesting is the CONNECTION. Here the material is delivered directly by the business people from all over the world.

**Global Bioenergy Business**

The box above is the direct link to bioenergy companies from all over the world. You will also find our direct advertisers.



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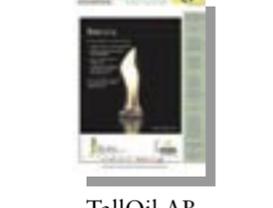


**SPROUT-MATADOR**

# Content



www.bioenergyinternational.com

- 1  Bioenergy International Magazine is already now in it's fourth year and this issue, the second of 2006, number 19 since start, is as always full of useful information. It is our ambition to make the magazine even more easy to read and more updated. The result is of course very depending of the cooperation with our readers, advertisers as well as the business representatives in total. We are therefore very happy to receive comments and suggestions for the coming numbers.
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# Pellets

## Ecofys enters Canadian market with sustainable energy & carbon solutions

At the Globe 2006 trade show and conference in Vancouver, Canada, 29th March 2006, Ecofys presented Golder Ecofys Solutions Ltd., a Canadian partnership with Golder Associates Ltd.

Canada is one of the 140 countries that ratified the Kyoto Protocol in order to reduce global greenhouse gas emissions. Canada is committed to reducing its national greenhouse gas emissions to six per cent below the levels in 1990.

Two important ways to achieve this target are the proposed Large Final Emitter (LFE) and Domestic Emission Offset Systems.

In the LFE System, Canada's large final emitters are required to meet emission intensity targets. This group, which includes around 700 organizations - mainly power stations, mining, manufacturing and oil and gas companies - produce about half of Canada's emissions. They will have the flexibility to meet their targets in various ways, such as projects for improving energy efficiency and reducing emissions. In addition, they will be able to participate in the Emission Offset System, a domestic trading system.

For more information please contact:  
Ellen Hendrix  
www.ecofys.com

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# Suppliers

## 90 suppliers of equipment to the bioenergy sector

For the first time the Bioenergy International presents a list of suppliers of equipment related to the bioenergy sector.

The list is the result of a questionnaire send out to companies working in the bioenergy sector.

Some companies have answered the questionnaire directly, thank you to those of you who did, however we did put some effort into getting more answers.

We are aware that the list is not complete and

our ambition is to extend the list for the web edition. Please do contact us as soon as possible if you think your company should be on the list.

### Categories

We have put the companies in categories stretching from fuel production in the forest or harvesting on the fields further

on to transportation, handling, preparation and storage. One big area is combustion and boiler equipment and also flue gas cleaning equipment.

### No small boilers

We have made one restriction, equipment for heating units smaller than 300 kW are not included on the list. Our

ambition is to present companies in the interval 20-300 kW in the home heating section of Bioenergy International.

Most of the suppliers on our list are based in the northern, central and south of Europe but some also in the USA.

Enjoy the list and do not hesitate to contact us with your comments.

*Anders Haaker*

### Comments from the industry

We have also been in contact with the business representatives asking them for some comments.

First in the line is Heidi Bjerre Olsen from Babcock Wilcox Völund

#### 1. The market - What is happening?

We have positive expectations about the biomass market.

The main drivers for our biomass solutions are the on-going developments and introduction of the EU CO<sub>2</sub> policy, among others, trading with green certificates.

#### 2. The company - How are you doing for the moment?

We are promoting gasification for biomass in selected markets.

Moreover we have established a license agreement with our partner JFE Engineering in Japan. JFE have already gained their first order for an advanced biomass gasification plant based on our updraft gasifier technology.

#### 3. Other factors of importance - Policy issues, EU, etc?

Co-firing is of high importance in some of our markets.

We have delivered a number of multi-fired plants of which the primary fuel is municipal waste and biomass.

*Heidi Bjerre Olsen  
Marketing coordinator Babcock Wilcox Völund ApS*

### Key to categories

**B** = Fuel production

**P** = Pellets-, briquette-production

**H** = Handling, storage etc.

**F** = Combustion, boilers etc.

**S** = Monitoring and control systems

**E** = Steam turbines, power production

**R** = Flue gas cleaning, condensing, chimneys

**A** = Other

**T** = Turnkey

Company	Category	Head office	Comment	Web address
Amandus Kahl	PAT	Germany	Equipment for pellets production	www.akahl.de
Allan Bruks	BHT	Sweden	Forest machines for energy harvesting, crushers	www.allanbruks.se
Alstom Power	RA	France	Power, CHP and heat plants, flue gas cleaning etc.	www.power.alstom.com
Babcock & Wilcox Vøl.	FT	Denmark	CHP- and heat plants, combustion, gasification, waste	www.volund.dk
Balcke-Dürr GmbH	RA	Germany	Power station components and service, heaters, air pollution contr.	www.balcke-duerr.de
Bandit Industries	H	USA	Mobile grinders and chippers	www.banditindustries.com
Biotec Sistemi	AT	Italy	Equipment for anaerobic digestion	www.biotecsistemi.it
BMH Wood Tech.	H	Finland	Handling, storage, feeding and fuels and ashes, >20 MW	www.bmh.fi
Bogma	H	Sweden	Briquette presses	www.bogma.com
Bruks Klöckner	BPHT	Sweden	Stationary and mobile chippers, handling equipment, dryer	www.bruks.com
Bühler	PST	Switzerland	Equipment for pellets production	www.buhlergroup.com
Calderys	FRT	Germany	Refractory material and solutions.	www.calderys-group.com
CBI	H	USA	Equipment for crushing and fuel handling	www.cbi.com
C.F Nielsen	P	Denmark	Briquette solutions	www.cfnilsen.com
Cormall	H	Denmark	Straw handling equipment	www.cormall.dk
CPM Europe B.V.	BPS	Holland	California Pellet Mill, Roskamp Champion, Beta Ravel, Century	www.cpmroskamp.com
CRSI SA	A	Switzerland	Drum and belt dryer	www.crsi.ch
Crowley Engineering	H	Ireland	Handling and storage	www.crowley.ie
D'alessandro	F	Italy	Boilers up to 950 kW	www.caldaiedalessandro.it
Danstoker	F	Denmark	Boilers from 0,5-35 MW	www.danstoker.dk
Dantrim	F	Denmark	Boilers up to 2 MW, silos	www.dantrim.dk
Doppstadt	H	Germany	Mobile shredding, chipping, screening, handling etc.	www.doppstadt.com
Eratic SA	FT	Spain	Design, engineering&manufacture. of boilers, heaters, dryers, combustion	www.eratic.es
Elektro Relä	SA	Sweden	Control and monitoring equipment for boiler houses	www.erab.com
Emerson Proc. Man.	S	USA	Instrument and process management systems	www.emersonprocess.com
Enviloop	A	Sweden	Software and service related to combustion and emissions	www.enviloop.se
Erjo OSW	BHA	Sweden	Mobile and stationary chippers	www.erjo-osw.se
Fisker Skanderborg	HA	Norway	Handling systems, machines for packing pellets in sacks.	www.fisker.as
Firefly	S A	Sweden	Security systems for preventing fire and dust explosions	www.firefly.se
Foster Wheeler	F	USA	Heat and power plants larger than 20 MWt, boiler service	www.fwc.com
Generaldies SRL	P	Italy	Equipment for pellets production	www.generaldies.com
Geoplast	H	Austria	Pellet storage systems	www.geoplast.at
Götaverken Miljö	RT	Sweden	Advanced flue gas cleaning Thermax, Adiox, MercOx	www.gmab.se

Continues on page 9

# Suppliers



Dirk-Michael Fleck

## More fractionating processes of crops and its co-products as well as biomass processing

Dirk-Michael Fleck, Market Segment Manager of Bühler, is observing an increasing dynamic to plants for renewable energy in Europe but also Northern America.

For these energy plants a high yield and a reliable production are the most important performance parameters. Only a 24 hours on seven day a week operation through the whole year, with a high automatization degree will ensure the investors profitability. Each downtime would cause long start-up procedures in the operation of the plant.

A further tendency in the bioethanol market is to increase the efficiency and reducing the energy consumption of the processes. For example: the corn in most of today's U.S. ethanol plants is ground by hammer mills. This means, all parts of the single corn are lead through the whole biochemical process of fermentation and distillation.

The Swiss based Bühlergroup with more than 6000 employee is one of the worldwide leading specialists for grain and oilseed processing in the renewable energy sector.

## Expansion and belief in the future



Mats Granstrand has worked at Järnforsen for 15 years, half the time as CEO. The company has grown in a slow but steady rate and has always been export oriented. Mats Granstrand describes the development and looks forward.

What has happened the last ten years is that we are becoming more and more an engineering company.

The production part is important to us, we still

manufacture the core components but we are increasingly sourcing out easier tasks and things we do not have time with. The most valuable asset in our company is our engineers.

### Manufacturing in Slovenia

Järnforsen has a company in Slovenia, Järnforsen International.

It began with just one person working towards our suppliers in Slovenia.

