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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 professionals can publish information concerning bioenergy. It is also possible to publish information in many major languages.

Welcome to participate in the Bioenergy International



The Great PelletsMap Issue

elcome to the largest ever issue of the Bioenergy International. As you probably know, we do also have an internet based magazine which you will find at www.bioenergyinternational.com. The paper version is published 6 times a year.

We do also establish cooperations in different countries. The latest, the first Spanish language edition was launched October 16. Local editions exist in French, Italian, Polish and Russian languages. We invite interested professionals to become reporters, agents or franchise takers.

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

And, do not forget to send us suggestions of your stories to publish, the exciting development of the international bioenergy business.

Lennart Ljungblom Editor and Publisher lennart.ljungblom@novator.se







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Vapo has pellet production facilities in Finland, Sweden, Denmark, Estonia and Poland. Total production capacity is over 800.000 tonnes.

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.

Vapo Pellets are produced according to

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rigorous quality criteria in carefully controlled conditions. 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



Vapo Pellets Plant of Vapo Group
Partner's Plant

Haapavesi





Bioenergy International France







Bioenergy nternational Japar



Publisher Ken Kojima



kazuo.abe@kek.j

CO, Reductions:



Not such a difficult target to hit.



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Bioenergy International Spain



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Caring for our future

193 45 V

Renewable Energy

Mitsubishi raises the pellets bets

M^{itsubishi} Cor acquired 45 percer of Vis Nova Tradin GmbH, the Germa Pellets company wh also owns and ope ates the pellets plai und Pe GmbH (HPS), a facili that produces 120 000 tons/y, as well as sev eral distribution base in Germany.

Each year VNT sup lies about 180 000 tons of pellets mair to electric power con panies in the EU. VNT is aiming to reach 500 000 tons in sales by 2010

MC invested 5,625 million euros (equiva lent to 45% of VNT shares) and intends to be actively involved in the company's man-

MC foresees poential pellet deman n Japan, and has es tablished Forest Energy HITA Co, Ltd. and Forest Energ Kadogawa Co, Ltd. pellet manufacturer in Ooita and Miyaza respectively, each with an yearly output of 25 000 tons.

MC also plans to set up bio-pellet man ufacturing plants i North America, Sout America, and Asia creating a truly worl wide supply network Mitsubishi is Japan' argest general tradin company (sogo sho in approximately 80 More info, www

mitsubishicorp.com /BI35/812/LL





Green Circle Bio Energy Inc. has built the world's largest wood pellet plant in Northern Florida. The new state-of-the-art facility, completed this year, has an annual capacity output of 560,000 tons of wood pellets. Our production process delivers

a renewable fuel with an unrivaled net energy gain. Sustainability and high net energy gain are the most critical factors in the renewable sector.



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philosophy is to build long

term relationships

in markets world

an efficient industrial

approach to pellet production.

wide based on

Central heating

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Estonian pellets business comments by Kuido Kuntro Flex Heat

2008 - Pellets marke he market situation was the same as i 2007. We had again a very warm winter with over supply and low prices. A lot of pelle <u>nills stopped</u> produc tion or went bankrupt t seems that at the end of this year mos of the old stocks w be sold and finally w will reach a market balance.

Raw Material and

This all depends o world economy in ge eral. The wood industr is suffering and nobody knows what the firs tom tariffs on round wood but this doesn' help while there is very low demand on wood products on the mark at the moment. I thi that our decision to widen the raw materia range and to invest into necessary technology nas been right. Toda we are able to use dif ferent materials and ou position is strong.

News from Estonia The largest develop ments are in the powe sector. Several CHI plants based on peat bark and wood chip are under construc tior

New Year wishes? More raw material. Let' hope that the situatior from winter 2006 wi not be repeated whe there wasn't enougl wood pellets. In Ion run it will hurt all pelle market actors BI35/820/DN

AN IMPORTANT MESSAGE

To those wanting to dry sawdust, chips, bark and similar materials at a minimum operating cost.



Our product range is being expanded with a new series of low-temperature dryers – LTD.

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Pellets

Pellets The Pellets Map 08/09 some regions investors new leader has arise. started 2 pellets plants

The dynamic pellets business continues to develop and the market trends is going in all directions. In this issue we have collected tons of info. We could easily have filled a magazine of

Maral Kassabian has been in charge for the collection of information from a huge number of information suppliers - Thanks!!

double the size.

D^{ellets} business is most difficult to analyze. Trends are going in different directions. But basically there is a obvious market expansion, but in

New Leader Arises Earlier largest plant the Dong owned Köge plant in Denmark is standing still regarding it's wood pellet production and a

lucky.

Code	Company Name/Location	CAPACITY	PRODUCTION	ATP23	MAK, Griffen	24 000	-
		ton/year	ton/year	ATP24	Häupl, Vöcklamarkt	100 000	-
	AUSTRALIA			ATP25	Binder, Ienbach	35 000	32 000
AUP01	Pellet Heaters Australia, New S Wales	5 000	2 000	ATP31	RZ Gaishorn	20.000	10 000
AUP02	Plantation Energy (GF Energy), Albany	250 000	-	ATP33	Pfeifer Imst	25,000	5,000
	AUSTRIA			ATD24	DZ Laiban bai Malla	25 000	0
ATP01	Binder, Fügen	85 000	60 000	ATP25	Ölerröhmen Brickmening	constr.	0
ATP03	Glechner, Mattighofen	60 000	29 000	ATP35	Discoverine, Reichräming	constr.	0
ATP06	Leitinger, Preding	70 000	-	ATP36	Rumelmayer, Enns	constr.	0
ATP07	Pabst Zeltweg	60.000	50.000	ATP37	PowerPellets, Grossklein	constr.	0
ATD09	HTS Stainach	20.000	50 000	ATP38	RZ, Bad St Leonhart	constr.	0
ATD10		150,000	-		BELARUS		
ATPIO		130 000	62 000	BYP01	Bionovus/Gomel, Gomel	24 000	24 000
ATP11	Seppele, Feistritz an der Drau	28 000	15 000	BYP02	BRM, Minsk CLOSED 3 Years ago	CLOSED	-
ATP13	RZ, Ybbs	80 000	70 000		BELGIUM		
ATP14	Leitinger, Leoben	40 000	-	BEP01	Recybois Virton	50.000	40,000
ATP15	Seppele, Sachsenburg	65 000	45 000	BEDO2	Granubois Bièvre	15,000	10 000
ATP16	Pellex, Lieserbrucke	40 000	17 000	DEI 02	Dellete Mandi Elevene	20.000	-
ATP17	FireStixx, Abtenau	46 000	35 000	DEP03		50 000	-
ATP19	SchöBwendter, Saalfelden	25 000	25 000	BEP04	Delnez Bois, Dison	33 000	-
ATP21	Hasslacher, Hermagor	40 000	-	BEP05	Erda, Bertrix	130 000	-
ATP22	Holz & Wärme Pelle, Althofen	20 000	-	BEP06	IBV, Burtonville	150 000	-
N 🎯	APO C	3	O Lant	männer	SÖDRA	Conesi Jan	(järde Neliss



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are waiting and in other they are fighting about the available new project sites. Nobody want to miss the train and nobody want to be on the market to early.