The company grew fast at the same time as the bioenergy market in ex Yugoslavia, Austria and Switzerland increased. Today six persons work in Slovenia.

-We do not own any

manufacturing ourselves, instead we have close partners manufacturing for us. But the trend after they joined EU is increasing salaries, and some components we can actually manufacture cheaper




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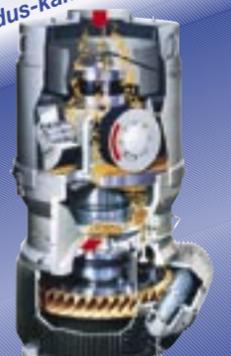


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# Suppliers

here in Järnforsen then in Slovenia.

About 20 complete units a year, in varying size is delivered to the central European market from Slovenia. For the Nordic market the deliveries comes from Sweden. New emerging markets are Great Britain, Japan and Chile.

#### Fewer and larger

- When I begun in 1991 our turnover was around 2.4 million Euros. Today we build far more complex but fewer plants. In 2005 our turnover was 8.5 million Euros.

- We have chosen to expand quite slowly for various reasons. The main reason is that it is hard to find competent labor. It's one of our key factors to success. We try to nourish the ones we have. We have recently hired two electrical engineers. That is also a large change during the last fifteen years, whereas control systems have increased in each plant. We are also more involved in not only the

solid fuel part but also in the boiler's system in order to give the customer a complete and optimal solution.

#### Stricter environmental standards

Yet another reason for the systems to change character is the authorities increased restrictions to lower discharge. That means we have had to optimize the combustion parts even more. More control systems, more measuring equipment and flue gas cleaning. An obvious trend is that CHP:s are coming in smaller size.

- We have built systems up to 20-25 MW especially abroad, in Sweden we have had 10-15 MW. Some of the actors on the market have already begun deliveries in these sizes and now we are in play as well. I think CHP will continue down

in size even more.

#### Agents

Järnforsen has a company in Austria, Järnforsen Austria, which is a Joint-Venture.

- In Norway, Japan and Chile we work with agents, in Great Britain we use direct sales from Sweden. But it looks like we will need an agent there as well. The difficult thing with agents is to transfer know-how and basic competence.

#### Pellet breakthrough in Great Britain

The main change in Great Britain is that there is

much talk about pellets. Those who have the raw material is starting to question why they have not started producing pellets.

- Even in that field we are specialized and we are building pellet plants. We are discussing solutions with four customers in Great Britain. The plants will produce 60 000 to 150 000 tonnes of pellets per year. For those we work together with UMT, a subsidiary to Matador. We are specialists in the combustion and drying parts and have many references from production of cattle food pellets in Germany.

#### Ferrybridge shows the way

An important and positive signal is the breakthrough for the use of pellets in Great Britain taking place right now as Scottish and Southern Energy Plc in the spring starts us-

ing pellets in large scale at the Ferrybridge power plant in northern England. One of the companies which will supply pellets to the plant is negotiating with Järnforsen about building a new pellet plant. If there is a few plants in operation more will dare to convert into burning pellets. The successful conversion of Hässelbyverket in Stockholm Sweden early 1990s, helped driving up the market for pellets in Sweden. If the conversion in Ferrybridge works well it could help boosting the pellet market in Great Britain in a similar way.

#### Technical development

Järnforsen has developed a concept for co-firing with waste which meets the standard of the EU directive for interruption time and temperatures down to 4MW size. The most important step on the technological side though is to use new control systems in order to achieve lower NOx and CO emissions.

Anders Haaker

Continued from page 7



Number of employees in Sweden is 35 of which 15 work in the workshops in Järnforsen. In Slovenia there is another 6 persons working with engineering and sales.



Ole Johansson

#### Decentralized power generation

Our central aim is high efficiency coupled with low emissions. Concern today over the detrimental effects of carbon dioxide emissions is steering energy users towards increasingly efficient technology and environmentally friendly fuels - stated CEO Wärtsilä Ole Johansson during inauguration event of Wärtsilä's Bio-Power plant in Baden Baden (full article on page 17).

- "The same aim is served by producing energy close to where it is consumed - a process often called decentralized power generation. It is economically more feasible to produce both electricity and heat in the same plant, a process that offers significant environmental advantages. Wärtsilä has played a pioneering role in promoting the concept of decentralized power. We have developed power plants with extremely high efficiencies based on reciprocating piston engines. In recent years we have seen a surge in the popularity of our gas-fired power plants. Our technology also permits the use of bio-oils - such as rape seed oil or palm oil - to fuel the power plant. Our BioPower solutions use wood for fuel" - he continues.

Company	Category	Head office	Comment	Web address
Hotab	FST	Sweden	CHP and heat plants 200 kW-17 MW, Mobile plants 200 kW-3 MW	www.hotab.se
Messtechnik Schaller	A	Austria	Biomass moisture meters	www.schaller-gmbh.at
IQR	HAT	Sweden	Crushers, hammer mills etc for recycling of different materials	www.iqr.se
Janfire	FST	Sweden	Combustion equip., turn key up to 2 MW	www.janfire.com
Jenz GmbH	B	Germany	Grinders, chippers, screening equipment for biomass	www.jenz.de
JM Stofftechnik	R	Sweden	Flue gas cleaning equipment	www.jmstofftechnik.com
John Deere Forestry	B	USA	Forest energy harvesters	www.johndeere.com
Justsen	FT	Denmark	Combustion and boiler systems for wet, dry and waste fuels	www.justsen.dk
Järnforsen	PHFSERT	Sweden	Combustion equip., fuel dryers, complete solutions 0,5-22 MW.	www.jf-energi.se
Läckeby Water	A	Sweden	Equipment for biogas production	www.lackebywater.se
KMW Energi	HFSERTS	Sweden	CHP and heat plants, turn key 8 - 30 MW	www.kmwenergi.se
KSB MÖRCK	A	Sweden	Pumps and valves for energy and industrial applications	www.ksb.com
Kvaerner Power	HFRT	Finland	CHP and heat plants, recently sold to Metso Paper	www.akerkvaerner.com
Köb & Schäfer	F	Austria	Boilers up to 1250 kW	www.kob-schaefer.com
La Meccanica	BP	Italy	Equipment for pellet mills	www.lameccanica.it
Linka	FT	Denmark	Heating systems based on straw, wood or pellets up to 5 MW	www.linka.dk
LNV Energy	F S R T	Sweden	Flue gas cleaning, heat recovery, burners 0-30 MW. Biogas.	www.lkngruppen.com
Malmbergs Water	A	Sweden	Equipment for biogas production	www.malmberg.se
M-E-C Company	BPA	USA	Specializes in supplying industrial dryer systems for wood material	www.m-e-c.com
Metso Minerals	H	Finland	Crushers and shredders, fuel handling equipment	www.metsominerals.com
Münch-Edelstahl	PT	Germany	Pellets production systems	www.muench-gmbh.net
Naval OY	A	Finland	Steal valves for on/off control	www.naval.fi
Nakkila Konepaja	F	Finland	Heat plants 0,5-15 MW	www.nakkilakonepaja.fi
OKR Cleaning	A	Denmark	Soot blower	www.okrcleaning.dk
Passat Energi A/S	HFSE	Denmark	Combustion equipment	www.passat.dk
Peter Brotherhood	FE	UK	Power generation equipment, steam turbines 1- 40 MW	www.peterbrotherhood.co.uk
Poliedra	R	Italy	Chimney systems	www.poliedra.com

Continued on page 10.

# Suppliers

Continued from page 9

## Important changes 2005

Niklas Berge, Marketing and Sales Manager in TPS indicates that there has been a veritable explosion in the demand for new combustion plants and equipment for burning biofuels. The major cause seems to be the ever increasing oil prices and an anticipated shortage of fuel supply. The combination with Swedish carbon dioxide taxes on fossil fuels and CO<sub>2</sub>-emission rights has further increased the interest for renewable fuels applications.

The market for converting small-scale district heating plants from oil to pellets firing has expanded into the medium and large-scale plants (10MW and more).

Another very interesting trend the last and this year is the increased interest for conversion from oil to biofuels also in industries not subject to carbon taxation. In this period we have contracts with Karlshamns AB and the Stora Enso plant in Fors to substitute oil burners with pulverised wood burners. In both those cases the fuel source will be pelletised wood.

The largest threat for this year is a shortage of pelletised biofuels. In 2005 all pellets produced in Sweden including a few more hundreds thousands tonnes imported, was consumed and in the spring 2006 we saw rising prices as a consequence. To continue the present expansion of biofuels use there is a need for more production facilities for wood pellets.