Very large companies are entering the market and at the same time many very small producers are developing. In more mature markets one can see a stabilization and the stronger

competitor wins. Raw material are of greatest importance - of cource - but also market knowledge, production skills and good logistics and not at least strong financing divides the successful from the un-

The new world capacity leader is instead Green Circle in Florida, USA.

The large production of straw pellet in Köge is however working. This is owned by Swedish Vattenfall

Baltic drama

Several Baltic pellets producers have had a difficult year. Large producer BBG, with combined capacity of over 230 000 t/y, is among those bankrupt.

Exciting New Regions

A plant larger than any other in Europe (450 000 t) is on the way in Norway close to the city of Trondheim.

Southern USA is extremely hot regarding new large projects many are announced.

The Mitsubishi Corporation, largest Japanese trading company in Japan. More important maybe is that they bought a large share in German Visnova.

Pellets market in Korea, Japan and China is growing from low levels.

Spain and especially Portugal is more or less exploding.

The Western Balkans are also experiencing a boom in pellets production. Raw material is not a problem, and they find a good and close market in Italy and Austria. The combined capacity in the year 2008 is about half a million tons.

Italy has a large stove market and substantial national capacity but problematic raw material supply. Several Italian companies have invested in production in other countries.

Canada's Pinnacle Pellet has expanded and other closed down

because of collapsing US housing market.

Finally, South African pellets are now realized. And in Australia the first large 250 000 tons mill is on the way.

Next to come in large volumes are South east Asia - maybe already next year.

It could however happen that South America, projects are on the way in most countries over there, will enter the market ahead.

The mature Swedish market is still expanding through large investors. Stora Enso are building two new plants and utility Skellefteå Kraft one, in total more than 450 000 new tons.

And Russia - still the big production boom has not vet arise.

There are believes for a total market expansion from 10 million t/v to 120 - 140 million t/y.

Lennart Ljungblom

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EcoPellet from Polish Barlinek

EcoPellet is a clean economical and convenient solid fue used generally in Eu ope, a by-produc f the Barlinek board roduction technol

The fuel produced y Barlinek is known as EcoPellet due to ts traits and for bein nvironment and hu nan friendly. Barlinek fuel i

hade from the com any's own sawdus n a closed, fully-con olled process which nsures the highes uality. This quality as been recognized ith the German qua ity DIN 51731 Certif cate. This documer nakes the EU marke fully available for the Polish product.

The Barlinek Group s a modern company ith great potentia which owns pellets actories in Poland Barlinek) and Ukraind (<u>Vinnitsa, Ko</u>siv). Ex ensive logistical net work allows it to reacl

any customer. The Barlinek Group is a respected manu facturer of woode floorings — the bigges in Poland and one o the world leaders. The three-layer Barline floorboard, a trade nark product of the company, is <u>currentl</u> exported to over 46 countries in four con tinents.

BI35/749/DN



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Scandinavian - American Green Circle



the end of his work a the Green Circle Cot tondale pellets plan



he four team leade haring the respon pility to run the plant



illl Waller in charge o the supply of fibre fo the plant.

It is working well h s, and now w t is bad days for th pulp industry the for est owners are mos happy to have us.

Below Marian Ja non in the contro





CEO of Green Cir he worlds largest llets producer

Worlds Largest Pellet Plant Now Operating





Hard soft wood - this is the Southern pine. It grows very fast but is also very hard. Most forests are planted and harvested in 20 years and before that a thinnning operation has been done. Above, sharpening equipment for the chippers knives.

utside the little town of Cottondale just south of the border between Florida and Alabama is the 550 000 t/v Green Circle Pellet Plant located.

This is a most splendid location, inside the high productive plantation forest area in southern USA, alongside the Bay Line Railroad railway and the north south

highway. - We spend a lot of time analyzing the best spot for a plant, says Olaf Roed, the Norweigan born, Atlanta living CEO of Green Circle Ltd. – It is very important

to have logistics under control, he stresses.

- There are lot of transports and the owner of our mother company JCE group I Christer Ericsson as well as my self have our background in shipping

and logistics. - The raw material. mainly Southern Yellow Pine pulpwood quality of timber is collected within a distance of 100 km, says Bill Waller in charge of raw material supply.

The timber is hauled in by semitrailers and stored on piles at the plant. Before being processed to pellets the bark is removed in a system

provided by Bruks, another JCE company.

Bruks are responsible for all the timber processing and chipping equipment at the plant. The barks are burnt

in a furnace, supplied by Georgia based Teaford Co. Inc. for the production of heat to the two drum driers constructed by TSI and are of single pass model.

- We have two parallel incoming drying lines that can be run separately says Roger Lehtonen, who has been responsible for the construction and start up of the plant.

The plant also uses sawdust from local saw

ing to work well, says Roger Lehtonen, - Still however we have some tasks to solve. As an example now Bühler, the main contractor for the pelletizing part are rebuilding the asperation system because of the not good enough quality of steel first used.









The incoming trucks are emptied with a full truck unloading system as shown above, which is very unfamiliar for the Europeans.

It takes around 15 minutes to empty a truck of 85 m³ or 27 tons. - Our mill is start-

- We are very plesased



with positive attitude from Bühler in getting this plant working.

Important to note in the mill is also the robust quality of everything.

- We have been hard and nothing with not good enough quality has



been allowed.

- Look at the trunion wheels of the dryer for example, says Roger Lehtonen.

Also of great importance are the environmental issues.

- This large plant is

so well designed that it is considered a minor emitter here in Florida. - We also use train

transport, directly from plant to the port which also is of great importance.

cont'd pg.15



cal engineer and also esponsible for env onmental issues



ant plant mana



ient analysis ar done to secure the uality standard of the oductior



lagons to be load ed with pellets at the plant. Two tracks in l hold a set o 0 rail cars each. Pe ets are directly fed nto the cars from the





100 km south of Cottondale is Panama City, Florida, and its port.

The port has invested heavily and organized a most efficient pellet terminal that can fill a 25 000 tons ship in two days even if the weather

belts are covered. Incoming pellets are

BEP10	Wonterspan, Deinze
	BOSNIA-HERZEGOVINA
BAP01	Vitales (Istrabenz), Nova Bila
BAP02	Vitales (Istrabenz), Bihac
BAP04	EnerNovi, Novi Grad
BAP06	FIS, Vitez
BAP03	Panefin, Srbac
BAP05	Swisseco Pellets RS, Zvornik
	BULGARIA
BGP02	Erato Holding, Haskovo
BGP03	GTI Ltd, Mizia
BGP04	Ecoflam, Velingrad
BGP05	Ecokalor, Velingrad
BGP07	Biofire, Velingrad
BGP08	Ahira, Plovdiv
BGP09	Sredna Gora, Stara Zagora
BGP11	Biopellets Bulgaria, Plovdiv
BGP12	Bulpellet, Sofia
BGP13	Biop Plam, Sofia
BGP14	Ais-les, Ajtos
BGP15	Ecoeffect, Pernik
BGP16	Wiwa Agrotex, Alfatar
	CANADA
CAP02	Pinnacle Pellet, Quesnel BC
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is somewhat unsteady, because all conveyor

delivered by bottom unloaded wagons run by the private railway company Bay Line Railroad owned by large J&W.







Pellets are measured and checked regarding humidity and fed into a storage hall large enough to store 35 000 tons.

Pellets are fed from top into long piles. The strings hanging

down are equipped with temperature sensors, to maintain temperature control.

Every third week a ship is loaded and sailed to the big power plants in Europe. - Probably we will see



tion and later also use of pellets, says Roger Lehtonen, but it will take some time.

> *Text and photos* Lennart Ljungblom

20 000	15 000	CAP03	Premium Pellet, Vanderhoof BC	130 000	-
		CAP04	Princeton Co-Gen, Princeton BC	90 000	-
45 000	-	CAP05	Armstrong Pellet (Pinnacle), BC	50 000	-
35 000	-	CAP06	Pacific Bioenergy Corp., Prince George BC	130 000	-
20 000	-	CAP07	Dansons-Vanderwell, Slave Lake	40 000	-
3 000	-	CAP08	Energex Pellet Fuel, Lac-Magentic	90 000	-
40 000	-	CAP10	Shaw Resources, Shubenacadie	90 000	-
12 000	-	CAP11	EnLigna, Musquodoboit	120 000	120 000
		CAP12	Lauzon Rec. Wood Energy, Papineauville	20 000	-
600	600	CAP13	Lauzon Recycled Wood Energy , St Paulin	25 000	-
500	-	CAP14	Pinnacle Pellet, William's Lake BC	150 000	-
1 000	-	CAP15	WestWood Fibre, Westbank BC	50 000	-
1 000	-	CAP16	Pinnacle/Canfor, Houston Pellet, BC	130 000	-
1 000	-	CAP17	FootHills, Grande Cashe	25 000	-
-	-	CAP18	La Crete Premium Pellets, La Crete	75 000	-
-	-	CAP20	Pellets Ear Falls	15 000	-
-	-	CAD22		50.000	
-	-	CAP22	Timber Creek, Ingersol	50 000	-
-	-	CAP24	LG Granule, St Felicien	50 000	-
-	-	CAP25	EcoFlame, Kipawa	30 000	-
-	-	CAP26	Amos, PQ	50 000	-
-	-	CAP28	Marwood, Fredericton	10 000	-
		CAP31	Pinnacle Pellet, Meadow Bank	275 000	0
90 000	-	CAP33	Shaw Resources, Belledune	75 000	-





The TSI dryer

SI out of Seattle Washington, USA nave supplied two dryer systems with combined capacity of 80 tons per hour to Green Circle located n Northern Florida JSA.

The rotary drum dryers are 5,5 meters (18 feet) in diameter by 25 meters (80 feet) long and employ unique TSI Single Pass Drying echnology.

echnology allows ach particle to dry at s own rate in orde o achieve a homoge neous moisture con rol that is crucial fo elletizing. This is achieved witl

a flighting system which has been de eloped over a period of 30 years.

TSI's dryers achieve tight moisture control handle a wide range of particle characteri tics, while minimizing pollution, and are use riendly.

The dryer systems are designed to recy-cle up to 60 percent of exhaust gas; therefore ninimizing the gas exhausted to atmo phere. This furthe nhances the energy fficiency and low oxygen within the sys tem which minimize the effect of sparks.

TSI provides cus tomers with a tech hology to meet the equirements and i supplier to some of the largest fores products companie around the world

For more informa tion, visit www.tsi-inc net

BI35/738/LLJ



CODE

COMPANY NAME/LOCATION

Pellets Pellets

EIDO9 Vano Ov Haukinevan Perëseinëjaki 60.000



Expanding the Swedish pellets industry

Most Swedish producers are organised in PIR Pel-letsindustrins Riksförbund.

There is hard compe ition from imported pel ets. Last year 450 000

tons was imported. – We see a soli expansion in all seg ments, says Tomas Isaksson, chairmar of PIR.

Especially interestin is the middle segmen with small industries ospitals, schools etc.

Todays world ma ket is around 8-10 mi lion tons but there are studies indicating a future volume of 120 170 million tons.

Pellets price is influ enced by many things The price for sawdue is partly regulated b the price a heatin plant will pay to bur sawdust and for alte native raw materia Also very important is the customers alterna or investments in ne plants to replace oil In Sweden no pro

ducers have closed down. New ones are on the way, Stora Enso has 2 plants coming. Rindi in Älvdalen, and Skellefteå Kraft in Sto ruman, a total of at least 400 000 more tons.

	CHILE		
CLP01	Andes BioPellets, Los Ángeles	-	-
CLP02	EcoPellets, Noviciado	-	-
	CROATIA		
HRP01	Spacva, Vinkovci	50 000	-
HRP02	Finvest, Cabar	20 000	-
HRP03	Pellets, Zupanja	40 000	-
HRP04	Energy Pellets, Delnice	30 000	-
HRP05	Visevica Komp, Perusic	25 000	-
HRP06	Adriadrvo, Gradec	10 000	-
HRP07	Drvenjaca, Fuzine	7 300	-
	CZECH REPUBLIC		
CZP03	Enviterm, Zdirec	5 000	-
CZP04	Jesenik Biofuels, Opava	6 000	-
CZP06	Braznice u Pisku, Pisek	4 000	-
CZP07	Chodová planá, Tachov	6 000	-
CZP08	Chanovice, Horovice	7 000	-
CZP05	Leitinger, Paskov	100 000	65 000
	DENMARK		
DKP01	Vapo AS, Vildbjerg	90 000	60 000
DKP03	Vattenfall (Dong), Köge	150 000	80 000
DKP04	Bodilsen Traepillefabrikken, Nyköbing	20 000	-
DKP05	Skandinavisk BioBrändsel Ind., Assens	20 000	-
DKP06	DLG Service, Års	60 000	-
DKP09	Dansk Träemballage, Ribe	40 000	-
DKP10	Dan-Traepiller, Vamdrup	20 000	-
DKP11	Genfa Traepiller, Vinderup	18 000	-
DKP12	Steens Biobraendsel, Kjellerup	40 000	-
DKP13	Rodekro Biofabrik A/S	30 000	30 000
	ESTONIA		
EEP01	Hansa Graanul, Patkula	110 000	CLOSED
EEP02	AS Flex Heat, Rakvere	105 000	91 000
EEP03	Graanul Invest/Delcotec, Paide	40 000	-
EEP04	Vapo Oy, Tootsi Turvas, Pärnu	15 000	CLOSED
EEP05	Graanul Invest, Paide	105 000	-
EEP06	Graanul Invest, AS Pellets. Rakvere	10 000	-
EEP07	Graanul Invest, Patküla	100 000	-
	FINLAND		
FIP01	Parkanon Pellets, Parkano	25.000	_
FIP02	Vano Ov Turengin Pellettitehdas	70.000	
11102	Turenki	/0.000	
FIP04	Vapo Oy, Kaskinen, Syväsatamantie	45 000	-
FIP05	Vapo, Haminan Puunjalostus Oy	CLOSED	0
FIP06	Vapo Oy, Ilomantsin, Savotantie	70 000	-
FIP08	Vapo Oy. Kärsämäki	40 000	-
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CAPACITY PRODUCTION