Company	Category	Head office	Comment	Web address
Promill Stolz	P	France	System for pellet production	www.promill-stolz
PTN Nederland	P	Holland	Complete pelleting line solutions	www.ptn.nl
Radscan Intervex	R	Sweden	Flue gas cleaning, condensing, control etc	www.radscan.se
Rader	BHT	USA	Bulk material handling systems for solid biomass and RDF.	www.rader.com
Raumaster OY	H	Finland	Fuel and material handling equipment and system	www.raumaster.fi
Roxon	BPH	Finland	Bulk material handling systems	www.roxon.sandvik.com
Ecotec	F	Sweden	Pellets combustion equipment up to 300 kW	www.ecotec.net
Salmatec GmbH	P	Germany	Pellets production systems	www.salmatec.de
Saxlund Int.	BPHFSRT	Sweden	CHP and heat plants up to 40 MW, handling of fuel and ashes etc	www.saxlund.se
Siemens	F S A	Germany	Solutions for energy technology, automation, power generation etc.	www.siemens.se
Simatek	R	Denmark	Equipment for flue gas cleaning	www.simatek.com
SPC	PA	Sweden	Small scale pellet production systems	www.pelletpress.com
Sprout-Matador A/S	HRAP	Denmark	Equipment for pellet production	www.sprout-matador.dk
SRK	R A	Sweden	Steel chimneys and flue gas canals	www.srk-skorstenar.se
Standardkessel	F	Germany	CHP and heat plants up to 300 MW or more	www.standardkessel.de
Standard Industrie	H	France	Transport and handling systems for bulk material	www.standard-industrie.com
Steelcon	R	Denmark	Chimney solutions for larger plants	www.steelcon.com
SRE	BR	Sweden	Flue gas cleaning, condensing, dryers	www.sre.se
Talbotts	F	UK	CHP and heat plants up to 4 MWth	www.talbotts.co.uk
TPS	HFST	Sweden	Mobile comb. systems 100-5 000 kW. Powder 2-25 MW, grate, FB	www.tps.se
Tuthill	A	Germany	Pumps, vacuum, blower, transport systems, etc	www.tuthill.de
Uniconfort S.R.L.	F	Italy	Producer of combustion and boilers 20 kW-3,5 MW	www.uniconfort.com
Vågab	H	Sweden	Mobile weighing systems	www.vagab.com
Wastec AB	H	Sweden	Handling equipment	www.wastec.se
Vecoplan	H	Germany	Shredders, screens, conveyers, storage, handling equipment	www.vecoplan.de
Weckman	EA	Sweden	Steam condensers, steam turbines, DresserRand	www.weckman.se
Weiss A/S	HFSRAT	Denmark	Heat plants 500 kW-20 MW	www.weiss-as.dk
Wesmar	SA	Sweden	Measuring systems	www.wesmar.se
von Roll	HFSR	Switzerland	Industrial solutions, CHP and heat plants etc.	www.vonroll.com
Wärtsilä Biopower	FT	Finland	Plants for heat 4-25 MWth and CHP 1-10 MWe	www.wartsila.com



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# Waste

## Sweden: Sundsvall Waste becomes gold



Construction site of the new CHP plant

After years of intense construction the new CHP built for Sundsvall Energi will be complete this year. A deepened energy cooperation with SCA means buying of excess heat from Ortvikens paper mill and delivery of heat for Tunadals sawmill. All in all, over 100 million euros is invested in Sundsvall.

Sundsvall Energi is one of the most oil depending district heat suppliers in Sweden. More than 70% of the added energy comes from oil. But when the new CHP is up at full capacity in the beginning of 2007, the oil consumption will decrease from 55 000 m<sup>3</sup> to 20 000m<sup>3</sup> per year.

Sundsvall Energi has used household waste as fuel since 1984. The usage has been around 40 000 tonnes per year.

### 200 000 tonnes per year

With a new permission Sundsvall will be able to handle 160 000 tonnes more than now, in total 200 000 tonnes of household waste per year.

### Energy cooperation with SCA

Sundsvall Energi has for many years used 50-80 GWh surplus heat per year from Ortvikens paper mill.

After a new deal in May 2005 Sundsvall Energi and SCA invests 20 million Euros together. Ortvikens paper mill invests 5 million Euros for new flue gas condensing system for the two biofuel boilers at the mill. This is

the heat deliveries to between 100-170 GWh per year.

**Large heat customer**  
SCA paper mill in Tunadal will be connected with the new Korstverket through a 2 kilometer long pipe for delivery of 140°C water.

This means that Tunadals sawmill can replace 80GWh electricity used today for driers' system in processed wood.

The investment is estimated to around 2,5

million Euros.

### New steam turbine

The current steam-turbine is adjusted to the large oil boiler at 170MW and it is too big to be used together with the new waste boiler.

Sundsvall Energi is therefore enlarging the turbine hall with a new turbine of 21 MW from Siemens for 11 million Euros, producing 100 GWh electricity per year.

Electricity production will be running all

year around. Tunadals sawmill needs heat all year around. This creates good conditions to burn waste even during the summer months", explains Inger Axbrink, Information Manager at Sundsvall Energi.

### Even rugs and furniture

The combustion equipment is delivered by Babcock & Wilcox Volund from Denmark. They in turn use boilers made by Polish company Rafako. Sundsvall

has chosen the grate technology which manages to burn untreated household waste with good performance.

"In the current waste boiler we have difficulties firing certain types of waste such as cloth, furniture and rugs. This will change having the new boiler", says Inger Axbrink.

Anders Haaker



New plant will be able to handle 200 000 tonnes of household waste per year

### San Francisco to test turning dog waste into power

San Francisco, a leader in urban recycling, is preparing to enlist its canine population for a first in the United States: converting dog poop into energy.

Norcal Waste Systems Inc., the city's garbage company, plans to test collection carts and biodegradable bags in a city-center park popular with dog walkers.

A city study found that almost 4 per cent of all the garbage picked up at San Francisco homes was from animal waste destined for the city's landfill, Norcal Waste spokesman Robert Reid said. San Francisco has an estimated 120,000 dogs.

Dog feces could be scooped into a methane digester, a device that uses bugs and microorganisms to gobble up the material and emit methane, which would be trapped and burned to power a turbine to make electricity or to heat homes.

Dogs and cats in the United States produce about 10 million tonnes of waste a year.

European cities such as Zurich, Frankfurt, Munich and Vienna are operating biomass programs to turn waste into gas, he said. San Francisco runs an aggressive program to recycle bottles, cans, paper and other trash and now diverts two-thirds of its garbage away from landfills.

The city's goal is a 75 per cent diversion by 2010 and zero new waste in landfills by 2020.

Source: Reuters

# Home heating+

# Boilers for other large



### Combined heat and electricity for small units

During the large and interesting conference in Wels, Austria, early March this year, Dr. Karl Wolfgang Stanzel from Graz (office@stirlingpowermodule.com) presented a dream on its way to be realised, a Micro-CHP for single family houses.

It is the Austrian company SPM that is developing a Sterling Power Module with a built-in electrical generator with an electrical outlet of 1 kW.

#### Founded in 2003

SPM was founded in November 2003 by KWB - Kraft und Wärme aus Biomasse GmbH and Stanzel & Ptak OEG.

The module is constructed in such a way that it can be attached to a wood boiler with a thermal output of 15 kW.

The Sterling's engine is constructed with four pistons in four cylinders.

The goal is to have a module that can be bought for around 1 000 Euro.

The developers expect that it will be possible to run the unit using the support of Austrian system for green electricity.



#### Atmos

www.atmos.cz

The Czech family's company Jaroslav Cankaf a Syn is the producer of the well known wide spread Atmos boilers for burning wood and pellets in range from 15 kW up to 75 kW.



#### Binder

www.binder-gmbh.at

This Austrian company has a wide selection of products in the range from small pellet boilers of 15 kW to industrial type units for burning chips in the size up to several MW. Above the unit that includes the fuel storage.



#### Baxi

www.baxiinternational.com

The English based concern is one of the largest players at the home heating market. The company has also a range of wood and stoker boilers. The model Multiheat is suitable for burning different fuels such as pellets, chips or corn.



www.ecotec.net

The Swedish company Ecotec Värmsystem AB is one of the companies that has delivered most pellet burners. The basic model is available in sizes up to 50 kW. There are models designed for burning agricultural crops. There is also a model with a larger size, up to 400 kW.



#### Faust

Most spread among farmers are the Faust's straw burning heating centrals which are easily recognized by their upstanding shape. The range is 50 - 600 kW. The units are most fuel flexible.



#### Fröling

www.froeling.com

The Austrian company Fröling has units for burning pellets, wood and chips in range from 10 kW up to 1 MW. The model Turbomat above is available in different sizes up to 0,5 MW.



#### Hargassner

www.hargassner.at

The Austrian company Hargassner has a product range from 12 kW up to 100 kW for burning pellets or chips. The models are highly automated and equipped with automatic cleaning system.

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# Home heating+

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For comments of adding other products please do not hesitate to contact us, preferably with a mail. We do also like reports describing nice installations that can be used as base for an article. We would like to continue using such presentation in the future.

This presentation is made by Lennart Ljungblom.



**Herz**  
www.herz-feuerung.com

The internationally oriented Austrian company Herz has a base in radiator and regulator technology for heating systems. However the company has also burning equipment for wood, pellets and chips. Above is the chips and pellets boiler Firematic, which is available in four sizes, from 15 to 150 kW. There is also a larger model called Biomatic available.