ton/year

ton/year

FIP10			
	Paahtopuu Oy, Korkeakoski	25 000	-
FIP11	Vapo Oy, Ylistaro, Kylänpää	40 000	-
FIP12	Nordic Pellett, Soini	40 000	20 000
FIP19	Vapo Oy, Haapavesi	65 000	-
FIP24	Vapo Oy, Vilppula	100 000	-
FIP25	Versowood Oy, Vierumäki	60 000	30 000
FIP26	Paahtopuu Oy (Versowood), Paahtopuu	20 000	10 000
FIP27	L&T Biowatti, Luumäki	20 000	400
FIP28	L&T Biowatti, Suonenioki	30 000	-
	FRANCE		
FRP01	Cogra, Mende	16 000	16 000
FRP04	Savoie Pan, Tournon	30 000	25 000
FRP05	Sofag, Arc Sous Cicon	10 000	7 000
FRP07	Archimbaud Scierie, Secondigne sur Belle	-	17 000
FRP08	Alpha Luzerne, Pratz	-	4.500
FRP09	Eurodesi, Pauvres	40 000	10 000
FRP11	Vert Deshy, Meximieux	30 000	20 000
FRP12	Alsace Pellets, Alsace	-	10 000
FRP13	Biowood, Challans	20.000	5 000
FRP14	Natural Energie Deshydrome St	20 000	18 000
I KI 14	Claire sur Galaure	20 000	10 000
FRP15	Sica Grasa, Sainte Sabine en Born	-	5 000
FRP16	Cooperative De Ble, Salvagnac	20 000	0
FRP17	Sundeshy, Noirlieu	10 000	3 500
FRP20	Manubois Groupe LeFebvre, Haute Normandie	10 000	2 000
FRP22	Piveteau, Sainte Florence	20 000	12 000
FRP33	Coop le Gouessant, Ofab, Lamballe	-	-
FRP34	HD Services, Loudéac	10 000	3 000
FRP35	Haut Doubs Pellet, Levier	-	25 000
FRP40	Cogra, Auvergne	50 000	32 000
FRP48	Eurofourrage, Arc les Gray	10 000	0
FRP52	Wood Pellet Industry, Saint Loup, Auvergne	-	50 000
FRP54	Biowood, Fontenay le Comte	-	5 000
FRP63	Nergya, Vacheresse	-	5 000
	GERMANY		
DEP04	Westerwälder Holzpellets, Langenbach	40 000	35 000
DEP05	Landw. Trocknungsgenossenschart, Neuhof an der Zenn	10 000	-
DEP06	CompacTec, Straubing	120 000	70 000
DEP07	Drechslerei Spiegelhauer oHG Pel- linos Holzpellets, Hallbach	15 000	-
DEP09	Ante-Holz, Bromskirchen-Somplar	50 000	45 000
DEP16	Schellinger Weingarten, Buchenbach	80 000	48 000
DEP17	Gregor Ziegler, Plössberg	100 000	100 000
	DEVC VI	20.000	18 000

Stora Enso Timber Leading forest industry moves into pellets

he new pellets production at Stora Enso Timber AB sawmill Gruvöns bruk located in the city of Grums in the west of Sweden is a perfect example of an integrated facility.

The three different raw material streams from the sawmill are falling directly at the pellet plant gate. No truck transport is needed.

– We use dry shavings and dry chips from the planing and wet sawdust from the sawmill, says Håkan Lundberg, project owner at Stora Enso Timber and also mill manager, Gruvöns sawmill.

The wet sawdust is sieved and over large material is crushed and sieved again and then fed into the long belt dryer from German Stela.

The drying energy is surplus hot water from the sawmill which in turn receives it from the nearby pulp and paper mill. The hot water is heat exchanged to air which passes through the material on a conveyor.

The dry material is fed to a pocket and mixed with dry shavings and dry chips and sent to the fine mill

The four Andritz pellet presses are next in line. Each one has a capacity of 3,5 t/h. In other words a total of 14 t/h. The contract capacity for a full year is 100 000 ton.

After the cooler pellets are fed into a silo, possible to store 4 000 ton.

Part of the pellets are bagged in the Fisker bagging unit and approximately half are sold as bulk pellets.

- If needed we do also have an extra storage facility of 6 000 tons nearby, adds Tomas Isaksson, director reason is the fact that a belt dryer does not increase the ash content in the pellets like a exhaust gas drum dryer do. – We can guarantee a maximum ash content of 0,3 percent. – On demand we can



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of pellet operations in Stora Enso Timber.

One contractor

Only one contractor, the Estonian Hecotec, who will deliever a key ready plant by 19 December 19. The main suppliers of equipment are Stela for the drver. Andritz for the pellet system, and Fisker for the bagging unit.

We have chosen a belt dryer for two main reasons. One is the available low temperature heat at the plant and the second important

also provide pellets, cer-

tified according to PFC.

All market segments

The ambition for Stora Enso is to produce pellets for all market segments, household (bag and bulk), mid size and large size market, one third to each segment.

- Stora Enso sees great prospects for pellets, says Tomas Isaksson, otherwise we would never have got the investment capital needed.

- It is good for the sawmill that we can take care of all our side products and create an increased value, says Håkan Lundberg.

– So far Stora Enso Timber has decided to invest in pellets production in five mills, 100 000 t/y here in Gruvön and two plants of each 25 000 t/y in Russia



at Impilahti i Karelen Northwest of St Petersburg and one in Nebolchi east of St Petersburg.

- In 2009 we will build a large unit at Kopparfors sawmill in Norrsundet in east Sweden (160 000 t/v). The investment decision for 14,4 million Euro was taken 25 June 2008. In 2010 we will build a plant in Zdirec in the Czech Republic.

– And then there are 21 more sawmills waiting for us.

Gruvöns sawmill site

is very old. First activ ity was already started 1890. Today it is most modern and also the largest sawmill in Sweden. Raw material is spruce, half of it from PFC certified forests.

Stora Enso is an integrated forestry industry with a total turnover of 11,8 billion Euro. 36 000 people are employed in 40 countries. Shares are noted in Stockholm and Helsingfors, Stora Enso Timber is a part of Stora Enso.

Text and photo: Lennart Ljungblom



Vew Stora Enso pe ets plants in nortl east Europe



50 percent of raw ma erial is PFC certified



The Stela belt drye





Bagging unit froi



Colorado's first pellet plant begins shipping beetle kill wood pellets

remmling, Colo-rado – On June <u>1st trucks began to</u> roll out of Confluence Energy's new stateof-the-art wood pell plant, the biggest pel-let plant in the U.S. west of the Missis-

Confluence Energy's celebrated its inaugu ral shipment of wood pellets made from Colorado's beetle kil

Confluence Energy began distributing res idential bagged pellet to its dealers in th Western US and w be selling and delive ing bulk pellets withi Colorado.

Mark Mathis, Pres dent and CEO o Confluence Energy stated.

– We are very excit ed to see these trucks going out.

Confluence Energy carefully selected and developed its site with the express purpose of using the dead biomass – beetle k an efficient and ecc nomical home heatin pro<u>duct</u>.

Confluence Energy s the largest manu acturer of wood pelle biomass fuel in the Rocky Mountain Re

enceenergy.com BI35/813/LL

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Above, part of Fram's team Debbie Branch - Human Resources Sandi McNeal - Domestic Sales Harold L. Arnold – President Rusty Dubberly – Plant Manager Chad Jones - Process Manager



Collegial pellet production discussion at the Fram Pellet plant in Appling County.



SPROU1



Page 18

Denmark

Germany

Venezuela

France

UK

USA

Brazil

Chile

Mexico

Australia

R.P. China

Netherlands











Fram - a Forward **Pellet Market Player**

ram means For-ward in Scandinavian language. This name was chosen with purpose when Per Arneberg, a Norwegian shipping magnate founded the company in October 2005.

In 2007 Fram Renewable Fuels LLC put the shovel in the ground and started to construct a 135 000 t/y pellets mill given the name Appling County Pellets.

The mill is located in the middle of the Georgian wood and lumber district, close to Baxley an area with a lot of forest industrial tradition.

– This is so good, says Harold Arnold, CEO.

- The local authorities are supporting the industrial development.

- Our site is built on ground prepared by the joint counties in the area.

- We have been able to recruit skilled personal. Another advantage are the good quality of the roads to the ports of Brunswick and Savannah and the major nearby sawmills.

Most production are shipped to Europe but the American market is wakening

- Already today we bag and ship pellets in trucks so far north as up to New Jersey, says Harold Arnold.

– Up there they have not enough pellets to meet the demand.

Appling County Pellets produces bagged pellets even though the system is not complete installed. The bags are handled manually until the robot will be installed, just to serve the market need.

– A nice presentation of the Fram spirit, says Harold Arnold.

> Text and Photo: Lennart Ljungblom





Appling County **Pellet Facts**

t the plant work today in total 42 persons. The produc ion will be 135 000 ons on a yearly ba

- We have still prob ems with too short unning time on ou ies, says Rusty Dub berly plant manager. The feedstock i

nainlv sawdust fror ocal sawmills.

The handling sys tem is provided by Bruks and the hammer mill before the dryer by West Salem.

Bark and other bio els are used as fue or the furnace serving he MEC rotating drun ryer with hot ga Indoor equipr

or the dried materia ke fine hammermil pellets presses and elated equipment, are upplied by Andritz. Hamer Inc. has buill

he bagging system.

Also briquetting

They are also now installing RUF briquet-ting machinery to take care of all suitable aw material availabl and also to satisfy the local demand of briquette

/BI35/759/LL



Bioenergy International No 35, 6 - 2008 / www.bioenergyinternational.com



Slovakia Pellets Business Comments by Ladislav Zidek Legal Entities

Pellets market in 2008 Droduction in reased in Slova kia about 5% in 2008 compared with 2007 We expect that sale in Slovakia were be tween 8000 - 10 000 tons in 2008. In Slova kia detailed statistic:

In June 2008 man roducers. includ Biomasa, started to sell pellets to Polish power plants. Be tween June and Oc tober, sales were in th order of 3500 tons t 5 power plants. It to tal, Slovakia exported about 15 000 tons o pellets to power plants n Poland. Exports to Austria

and Italy were down with total estimates a 1000 tons. The tota nstalled capacity ir Slovakia is about 100 000 tons, but actua duction is closer t 50 000 tons per year

Raw material and

future forecasts The major compe tition for raw mate rial is mainly with the furniture sector (Kro nospan Presov and Zvolen, Swedwood Malacky). Much raw material

from northern Slova kia is exported to Polish power plants and to Hungariar power plants from the SOU

In the last two months the wood in dustry in Slovakia has cont'd pg. 21 g.c.

Code	COMPANY NAME/LOCATION	CAPACITY ton/year	PRODUCTION ton/year	DE
DEP23	BioPell, Empfingen	60 000	53 000	DE
DEP24	Sägewerk Schwaiger, Hengersberg	100 000	90 000	
DEP25	InEnergie, Grossmehring	30 000	30 000	DE
DEP26	Holzkontor&Pelletierwerk Schwedt (VisNova), Schwedt	120 000	100 000	GR
DEP27	WEAG & Mohr, Trier	12 000	10 000	GR
DEP28	Glechner, Simbach am Inn	30 000	-	
DEP30	Binderholz Deutschland, Kösching	140 000	70 000	HU
DEP31	German Pellets, Wismar	256 000	256 000	HU
DEP33	Haas Holzprodukte, Falkenberg	12 000	-	HU
DEP35	Anton Heggentaller, Unterbernbach	120 000	120 000	HU
DEP36	Bio-Energy Madau, Mudau	40 000	40 000	HU
DEP37	Franken Pellets, Stadtsteinach	15 000	13 500	HU
DEP38	German Pellets, Ettenheim	128 000	128 000	HU
DEP39	German Pellets, Herbrechtingen	256 000	256 000	
DEP40	Bayerwald Pellet (Holz Schiller), Regen	30 000	25 000	RIP
DEP44	WEAG & Mohr, Rötsweiler-Nock- enthal	-	-	KIP
DEP45	Energiepellets Oberhonnefeld (West- erwälder), Oberhonnefeld	48 000	25 000	ITP ITP
DEP46	Energiepellets Hosenfeld, Hosenfeld	40 000	-	
DEP48	EC Bioenergie Heidelberg, Rhein	150 000	-	ITP
DEP49	Holzwerk Baumann, Wangen, Allgäu	35 000	0	ITP
DEP51	Vertriebskontor Reichardt, Schleswig-Holstein	110 000	-	ITP
DEP52	European Pellet Company (EnLigna), Sachsen	120 000	120 000	ITP
DEP53	Emil Steidle, Sigmaringen	30 000	-	ITP
DEP55	Schellinger, Krauchenwies	40 000	-	ITP
DEP57	Holzindustrie Schlitz, Schlitz	constr.	0	ITP
DEP61	Holzpellets Wüstenroth	30 000	-	ITP
DEP62	FireStixx Hartlietner, Ziertheim	10 000	8 000	ІТР
DEP63	Glechner, Praffkirchen	20 000	15 000	ITP
DEP64	B&B Bioenergie, Calau	90 000	75 000	
DEP65	BEN BioEnergie Niedersachsen, Bu- chholz	77 000	60 000	ITP
DEP66	Fehrbellin Naturholz, Fehrbellin	45 000	40 000	ITT
DEP68	IWO Pellet Rhein-Main, Offenbach	16 000	5 000	ITT
DEP70	Stawag Energie, Aachen	40 000	40 000	111
DEP71	Unomondo Pellets, Pforzheim	10 000	10 000	ITP
DEP72	EnLigna, Torgau	120 000	-	ITP
DEP73	Eko Holz und Pellethandel, Neu- münster	-	-	ITP
DEP74	Woodox, Leipzig-Wiederitzsch	-	-	ITD
DEP77	Baust Holzbetriebs, Eslohe	20 000	15 000	m
DEP78	Monnheimer Holzwerk, Grasellenbach	10 000	-	ITP