**HDG Bavaria**  
www.hdg-bavaria.com  
The German company HDG Bavaria has a wide range of pellets, wood and chips burning products. The one in the photo is called HDG Compact 50/65 and is constructed for chips or pellets use and it is fully automatic. The HDG compact model exists in sizes up to 200 kW.



**Hollensen.**  
www.hollensen.dk  
Biomaster P exists in sizes from 400 kW up to 10 MW. It is equipped with an extra large furnace. It is constructed for dry fuels. There is a partly moving grate inside the boiler. The company has also a wide range of other boilers for gas and oil.



**Gilles**  
www.gilles.at  
The Austrian company Gilles Energie und Umwelttechnik can deliver heating systems for burning pellets or chips in sizes from 10 kW up to 145 kW and larger industrial units for burning fuel such as chips and bark in range up to 6 MW.



**Guntamatic**  
www.guntamatic.com  
The Austrian company Guntamatic Heiztechnik GmbH has integrated updraft boilers for burning wood, chips, pellets and corn in sizes up to 50 kW. The model Powercorn is especially developed for burning corn.



**Janfire**  
www.janfire.com  
The Swedish company Bioburner systems exist as small singel family house burners as well as larger units for farms, heating centrals or industries. The burner Janfire System Jet is designed for burning pellets and can be delivered in sizes between 40 and 600 kW. It is not too sensitive for pellets quality because of the rotating grate. The burner can be regulated down to 2 % of full load.



**KWB**  
www.kwb.at  
Austrian KWB has several different products for burning pellets, wood and chips in the range up to 3900 kW. The model in the photo is called Powerfire.



**LIN-KA**  
www.linka.dk  
Danish Linka Maskinfabrik is one of the leading manufactures of automatic straw handling and burning systems in sizes up to 10 MW. The company also has product lines for burning pellets and chips in the range from around 25 kW up to 4 MW. The burning devices are often combined with boilers from Danstoker.



**Iwabo**  
www.naturenergi.se  
Pellet burners for small houses as well as for larger units up to 400 kW. This Swedish company has also a chips burning system Iwabomatic for chips with a maximum 30 % moisture content in sizes up to 200 kW.



**Laka**  
www.laka.fi  
Laka-PS boilers available in sizes suitable for family houses - up to 8 MW. Combustion in a sloping and a horizontal grate. Can be used with chips, pellets, peat and corn as fuel.



**Sommerauer & Lindner**  
www.sl-heizung.at  
The company SL-technik GmbH from Austria has integrated pellet boilers for single family houses and chips units in sizes up to 150 kW.



**Twin Heat.**  
www.twinheat.dk  
Three models of the Danish company Twinheat have sizes in the range from 12 to 250 kW. The compact model is made for burning pellets, corn and chips, the combi model for burning wood and it is stoker fed while the largest industrial model (photo) is for all automatically fed fuels.



**Swebo**  
www.swebo.com  
Biotherm - this burning equipment is able to fire extremely moisture fuels even up to 63 %. Different fuels, such as chips, residues of common kind - even horse manure - can be burned. Available in sizes up to 500 kW. The company also delivers ready made heating centrals in sizes up to 1 MW.



**Passat A/S**  
www.passat.dk  
Danish Passat has been in the business more than 30 years. Their Compact can burn pellets, chips grain and corn. Size up to 180 kW.



**Veto**  
www.alatakkari.fi  
This Finnish company has a range of boilers from the smallest up to 500 kW. The largest available ones are stoker fed. The company also has a ready made heating central, AgriCont as shown in the photo. Just to locate it in place when needed and take it away later if desired.

## Grouping major biodiesel producers and promoting the use of biodiesel in the EU

The European Biodiesel Board also known as EBB, is a non-profit organisation established in January 1997.

EBB aims to promote the use of biodiesel in the European Union, at the same time, grouping the major EU biodiesel producers.

To achieve its aims, EBB represents its members to the institutions of the European Union and other international organisations promotes scientific, technological, economic, legal and research activities collects, analyses and disseminates information studies problems confronted by the biodiesel industry and suggests solutions at economic, political, legal, institutional and technical levels

Located in Brussels, with Mr Raffaello Garofalo as Secretary General, EBB has achieved a high degree of visibility and confidence vis-a-vis the EU institutions and non-governmental organisations alike through its networking, information gathering and co-ordination activities.

For more information please visit  
www.ebb-eu.org  
E-mail: info@ebb-eu.org

## SAAB presents World's first fossil-free hybrid vehicle

SAAB launches two new concept cars, Aero X and 9-3 Hybrid, both modified to run on pure E100 bioethanol fuel.

Making its world premiere at the Stockholm Motor Show, the Saab BioPower Hybrid Concept delivers zero fossil CO<sub>2</sub> emissions, enhanced performance and a range of energy-saving features

by combining the use of pure bioethanol fuel and electric power generation for the first time.

As the world's first fossil-free hybrid vehicle, the Saab 9-3 Convertible show car also becomes the world's first hybrid soft-top.

**Powerful performance**  
The car generates 260 bhp (191 kW) from its

2.0-litre turbo BioPower engine and 53 kW electric motors, the BioPower Hybrid Concept in the Saab 9-3 range of cars can briefly generate torque values three times greater than its petrol-only equivalent.

It is a combination that makes for improved performance, as well as greater fuel economy and an extended driving



range.

The BioPower Hybrid Concept prototype car, a 9-3 Convertible with automatic transmission, is expected to achieve zero to 100 kph acceleration in 6.9

seconds, a substantial improvement against 8.8 seconds for the equivalent petrol model. Even more impressive is 80 to 120 kph acceleration on 'kick-down' in only 5.5 seconds.

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# Biodiesel



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## Performance race car tests biodiesel



Harri Toivenen is testing the D1 Lola biodiesel racing car at Snetterton Circuit, Norfolk, UK

D1 Oils plc (D1), the UK-based global producer of biodiesel from renewable energy crops, is to test the performance of green diesel fuel by sponsoring the entry of a biodiesel powered car in the Le Mans global series of sports car races. The D1 Lola B2K car will be powered by a high performance diesel engine modified to run on a mix of regular diesel and biodiesel produced from vegetable oils. The objective is to test the performance, fuel efficiency and emissions produced by different biodiesel blends. The D1 car and engine are being developed for Le Mans Prototype racing by groupBio, a UK-based racing team.

**U**nder the Renewable Transport Fuels Obligation (RTFO), announced by the government in November, UK garages will be required to sell diesel blended with biodiesel to a minimum level of 5% by 2010.

Biodiesel produces lower emissions of pollutants and greenhouse gases than mineral diesel, and is produced from vegetable oils derived from energy crops.

These absorb CO<sub>2</sub> as they grow, making the net carbon emissions neutral.

### Objective

D1's objective is to test fuel blends containing 5% (B5), 20% (B20) and 50% (B50) biodiesel, and research the performance and characteristics of biodiesel made

from different vegetable oil feedstocks.

### Jatropha

D1's biodiesel feedstock of choice is jatropha curcas, a tree that grows in Africa, South East Asia and India.

Jatropha seeds produce a high yield of vegetable oil that can be refined into biodiesel.

Unlike other biodiesel feedstocks, such as rapeseed, soy and palm, which require arable land to produce economic yields, jatropha grows on waste and marginal land and its planting will not displace essential food crops in developing countries.

"This is about demonstrating that low emissions don't mean low performance," said Philip Wood, CEO of D1. "We are entering a

biodiesel car for Le Mans prototype racing because endurance events offer the best opportunity to test and improve the characteristics of this new green fuel. What we learn about how different biodiesel blends perform in our engine is going to be of immense value to biodiesel feedstock producers and refiners, to car and engine manufacturers and to motorists who want to know that biodiesel will get them the mileage and performance they need while contributing less to global warming. It also offers a strong opportunity to build the D1 brand as we expand our planting and refining business globally."

Graham Prince,  
Head of Corporate  
Communications



The lead driver for the car is Harri Toivenen from Finland. Mr Toivenen is very keen on the project. The car is currently finishing its track testing in the UK (large photo). Next step is possibly race in Le Mans, car race at Spa in Belgium in May and later in the year race at Monza in Italy.

### The German government to cash in on biodiesel

So far has biodiesel been favored by German energy legislation. This has contributed to that around 200 000 vehicles trafficking German roads today run on pure rape methyl ester. Now the new government wants to introduce a new tax on biodiesel. When the plans were made official in February, they were heavily criticized by the German Farmers Association and the country's bioenergy organizations. As a consequence from this the government announced that pure biofuel used within the farming sector as well as the forest industry will not be taxed.

Biodiesel is an environmentally friendly renewable fuel alternative to diesel and fuel oil. The biofuel does not contain any fossil parts but can be mixed with fossil based diesel and fuel oil. It can be used as fuel in compression diesel engines without or with just minor modifications.

To oblige the critics and lessen the effects of a tax on bioediesel and to ensure an increased use of renewable fuels, Germany will introduce legislation for compulsory mixing of biodiesel in fossil diesel. Effective January 1: st 2007 all diesel sold in Germany will consist of approximately 5.75% biodiesel.