Stela www.rebrot-paisatge.com

Lantmännen

www.agrobransle.se

DEP80	BK Bioenergie Brennstoffwerk Kehl, Heidelberg	50 000	-
DEP19	Neue Energie Gesellschaft, Gros- senhain	30 000	-
DEP22	PowerPellets Vertriebs, Eslohe	15 000	15 000
	GREECE		
GRP01	Bioenergy Hellas, Larisa	5 000	-
GRP2	Sakkas, Karditsa	20 000	-
	HUNGARY		
HUP02	Beregi Zöldvonal 1, Olaszliszka	20 000	-
HUP03	Beregi Zöldvonal 2, Nyírlugos	33 000	-
HUP04	Nyír-Pellet, Nyíribrony	33 000	-
HUP05	Nyírségi Energetikai, Nagyhalász	30 000	-
HUP06	Corvinus Energetikai, Szombathely	30 000	-
HUP07	Pannon Pellet Kft, Belezna	10 000	10 000
HUP08	Agritrade Srl	100 000	
	IRELAND		
RIP01	D Pellet Ltd, Kilkenny	70 000	15 000
RIP02	Irish Woodpellets Ltd, Galway	2500	-
	ITALY		
ITP01	Sitta, San Giovanni al Natisone	30 000	25 000
ITP02	Biocalor, Romans d'Isonzo, Friuli	20 000	15 000
	Venezia Giulia		
ITP04	Segatifriuli, Percoto, Friuli Venezia Giulia	-	15 000
ITP05	PST la Pedemontana di Pizzato Pier- antonio, Veneto	-	10 000
ITP06	La Tiesse, S Michele de Piave di Ci- madolmo, Veneto	40 000	30 000
ITP07	Il Truciolo, Canda, Veneto	25 000	CLOSED
ITP14	Ardeco, Casalmaggiore	-	-
ITP17	C&B Calor, Limbiate	-	>15 000
ITP19	Del Curto, Verderio Inferiore, Lombardia	25 000	20 000
ITP21	Savoie Pan, Ligna Tech Italia, Piner- olo, Piemonte	-	-
ITP33	Rossikol, Sambuceto	30 000	-
ITP43	Friul Pellet, Captiva del Friuli, Friuli Venezia Giulia	40 000	10 000
ITP44	BINI Fernando. Cremona, Lombardia	-	>15 000
ITP45	Braga, Casalmaggiore, Lombaridia	23 000	-
ITP46	Vicari Trading, Como, Lombardia	-	>15 000
ITP50	Produttori Sementi Verona, Caldiero, Veneto	25 000	10 000
ITP51	Priant, Vazzola, Veneto	15 000	12 000
ITP52	Elle-Bi, Cerreto Guidi	30 000	-
ITP54	Mallarini, Liguria	-	10 000
ITP55	Pe.Pe., Azzana Decimo	30 000	10 000
ITP56	Bordignon Giuseppe, Selva del Montello, Veneto	15 000	-
ITP57	Eurocom, Marche	>15 000	7 500





Ontario in Canada has the resources to join the ranks of the major pellet producers. While Canada currently produces 2 million tons per annum (22% of world production), Ontario has the capacity to produce 3 million tons of wood pellets per annum on a long term, sustainable basis. Doug Clark of Tenon Techlocate explains the exciting prospects in Ontario.

urrently there are no pellet produclers operating in Ontario on a significant scale, but the resources are there. Nearly 80% of its land area is forested, and Ontario has 85 billion trees covering an area more than one and a half times the size of Sweden. The Ontario Government has decided to replace coal with renewable biomass in some power generating stations by 2014. The availability of forest biofibre suggests there are significant opportunities to support this.

At Lakehead University in Thunder Bay, Ontario, a study is underway to get an accu-



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rate estimate of biomass economically available by incorporating different forest types, species combinations, and harvesting systems and

Unharvested Supply

methods.

With such a vast forest resource there are a variety of biomass supply opportunities available. There are large volumes of excess tree bark sitting in heritage piles across Northern Ontario; there are quantities of harvest waste sitting at the road side; and there is surplus residue from saw mill operations. In addition there is the long term, sustainable supply opportunity

provided by the annual supply of unharvested trees, providing surplus roundwood and waste tops and branches for pellet production. The 8 year average unharvested surplus of standing timber is estimated at 10.5 million cubic metres. A conservative estimate of Ontario's unharvested surpluses going forward provides a potential supply figure that will allow for commercial production of at least 3 million tons of pellets per annum.

Production Sites

A number of sites across the forested areas of Northern Ontario are capable of supporting

pellet production plants operating at a scale of 100 000 to 150 000 tons per annum. These sites have all the necessities for successful pellet production from the perspective of:

• long term fibre supply

• operational/recently operational saw and pulp mills

• transport infrastructure (access to rail and deep water ports)

• costs and financing • and, potential for synergies such as combined heat & power and district heating.

There is an opportunity to work with the forest stakeholders, the communities and the

Government of Ontario to invest and operate from these production

Major Local Demand

The Ontario story does not however end with the huge production potential. There is also opportunity for significant local demand for wood pellets.

Ontario Power Generation, which accounts for about 70% of electricity consumed in Ontario, is testing its five coal power plants for biomass firing. The testing has been very successful and they believe that it will be possible to achieve 100% biomass energy production post-2014, generating up to 2.5 TWh of dispatchable, renewable energy per year. This equates to a wood pellet requirement of 1.5 million tons per annum.

Add to this, growing interest from Northern Ontario's rural communities in take up of domestic wood pellet boilers, CHP plants and district heating systems, and the Ontario demand story hits the big time.

Reducing Risk

Pellet production in Ontario is seen as a great opportunity. The Ontario Government supports new investment through grants and loans, and will work with the investors to produce robust business plans.

Ontario has major green energy ambitions and the resources to support pellet production. Pellets have an important role to play in the green economy of the future!

Douglas Clark, Director, Tenon Techlocate douglas. clark@tenongroup.com



cont'd

een problems with the global financial cri sis, and as a result the production of sawdus has decreased.

News from Slovakia Vood chips have ir reased in utilization n larger central distric eating units in the ast five years. Pellets utilization

vas started in 2004 y the Biomasa As ociation by imple rooms supported by EU and Ministry o nvironment.

New governmen topped these activi es. It is difficult to un ike they only wan nuclear and natura as from Russia.

We expect to in rease this sector (500 6) but only for the middle scale units be-cause this will not be competitive with the ow prices for gas.

Pellets producers o ovakia have met and re now discussin b establish an Asso iation of producers of bellets in Slovakia.

lew Year wishes?

wish for me to find new partner for a new arger pellets plan unit in Slovakia and lso for investmen o increase for middle ize boiler plants, with us as investors and also us as the opera

This will good bus ess in Slovakia.

For all I wish heal umility and seriou narket partners.

Legal Entitie. Ladislav Zidel

BI35/819/DN





regor Franc an Alenka Valencic Butinar

Fumis from ATech Tech electronica d.o.o. is an ambi tious Slovenian com pany in the field q lectronic control o biomass boilers and stoves.

Gregor Franic the marketing director ex plains that Fumis is a adaptive system that uses a developed a gorithm to analyze and give order in real time Their customer are stove and boile producers with proc ucts in sizes from the smallest 10 kW up to

Heat entrepreneurs who are manag ing many small an niddle scale syster could benefit much from ATech's system They can check and control the unit from

So far ATech has around 1000 installa

1990 and has 125 employees, only a m nor part is involve with the Fumis elec ronic control systen BI35/801/LLi



The Danish pellet market

In 2007 the yearly consumption of wood pellets in Denmark summed up to 1 million tonnes. About half of this amount was utilized in households for heating.

The other half was divided between roughly 250 000 tonnes used in CHP applications (mainly in the Avedøre 2 power plant), 100 000 in district heating plants and the remaining 150 000 were utilized in industry and heating of official buildings.