Full version of the article on this topic will appear in issue, number 3, late May

## Svebio opens road for bioenergy co-operation with China

We have the gigantic needs and volumes. You have the knowledge and experience we need. - that's how Lin Mingshan, Chairman of the Chinese National Bio Energy Co. motivates that the company now seek co-operation with Swedish bioenergy industry. Svebio, The Swedish Bioenergy Association, stands as host and gate opener for these contacts.

During one week in March a Chinese delegation met several representatives of Swedish businesses and municipalities interested in co-operation.

The Chinese are mostly interested in projects regarding combined heat and power plants, but also works with production of pellets.

The Chinese plans for extension of bioenergy are very extensive. During the fall of 2005 there was six CHP:s built with a capacity of 25-megawatt electricity each. This year 25 more are to follow, and the plans for the coming years are 25-30 every year. The CHP:s will be fuelled by crushed straw.

To fire straw for energy solves a tough environmental problem for the Chinese. So far the straw has been burned on the fields, generating much air pollution causing both air traffic and road traffic problems, not to mention health hazards.

Furthermore will large quantities of straw be palletised to make

# A true alternative for German farmers

The capacity at German biogas plants increased with over 50 per cents during the previous year. That is a new record. That information became public in connection with the German biogas association's annual meeting, which was arranged parallel with a big international biogas trade fair in Hanover at the end of January. According to associated chairman Josef Pellmayer 700 new biogas plants were taken into operation during 2005 with a total electricity generation of 250 MW.

The biogas plants' total electrical capacity in the country thereby increased from 400 to 650 megawatt, said Josef Pellmayer from Fachverband Biogas.

The number of association members increased from 1400 to 2100 during the previous year. Today just over 8000 persons build or carry out various kinds' of biogas plants in Germany. The total turnover amounts to almost 500 million euros.

### Reasons

According to Pellmayer this apparent upturn depends above all on costlier raw material, sinking incomes within food production and the considerable contributions, introduced in 2004 in aim to promote power production with the aid of renewable energy sources.

-Because of the the permanent sinking foodstuff prices, more farmers passed on to produce energy instead, emphasized Josef Pellmayer. For 2006 he expects yet another increase of electricity from biogas plants on at least 350 MW, which corresponds to an increase of the performance between 30 and 50 per cent.

In 2004 the electricity

amount from German biogas increased with only 57 MW. In the same year however, the law about renewable energy sources (EEG) was changed. This meant that the biogas manufacturers got an additional contribution of 6 cents per kilowatt hour electric power produced if they used corn, beet or sunflowers as raw material.

### Forecast

The biogas today stands for meagerly a per cent of Germany's total electricity maintenance.

- "We believe however that its proportion can be increased within the nearest fifteen years to 20 per cents", established the German biogas association's sales manager, Markus Ott.

In order to achieve this, the area with necessary energy plants must amount to least 2, 2 millions hectares according to Ott. His associations hope to soon feed biogas into the natural gas net.

- "The price for extracting biogas without subventions according to the EEG guideline currently range between 8,4 and 11,5 cents per kilowatt in the form of heat capacity. The aid depends on the plant's size. Within Germany, corresponding electricity delivery costs



Model of complete biogas production system

the end customers between 3, 5 and 4 cents", told Markus Ott.

### New projects

A row of producers of biogas plants, including the company Schmack Biogas AG, announced in Hanover that they soon will launch "entirely new plants with natural gas quality". Two of Germany's leading Research centers, Fraunhofer and Wuppertal participates in the project.

- "It already pays for many municipal power suppliers to buy gas from local biogas manufacturers, although their expenditure for transport of gas through Germany is calculated into the companies total cost", said Markus Ott.

If the gas is feed in via the gas net in order to be used for power production in CHP plants, the activity is promoted economically according to the EEG-law.

### Conference

Just over 1000 persons and 80 companies participated in the biogas sector's annual conference in Hannover.

The participants had the possibility to take part of 30 presentations with the biogas as theme.

The arrangement is



Josef Pellmayer from Fachverband Biogas



Markus Ott, vice president of German biogas association Fachverband Biogas

the biggest so far of its kind in the world.

Also the security questions were handled during the conference. A tragic accident in a biogas plant in southern Germany last year aroused much attention.

Several participants of the conference considered that one of the Biogas association's tasks is to spread information to increase the competence among their members.

Markku Björkman

# Heat & Power



www.bioenergyinternational.com

## New BioPower plant Inauguration in Baden-Baden



On 21st of March new biomass-fueled Wärtsilä BioPower combined heat and power plant was inaugurated in Baden-Baden, Germany. The power plant delivered by Wärtsilä provides electricity and district heating for the business and service park of Baden Airpark, near Baden-Baden, Germany. It is the first BioPower plant delivered by Wärtsilä to Germany.

Within the European Union small, local combined heat and power plants running on biofuels have also gained the interest of investors owing to electricity prices. A good example in this context is this BioTherm Baden plant, the construction of which was largely attributable to local initiative.

“For Wärtsilä, too, this is an important reference plant. We are extremely pleased that we have had the opportunity to deliver this project,” says Mr Ole Johansson, President and CEO of Wärtsilä Corporation.

### Inauguration

Dr Angela Merkel, Chancellor of Germany, started the power plant. Those present in the ceremony were Mr Günther H. Oettinger, the Minister President of Baden-Württemberg together with the shareholders and owners as well as the Managing

Director of BioTherm Baden, Mr Rainer Pahl. Wärtsilä Corporation was represented by Mr Ole Johansson, President and CEO.

### Idea

The idea of an environmentally-friendly combined heat and power plant in Baden-Baden was born in 2001 and a local businessman started the project to bring the idea into reality.

After long planning the contract was awarded to Wärtsilä in September 2004. The project has since progressed rapidly.

“The project’s tight time schedule was a challenge for all parties involved”, recalls Mr. Rainer Pahl, Managing Director of BioTherm Baden GmbH & Co KG. He explained: “The site works were started on 23 May 2005. As the Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz) gives incentives through the electric-

ity pricing structure, the plant had to be commissioned and produce the first power to the grid before the end of 2005 to ensure better prices.”

The power plant is owned by BioTherm Baden GmbH & Co KG, Germany and is operated by Stadtwerke Baden-Baden which is responsible for delivering natural gas, water, heating and telecommunications in the Baden Airpark with the integrated Karlsruhe/Baden-Baden airport.

### Technical information

The CHP plant in Baden-Baden has an electrical power output of up to 5.2 MWe, and a thermal output of up to 3.5 MWth for district heating.

The plant was delivered on a turnkey basis (excluding civil works) comprising a Wärtsilä BioPower 5 CEX standardised power plant burning wood residues from the local forestry industry. With its high level



Dr Angela Merkel, Chancellor of Germany, started the power plant. On the picture with Mr Ole Johansson, President and CEO of Wärtsilä Corporation

of automation, the plant will be run unmanned with periodical supervision visits to the plant.

### BioPower 5 CEX

The plant is one of the highly modular power plant products of Wärtsilä Biopower.

The combustion technology is based on the patented rotating grate, BioGrate, which is designed for efficient combustion of moist wood fuels, such as forest residues, that will be used

as fuel in the BioTherm Baden plant.

The moisture content of the fuel can be as high as 65%. The boiler is a natural circulation water tube boiler that produces superheated steam for a highly efficient reaction-type condensing turbine with controlled extraction for the district heating services of Stadtwerke Baden-Baden.

Maria Nystrand  
Public Relations  
Manager, Power Plants  
Wärtsilä Finland Oy

transport and storage easier. National Bio Energy has been created by energy giant State Grid Corporation in order to develop the Chinese bioenergy sector.

State Grid is the world's largest energy corporation, with almost 800 000 employees and a very extensive activity in China.

The company owns 92% of the power distribution and supplies electricity for 1,1 billion people in China.

The Chinese companies have turned to Sweden because Swedish bioenergy is world leading.

A high representative from State Grid will attend at World Bioenergy 2006 in Jönköping this summer, as one of the conference opening speakers together with Swedish Prime Minister Göran Persson.

*Kjell Andersson Svebio*

### Brazil's sugar crop fuels nation's cars

More than 80% of new cars now sold in Brazil are equipped to use ethanol as well as gasoline. More than 70 new mills are due to open by 2012.

Both fuels are available almost everywhere, and since ethanol can cost about a third less than petrol per litre at the moment (though the mileage is not quite as good), the home grown fuel is more popular than the foreign import.

Oil would have to fall to \$35 (£20) a barrel to compete with ethanol in Brazil. That's roughly half the price that crude has been sold for over the last six months.

<http://news.bbc.co.uk/1/hi/business/4581955.stm>

**“Bio energy in industry”**

**Second edition**

The conference will take place on May 11th 2006 in Eindhoven. It is already second edition of this important and very interesting event concerning large scale biomass project.

Participants will gain first-hand insight into the market developments of alternative energy sources, suppliers and logistics.