Denmark is estimated

to decrease to about 50

Consequently the im-

port of pellets is increas-

ing and will most likely

exceed 1 million tonnes

New Danish R&D

set together at the Dan-

ment. The test facilities

of DTI includes equip-

ment for testing and an-

alyzing pellets and solid

biomass at lab scale and

a pilot scale plant for

preparation condition

and pelletizing of all

test facilities, DTI is

able to conduct quality

testing of mechanical

and chemical proper-

ties according to CEN

standards. The center

has also developed a

new method for analyz-

ing and characterizing

slagging properties of

pellets, the "Slagg ana-

lyzer". The pilot plant

facilities currently con-

sists of a number of

pelletizers ranging from

lab scale (10 kg/h) up to

pellet machinery lines

With the upgraded

sorts of solid biomass.

in 2008.

000 tonnes in 2008.



or the year 2008 no dramatic changes in the consumption of wood pellets are expected compared to the utilization in 2007.

The CHP applications are again up to an almost full utilization after a small decline in 2006 due the high pellet prices of that year.

The household market as well as the other market is expected to grow similar to that of 2007, adding another 50 000 to 100 000 tonnes compared to 2007.

In 2007, 85 percent of the pellets used in Denmark were imported and this figure will increase further for 2008.

Although Danish pellet plants comprise a combined annual production capacity of about 500 000 tonnes, the Danish production has been modest and remained at around 150 000 tonnes per year in the last couple of years.

With a total stop of DONG Energie's wood pellet factory in Køge and a general lack of sufficient raw material in Denmark, the total production of pellets in



Source: Danish Energy Agency (www.ens.dk) made by the author and input from Torben Pe *Vedelsparre and Viktor Jensen (Danbio)*



Wood Pellet Consumption in Denmark, 1990 to 2007

with a capacity of 4-6 tons per hour including a range of equipment for comminution, drving and sorting of the feedstock

The pilot plant, operated in close cooperation with Andritz Sprout Matador, have several years of experience with preparing, conditioning and pelletizing of different sorts of feedstock including European soft- and hardwood, wheat straw and energy

The R&D will focus on new biofuels both in terms of tropical woods which are available in huge amounts as waste material and pellets of

mixed feedstocks. The aim is to facilitate an improved understanding of fundamental pellet processes and enlarge the available feedstock for pellets beyond wood and straw preferably through an increased in-

ternational cooperation. /BI35/723 Jonas Dahl, Danish Technological Institute ionas dahl@teknologisk.dk

Pellet mill, 4 tons per hour, with feeding system at the pilot scale test facilities in Sdr. Stenderut Denmark



The SlaggAnalyser New developed equipment for characterizing slagging tendencies of pellets



Pellets Events



Interpellets and Pelletsforum

Once again the organizer Solar Promotion has done a marvelous job. The pellet world gathered together for the latest update. Also the exhibition was very interesting. If one has to chose between 3-4 events a year this yearly Stuttgart event should be one of them. More facts about the event in the Calender page 51.



Expobioenergia in Valladolid, Spain

A new star on the bioenergy event heaven.

organized by Cesefor

For the Spanish spoken world this is the event not to miss. The exhibition stands had a high level and lot's of people visited the three days event



magazine.







here was a high attendance o rofessionals visiting Expobioenergia the In-ternational Bioenergy Fair held from 16 - 18 Oct. in Valladolid.

Beate Schmid

This year's 3rd Expc oenergia fair had ar crease of 40 percen n both the number o oitors and brands as well as in the num er of visitors.

A total of 424 secto ompanies and brands vere present includ ng 35 Latin Americar

. The whole secto sented. A total of 13 36 visitors came a sig ature of the event.

This meant Vallado d became the hub o the bioenergy secto for a week. There were also a number of side ents like study tours o biodiesel and pelle production and energy lants, bioethanol and chinery in actual use

Also a total of five echnical seminars dealing with differen

oenergy sectors. The opening ceremo-/ was conducted by . he President of Casti nd Leon, Juan Vicent lerrera. Special en phasis was placed on the new Castile and Leon Bioenergy Plan.

María Castañeda Carvaj www.expobioene gia.com BI35/682/LL





GEE Energy acquires a ma jority share in the In-Energie **Biomass Centre**

GEE Energy GmbH & Co. KG, a sub sidiary of Hamburg based Marquard & Bahls AG active in the renewable energy sec tor, has acquired the majority of shares in the IN-Energie Gmbł & Co. Betreiber KG biomass centre in Großmehring.

Großmehring. GEE Energy's shar holding in the IN-Energ GmbH & Co. Betreibe KG biomass centre in Bavarian Großmehring the plant production of the plant production of the plant production of the plant plant production of the plant p company's first invest ment of currently tw production plants in Germany. Hence, GEE Energy is highly com-mitted to this biofue factory which is linkec to a combined heating and power plant and a

wood logistics centre. The shareholders general meeting in June 2008 voted for struc tural changes and a fa reaching re-organisatio of IN-Energie, giving GEE Energy 100% of the shares in the ger eral partner (Gmbl and a clear majority of shares in the operativ company (limited part-nership, KG). Thereby GEE Energy has gained operative control of IN-Energie.

www.gee-energy.com

This has been an intense year for Prodesa Medioambiente. Having a long experience in biomass thermal drying and agripellets production, it seems a short period since the company started the activity in the wood pellets market. At the end of 2009 the sum of plants manufactured by Prodesa will be putting on the market more than 388 500 tons of pellets,

with a total installed capacity of 515 500 tons. Impressive!

> hroughout the last months, this company specialized

in thermal drying of biomass that worked under license of Swiss Combi has directed its efforts both to the national and the international markets, in which it has attained several successes.

Accordingly, Prodesa started 2008 with the commitment of setting into operation two new pellets plants in Spain, one near the city of Salamanca and the other one in the north, near Oviedo.

However, one of the more representative projects managed within the last year is Enermontijo, located in the city of Pegões, Portugal.

Project in Portugal

This plant will start its operation in December of the present year, and after the start up, will put on the market 85 000 tons of pellets per year, both DIN-plus and industrial pellets. Its specific characteristics, as it will manufacture pellets in a continuous process from whole tree logs, together

with the record time in

which it has been manu-



factured and erected (6 months) makes it a reference plant in the Iberian market.

The project consists of the construction of a plant to produce pellets in a continuous process from complete tree logs of pine and eucalyptus as raw material.

Swedish input

In this case, the Swedish company Bruks was responsible for the debarking, chipping and rechipping line and Prodesa for the thermal drying, milling and pelleting line.

First of all logs are debarked in a rotary machine. By using a chipping line with two engines of 200 kW each, the logs are reduced to wood chips. In order to be able to guarantee that 100% of the product that goes to the dryer fulfills the desirable particle size (10 mm), those chips go through a rechipper in a closed loop, so just particles with the right particle size are allowed to go to the dryer.

Working system

Meanwhile, the barks that have been removed from the logs in the first stage of the process, are directed to the boiler to produce hot water at 105°C, which will be used as an energy source for the indirect dryer.