A number of vivid cases from practice will shed light on the industrial transition from gas and oil to bio fuels.

Examples include the conversion of the CHP plant at paper mill StoraEnso Fors, the application of bio-oil at Calluna CHP and the digestion of industrial organic residues at Orgaworld in their Lelystad and Elsendorp CHP plants.

The day is closed with an unconventional vision on the future of our energy supply, by Peak Oil Netherlands.

The conference is organized by Ingenia in cooperation with the Royal Institution of Engineers in the Netherlands Kivi Niria, SenterNovem and the Eindhoven University of Technology.

Ronald Verberne  
Ingenia Consultants & Engineers

More information about the topic and the conference can be found at [www.bioenergy.nl](http://www.bioenergy.nl) (registration at [www.bioenergy.nl](http://www.bioenergy.nl)).

# Application of bioenergy in industry takes a flight

“Fossil fuels are getting scarcer and are noticeably more expensive today! That’s why the province of Noord-Brabant is stimulating renewable energy, like bioenergy. Application of bioenergy is a sound way of combining ecology and economy efficiently. With 2,8 million MWh Noord-Brabant is the largest producer of renewable energy from biomass in the Netherlands. Together with industry we want to stand up for further increase of the potential.”

With these words Mr. Onno Hoes, Deputy of Economic Affairs, Provincie Noord-Brabant, The Netherlands, will open the conference “Bio energy in industry” at May 11th this year.

His words are reinforced by the warning that EU Energy Commissioner Mr. Andris Piebalgs issued last January: “Europe was clearly struck, because it received a quarter less of natural gas as Moscow closed the gas line to Ukraine. Without a doubt Europe will start to search harder for alternative sources, suppliers and supply lines of energy”.

**Energy generation**  
The application of biofuels for energy generation steadily grows, owing to the rising prices of natural gas and oil and the increasing uncertainty.

In Denmark E2 Energi annually uses 300,000 tonnes of wood pellets and 150,000 tonnes of straw bales. Following the Dutch coal-fired power plants owned by Essent and E.ON, in 2005 Electrabel converted the Awirs power plant close to Liege for the use of 100% biomass. Electravings in Oostende, Belgium, applies 25,000 tonnes of bio oil per year in a 12 MWe bio energy power plant.

**Pellets production**  
The annual investigation by the magazine Bioenergy International indicates that over the years 2004 to 2005 the annual production of wood pellets nearly doubled, from almost 4 million tonnes to over 7 million tonnes. This although the prices of wood pellets increased only marginally compared to the increas-



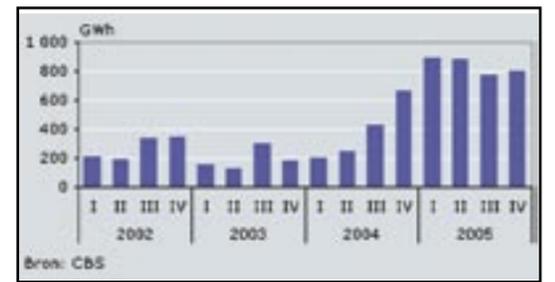
Avedøre 2 annually uses 300,000 tons of wood pellets and 150,000 tons of straw bales

es in oil and gas prices, according to statistics by the Swedish energy agency STEM. Would an energy source come available that would be independent from the oil price?

**Statistic**

In February the Dutch statistical agency (CBS) reported a doubling of renewable energy production from biomass over the year 2005, from about 1,5 GWh to more than 3 GWh. This is a result of the adaptation of even more power plants, which enables them to use even more biomass.

In the March issue of the magazine Eneco Prospect biomass power plant developer Mr. Bas de Bruin from Eneco indicates even more advantages: “One of the benefits of biomass is that it generates constant power. It is easily man-



Increase of the production of renewable energy from biomass in The Netherlands (www.cbs.nl)

ageable and does not cause imbalance on the grid”. Rabobank sees an important role for SME’s when it comes to a fast transition to renewable energy. “Energy is too important to just leave it to the government or to the large power companies. SME’s are innovative and hence it can accelerate the transition to a sustainable economy,” announced Bert Heemskerck (CEO of Rabobank) on March 21st, 2006. Rabobank will launch a Renewable

Energy Fund to invest in non-fossil energy projects.

**Conference**

So, besides alarming messages about increasing prices for fossil fuels, the alternatives move ahead. It is time for the Dutch and Belgian industry to get updated about the possibilities to switch from fossil to bioenergy. This can be done during the conference “Bio energy in industry”

Ronald Verberne

**bioenergy**

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# Projects



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## Aebiom members' column

### Austria – regular training for bio-heating plumbers and chimney sweepers

In consideration of the target of the Kyoto Protocol to reduce greenhouse gas emissions by 2010 the national development in each member country has to be enforced by several measures.

In Austria, one of these measures is the regular training of plumbers, chimney sweepers, master builders and also teachers with regard to bio-heatings.

As energy costs are constantly rising, there is a growing need for information and qualified energy consulting.

#### Get certificate

In Austria, the "Österreichischer Biomasse Verband" (Austrian Biomass Association) has been organizing regular

job training courses for biomass plumbers and chimney sweepers since 2000.

This training is organized yearly for heating plumbers and similar professions that want to get a certificate as specialists in the domain for biomass heatings.

More than 800 plumbers of 700 enterprises have acquired the legally protected title "Biowärme-Installateur" Ö ("bio-heating plumber") by 2005.

#### Education

The Austrian Biomass Association endeavours to develop and enhance the further education of plumbers and chimney sweepers in future.

With regard to the potential of about one mil-

lion obsolete heatings in Austria, the renovation of these heatings and their remodelling into certificated bio-heatings is one of the most important measures to translate the aims of the Austrian renewable energy policy into reality.

#### Possibilities

Also in the second professional group, 260 chimney sweepers have been awarded the certificates as "Biowärme-Rauchfangkehrer" Ö ("bio-heating chimney sweepers") by 2005.

This corresponds to about 30% of all Austrian chimney sweepers, and the number is growing. Chief Master of the Provincial Chimney Sweepers Guild of Salzburg, Heinz Bur-

mann, enforced that in Land Salzburg even three quarters of these specialists have already acquired the certificate by the year 2005.

Additionally, seminar days are also offered to government-approved master builders as well as teachers.

#### Support

All these seminars are financially supported by the Austrian Ministry of Agriculture, Forestry, Environment and Water Management.

#### Courses

The training courses generally comprise following topics: environment and climate change; facts and arguments for biomass-use of solid biofuels; standardisation of biog-

enous fuels and heating systems; sample testing; planning of biomass heating systems; building laws and licensing procedures; directives for new buildings and rebuildings like plant-specific components, flue gas evacuation, fire protection and requirements for the chimney; structural measures of modern biomass heatings in buildings; financial support on federal and regional level ("Energy License"); comparison of costs and economic efficiency.

More information at: [pummer@oesfo.at](mailto:pummer@oesfo.at), [www.biomasseverband.at](http://www.biomasseverband.at)

at  
Hermann Pummer,  
Austrian Biomass  
Association

### "Fuels of the Future 2006"

Is Germany standing in front of a system change as a consequence of new political and tax related frame conditions? Will Germany, in the frame of its chair of the European council be able to advance the market launch of Biofuels in the European Union?

The German market for Biofuels is one of the most growing and most successful markets within the renewable energies. Germany is world market leader in the production and utilization of biodiesel, the production capacities of ethyl alcohol are constantly adjusted and the development of biofuels of the 2nd generation is permanently proceeding.

In 2005 the biofuels for transport already achieved a quota of 3,4% of the supply with fuels. Thereby 2 m tonnes of mineral diesel fuels and 140.000 tonnes of petrol could be substituted and 625 m Euro for oil imports economized.

Meanwhile, the sector of biofuels for transport is an employer for many thousands of employees. Is this positive market development threatened by an interruption?

The 4th BBE/UFOP – International Conference on biofuels "Fuels of the Future 2006" picks up these and many more topics related to the development and the utilization of renewable fuels.

Thomas Siegmund  
Project Manager  
More information at  
[www.bioenergie.de](http://www.bioenergie.de)

## Energy cooperation between Russia and Norway

The Norwegian Energy Efficiency Group (NEEG) was established as a result of an agreement between Russia and Norway on energy cooperation and it is a network of four leading Norwegian companies founded in 1993 in order to effectively transfer know-how and experience in the fields of energy efficiency and environment protection to countries with developing or transition economies.

Energy Efficiency in Northwest Russia project is divided in to several sub-projects, presented under five main headlines: Regional Energy Efficiency Centres, Demonstration projects and commercial projects, Training, Information and Financing.

During fifteen years of cooperation between NEEG and the Russian Federation some new Re-

gional Energy Efficiency Centers were established: in Kirowsk (1996), Murmansk (1998), Arkhangelsk (1999), Petrozavodsk (1999), Syktyvkar (2003/2005) and Maryan Mar (2004).

There are examples on demonstration projects. The main task is to increase the energy efficiency in the regions, focusing in the same way on environmental protec-



Examples of demonstration projects: Verknetulomskil (Murmansk Oblast) - replacing of oil boiler with wood waste boiler - fuel comes from nearby sawmill production residues; Tsiglomen Sawmill in Arkhangelsk - replacement of mazout boiler with 5MW wood waste boiler; Podcherye (Vuktyl Region) 13 coal fired boilers replaced with 3MW wood boilers; Zheshart plywood factory (Komi Republic) - existing biofuel boiler for wood chips, construction of new biofuels boiler for sawdust (300m<sup>3</sup>/day) to replace gas boiler; OblDes, Arkhangelsk Oblast (Koyda, Mezen, Leshukonkoye, Zubovo) - ongoing project to replace the diesel generators with wood based system and upgrade of grid.

tion - mainly emission reduction, and using more locally available biofuels sources.

Based on the conference "Bioenergy in a BASREC Perspective" St. Petersburg 7-8 December 2005  
Jerzy Krzyzowski

## “BioTopExpo”

The international specialized exhibition focusing on equipment and technologies for manufacture and use of biofuel is to be held on 20-22 June 2006 in Saint-Petersburg in the North-West Exhibition and Conference Centre.

The exhibition is held in a place which is an optimal solution for manufacture and consumption of biofuel. The North-West has a significant wood reserve and developed infrastructure, and the possibility to use biofuel as an export product.

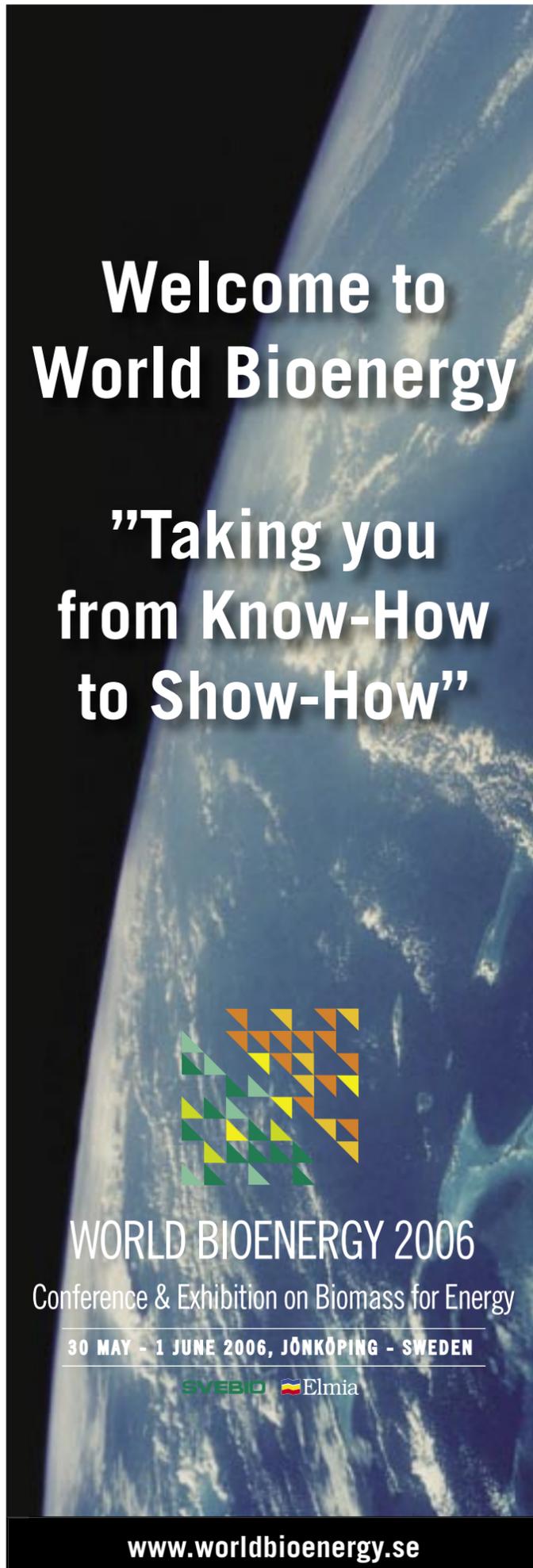
For the recent years interest in biofuel use and bioenergy has increased considerably.

There has appeared a necessity to display equipment and technologies in bioenergy and to discuss modern equipment deliveries to Russian enterprises. The question of quality biofuel deliveries to European countries is topical as well.

The exhibition is supported and assisted by: Leningrad Region Government; Renewable energy Committee, Russian Union of Scientific and Engineering Societies; Confederation of Associations, Enterprises and Organizations of Forestry complex of the North-West; leading in this area organizations and institutes of higher education.

The exhibition will be attended by state officials interested in new energy equipment.

For more information please send e-mail to: [drevo@sivel.spb.ru](mailto:drevo@sivel.spb.ru)



**Welcome to  
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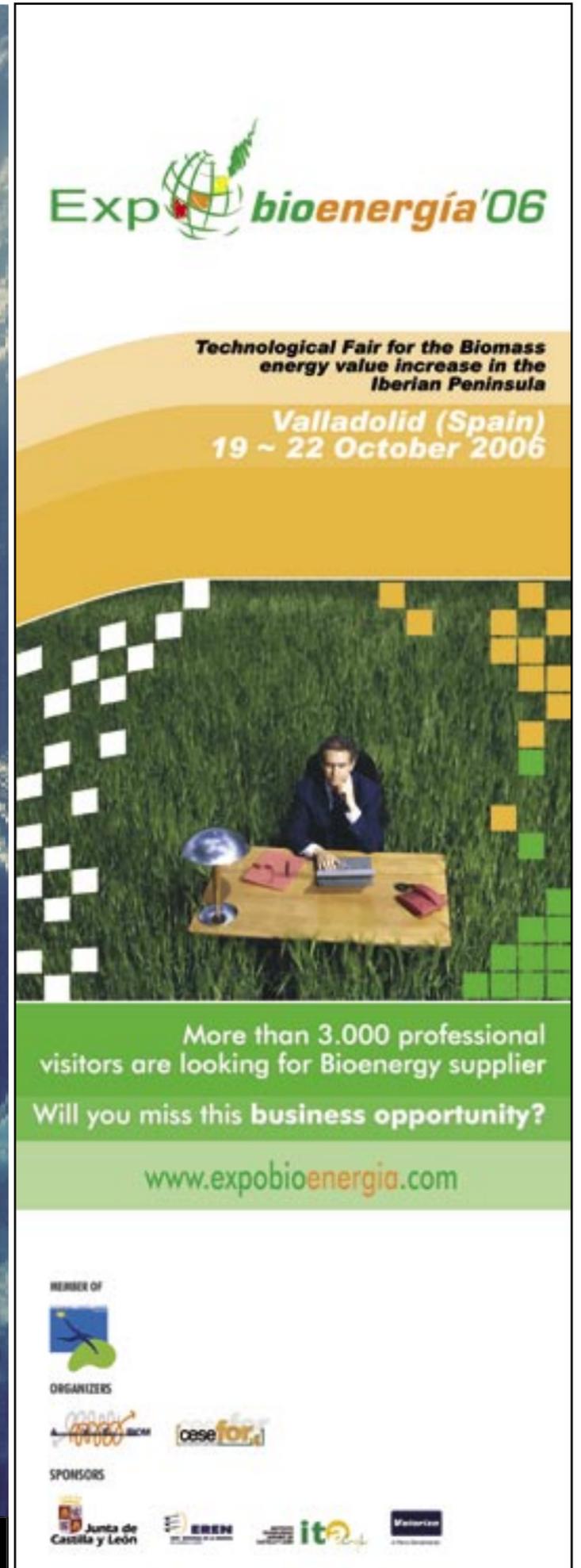
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# Report

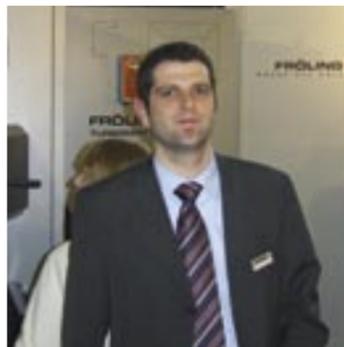
## Wels 2006

In the beginning of March the Energiespar Messe in Austria took place. A total of 852 exhibitors, of which 136 (16%) came from 9 different countries outside Austria, participated. Good thing that most of the fair takes place indoors, because from Friday afternoon and throughout the whole weekend we had to endure heavy snowfall which must have effected the number of public visitors!



Mr. Herbert Unterwindner working with export at Windhager, here in front of their new pellet stove with water radiator connection. 150 customers are testing it now. The first version was too cold according to the test persons, letting out not enough heat from the front. Now it's been adjusted to let out 1kw per hour. In the summer there is a hatch to seal of the fireplace to not emit excess heat to the room. This new stove is expected to be on the market in the summer of 2007.

SHT from Salzburg here represented by Board Director Herbert Hartl. – "This is the most important fair in middle Europe for us" says Mr. Hartl whose company employs 50 people in Austria. Their most important markets outside Austria and Germany are Scandinavia, France and Italy. In Sweden we have Ecotec as a partner and will represent at World Bioenergy 2006 late May in Jönköping – Herbert Hartl continues. He also concludes that this year there has been a better focus on biomass and that the supply of pellets in Austria is good.



Mr. Werner Emhofer working with Export markets for Fröling. Their most important markets outside Austria and Germany are France, Italy and Switzerland with a rapid growth in Great Britain. Fröling will increase their activities in Sweden and attend World Bioenergy 2006 in May. The quality of pellets is important to guarantee the efficiency on their smaller boilers and stoves says Mr. Emhofer and continues – "It would be nice to see a common standard used within the EU for categorizing pellets, as the DIN+ is the standard in Germany for example".



Dipl.-Ing. Ivan Papousek represented for CzechTrade. They will assist you when meeting your chosen Czech partner, helping to arrange meetings and other services connected to your visit to the Czech Republic.

4000 or 6000kg of pellets. The size of the house is 3\*2,4m or 4.6\*2,4m, both 2,5m high and in total 3,3m with the stoves chimney. The price for the smallest system with an 8kW Hz08 is 19 000 Euro + tax and for an Hz32 32kW and the large storage tank you pay 23 000 Euro. Ökofen is building two factories in Austria and one in Germany this year. Ökofens home markets are Austria and Germany with activities in Great Britain, Italy, France, Switzerland and Belgium. No further expansion is planned for the immediate future according to Elfriede Ortner.



Elfriede Ortner of Ökofen showing their complete solution for a pellet system. A small house including a Pellet stove in size from 8kW up to 32kW and a FlexiTank for storage of

### Enex – New Energy

The fair was held in Kielce (Poland) on 21st–23rd March 2006. The event was organized in the cooperation with the Economic Chamber of Power Industry and Environmental Protection as well as the Association of Polish Electrical Engineers.

Enex is an international fair focused on the new solutions in small, medium and big power industry. It is attended by both producers of conventional energy and companies specializing in the production of energy from renewable sources, including biomass.

Of course Bioenergy International was on the fair and promoting the next (4th) Polish edition of the magazine. BioDest Sp. z o.o., daughter company in Poland and publisher of Polish version, had a stand next to Polish Chamber of Biomass, that this year prepared a conference "Practical Solution for Heating with biomass".



Both Polish and English editions of the Bioenergy International were very popular. On the last day of the fair we had only single specimens. So, as you can see – biomass in Poland has a lot of followers.

More Information on [www.enex.pl](http://www.enex.pl)  
Bartek Dutkiewicz  
BioDest Sp z o.o

Text and Photos Patric Storm

# Events

## Expobio-energía'06

The technological fair for the biomass energy value increase will be held from 19th to 22nd October 2006 in Valladolid (Spain).

Expobioenergía'06 is a pioneering event as there is no other similar fair in the Iberian Peninsula.

The fair's initial objective is to continually boost the bioenergy sector in Spain and in Portugal both throughout its organization and after its celebration.

The use of ligneous material, wood derivatives and bioenergetic agricultural crops to generate energy is slowly being consolidated and earning points on the Iberian peninsula, which is venturing solidly on the development of bioenergy as a possible alternative. This fact has become clearly evident in the first phase of alliances planned by Expobioenergía'06 through the signing of 26 agreements with various entities, both public and private.

One of the objectives of both Expobioenergía and the entities who have joined the project consists of the establishing that the flow goes from biomass production to the end energy consumer.

Expobioenergía '06 receives support in the biomass and energy production sector -26 entities show their support for the development of bioenergy by signing cooperation or sponsorship agreements with Expobioenergía'06.

More information at: [www.expobioenergia.com](http://www.expobioenergia.com)

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

# Calendar



www.bioenergyinternational.com

## MAY

05 - 07	Enbio 2006	Kassel	Germany	www.enbio.de
10 - 12	Carbon Expo ,Global Carbon Market Fair & Conf.	Cologne	Germany	www.carbonexpo.com
12 - 13	International Picninc of Renewable Energy	Nowe Miasto	Poland	www.gemi.info/
30 - 1 <sup>June</sup>	World Bioenergy 2006 - Conference & Exhibition on Biomass for Energy	Jönköping	Sweden	www.worldbioenergy.se
30 - 1 <sup>June</sup>	Pellets 2006	Jönköping	Sweden	www.pellets2006.com
30 - 2 <sup>June</sup>	Eastern Biofuels Conference & Expo	Budapest	Hungary	www.easternbiofuels.com
31 - 1 <sup>June</sup>	Bioenergy Conference	Prince George	Canada	www.bioenergyconference.org

## JUNE

5 - 6	Biofuels Markets Asia	Bangkok	Thailand	www.greenpowerconferences.com
8 - 10	Forexpo	Bilbao	Spain	canalcom@club-internet.fr
6 - 10	Wood Energy Solutions	North Karelia	Finland	www.wenet.fi
13 - 14	Carbon Markets Asia		Hong Kong	www.greenpowerconferences.com
13 - 16	Interles, 10 <sup>th</sup> International Exhibition	St Petersburg	Russia	www.restec.ru
15 - 16	Renewable Energy Finance Asia		Hong Kong	www.greenpowerconferences.com
16 - 18	Euroforest, large exhibition in a real forest	Dijon Cedex	France	www.euroforest2006.com
27 - 29	Pellets Expo, International fair	Bydgoszcz	Poland	www.ctpik.com.pl

## JULY

3 - 4	International Conference Slobiom RES and Kyoto Protocol for south-east Europe	Ljubljana	Slovenia	www.slobiom-zveza.si
12 - 16	Interforst 2006 10th International Trade Fair	München	Germany	www.interforst.de

## AUGUST

31 - 2 <sup>sept</sup>	Metko	Jämsänkoski	Finland	www.metko.fi
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## SEPTEMBER

6 - 8	Clean power, Combustion solutions for waste,	Lahti	Finland	www.cleanpower2006.fi
8 - 9	Green Power Central & Eastern Europe	Budapest	Hungary	www.greenpowerconferences.com
11 - 13	5th European Motor Bio Fuels Forum	Newcastle	United Kingdom	www.europoint-bv.com/biofuels2006
21 - 23	APF Int. Forest Machinery Exhibition	Alcester	UK	www.apfexhibition.co.uk
27 - 28	Forexpo, Forestry and Wood	Aquitaine	France	www.forexpo.fr
28 - 1 <sup>oct</sup>	IHE - WoodEnergy 2006	Augsburg	Germany	www.ihe-woodenergy.com
28 - 1 <sup>oct</sup>	RENEXPO 2006	Augsburg	Germany	www.renexpo.com

## OCTOBER

5 - 7	Renewable Energies and Water Technologies	Almeria	Spain	www.almeriafeeriasycongresos.com
11 - 13	Pellets 2006	Stuttgart	Germany	www.pellets2006.de
18 - 20	Trade for decentralized Energy Technology,	Nürnberg	Germany	www.enkon-dezentral.de
19 - 20	Bioenergy International Updates	Chojnice	Poland	www.bioenergyinternational.com
19 - 22	Expo Bioenergia	Valladolid	Spain	www.expobioenergia.com
24 - 26	EnergiaForum	Tammerfors	Finland	www.energiaforum.com
26 - 29	Energietage	Aachen	Germany	www.aachener-energietae.de

## NOVEMBER

27 - 28	Fules of the future 2006	ICC Berlin	Germany	www.bioenergie.de
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## MAY

8 - 10	Victam International	Utrecht	The Netherlands	www.victam.com
14 - 18	Ligna, World fair for the Forestry and Wood Industri	Hannover	Germany	www.messe.de
31 - 2 <sup>June</sup>	Elmia Wood	Jönköping	Sweden	www.elmia.se

## SEPTEMBER

3 - 6	Bioenergy 2007	Jyväskylä	Finland	www.finbioenergy.fi/bioenergy2007
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## “Enormous interest for World Bioenergy 2006 in Jönköping Sweden

We are now finalizing everything regarding the conferences and all study tours, says Kent Nystrom, SVEBIO Managing Director.

– We have for the moment more than 400 international participants signed.

– Most exiting are the delegations that are announced to come from several fast growing bioenergy countries like China, India, Russia and Belorussia.

– These people are here to do business in many directions.

Import of technology and knowledge is obvious but also export. There are also groups that are looking for large investments opportunities in Europe.

– It is nice to see that there also is a balance in interest between the pellets conference and the conference World bioenergy, says Alan Sherrard, project coordinator of Elmia.

– The exhibition is truly international, 43 per cent of the exhibitors comes from countries outside Sweden.

Around 100 companies is now represented in the exhibition.

– I understand that there are still many companies that is struggling to decide if they should participate as exhibitors or just come for the conference and as visitors.

– Our ambition is that World Bioenergy will be as famous as Elmia Wood the world leading exhibition in forestry.

Lennart Ljungblom



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