Spanish experience

A low temperature belt dryer reduces the moisture content of the wood pinchips from 45% to 10% without modifying the original properties of wood and with a very high reliability even at high ratios of utilization, nearly zero risk of firing and a very low emissions level ($<15 \text{ mg/Nm}^3$).

As the band speed is adjusted depending on the conditions of the raw material, it is possible to have a very accurate control of the moisture content at the outlet of the dryer.

The milling and pelleting line has been likewise delivered by Prodesa, and consists of three pellet mills that will produce altogether 12 tons/hour.

Good practise

Another important point of the project is the short time in which it has been developed. In six months the complete plant was manufactured and erect-

A well coordinated



execution fulfilled by widely experienced staff, together with the best collaboration of every person in Enermontijo have enabled that the whole project has been developed without significant setbacks in a really short

More to ao

period of time.

At present days, and nearly at the end of the year, Prodesa has been awarded with a new project that will also become a reference in

the Iberian Peninsula: to coordinate and execute a drying plus pelleting of biomass and electric generation with ORC plant.

In this new installation, similar as in Enermontijo, the raw material will be complete logs, and the thermal energy that will be used for the drying will come from the waste energy from the ORC, obtained in a thermal oil biomass boiler

BI35/693/DN

Pellets from South Africa

Biotech Fuels is a privately owned company with its head office in Cape Town, South Africa, from where it connects with strategic partners in delivering pellets to markets around the world. The fuels are produced at the manufacturing plant at Howick in KwaZulu Natal.

he company was founded by Michael Guilfoyle and the other shareholders are Ashlev Francis, Kevin Godwin and Obsidium Advisors. The core product is wood pellets but extensive research has been carried out on various other types of material such as agricultural waste and sugar cane bagasse.

Production

The pellets are manu-

factured from freshly

produced sawdust from

the adjacent saw-mills in

Natal.

duce lengths that range from 12mm to 25mm. Testing the samples The pellets plant in Howick houses a state of the art laboratory used for the region of KwaZulu testing samples on a daily

basis. Testing includes all

Code	COMPANY NAME/LOCATION	CAPACITY ton/year	PRODUCTION top/year	LVP14	Remars Granula, Riga	60 000	CLOSED
ITP58	Geminati Lombardia	-	15,000	LVP16	Katlakalna, Latvia	24 000	-
111.50 1TD50	Imola Lagna Emilia Romagna	- - 15 000	5 000	LVP17	Dekmeri, Baldone	12 000	-
11139	inioia Legno, Enina Komagna	>13 000	3 000	LVP19	Ekosource, Aluksne	12 000	-
ITP60	Italtruciolo, Emilia Romagna	30 000	25 000	LVP20	Frix, Valmiera	24 000	-
ITP61	Melinka Italia, Veneto	-	15 000	LVP21	Kokagentura, Lecava	30 000	-
ITP62	Pedemontana Legnami, Vazzola, Veneto	-	15 000	LVP25	Nelss, Aizkraukle	84 000	-
ITP53	Energy Pellets, Riese Pio X	30 000	-	LVP27	Priedaines, Varaklani	12 000	-
	JAPAN			LVP29	SBE, Talsi	72 000	-
JPP01	Meiken	15 000	-		LITHUANIA		
JPP02	Forest Energy (Mitsubishi), Hita	25 000	-	LTP02	GaireLita, Radviliskis	18 000	12 000
JPP03	Forest Energy (Mitsubishi), Kadokawa	25 000	-	LTP07	Graanul Invest, Alytus	70 000	-
	LATVIA			LTP08	Granulita, Baisogala	25 000	25 000
LVP01	Lantmännen Agroenergi, Talsi	90 000	47 000	LTP09	Biofuelz, Prienai	14 000	10 000
LVP02	BBG, Zemgales Granulas, Lecava	25 000	CLOSED	LTP10	Baltwood, Vilnius	-	6 000
LVP03	Latgranula/Incukalna, Riga	24 000	-	LTP11	Utenos Gelzbetonis, Utena	4 200	CLOSED
LVP04	CED, Katrinkains, Cesu	12 000	-	LTP14	Biodela, Vilnius	18 000	12 000
LVP05	TallOil, Sia Marama, Liepaja	48 000	CLOSED		MONTENEGRO		
LVP06	BBG, Gaujas Granulas, Riga	84 000	CLOSED	MOP01	Vektra-Jakic, Pljevlje	25 000	-
LVP07	BBG, Videzemes Granulas, Cesvaine	12 000	CLOSED		NORWAY		
LVP08	Kurzemes Granulas, Ventspils	42 000	-	NOP01	Norsk Pellets, Vestmarka	40 000	-
LVP09	Graanul Invest, Launkalne	120 000	60 000	NOP02	Statoil Trepellets, Brumunddal	30 000	-
LVP10	Latgran, Jaunjelgava	75 600	-	NOP05	Vi-Tre, Røros	11 000	-
LVP11	Latgran, Jekabpils	110 000	-	NOP06	Statoil, Möre Biovärme, Sunnmöre	8 000	-
LVP13	Nordic Bioenergy, Riga	15 000	CLOSED	NOP08	Innlandet Energipellets, Rendalen	20 000	-







The fibre contains no bark which tends to contain sand that is ingrained in its structure during the growing cycle. The fibre is pressed into pellets using moisture and pressure, without additives. Pellet sizes range from 6mm to 8mm in diameter. Special batch manufacturing can proparameters required by the EU and UK markets, including calorific values, chemical composition, durability and density, particle size, ash content.

Strategy

The company has focused on finding sustainable solutions to the energy problems by applying technology to the available biomass waste

- We have been building our ideas and technology on a life-time of research and development and now we are building the manufacturing plants that will enable us to



translate these ideas and visions into reality - states Michael Guilfoyle, Director at Biotech Fuels.

As it begins to establish itself on the strength of its initial investments and its sphere of influence expands within South Africa, and even internationally, the Group is beginning to identify and explore many diverse and exciting opportunities within the field of sustainable energy.

The structure of the Group has been designed to provide a solid foundation and framework to accommodate these new opportunities.

- We are focused on supplying pellet fuel to the power generation utility industry and domestic heating market supplying fuel for pellet stoves - ends Michael Guilfoyle.

BI35/746/DN











Roeland Reesinck from GF Energy , photo LLj

Zebra Pellets next plant in **South Africa**

South Africa based Zebra Pellets Ltd s 71% owned by a letherlands based join enture GF Green Ene gy BV & CGC and 299 owned by the Industria Development Corpora-tion of South Africa.

The Dutch JV with it controlling majority is ir turn owned by Rotte dam-based GF Energy BV (41.7%) and Ma-drid-based Grupo CGC (58.3%), both partie exercising equal voting rights and therewit

The new plant is lo cated in Sabie. Mpuma langa Province, South Africa - 264 km distance from Port of Maputo.

Annual productio capacity for the first phase of the project is 80 000 t/y and the sec ond phase which be gins in 2011 will be 110 000 t/y. Fuel produced in Zebra plant will have industrial grade 6 or 8 mm pellets and Bühler presses will be used fo that purpose.

are 100% virgin wood mix of 70% pine and 30% eucalyptus saw dust, collected fron awmills within 60 km rom Sabie



A few words from French Cogra

The energy sector in

France today The credit tax actu ally in use in Franc ior renewable energ sources helps marke development. None heless, we think that a change of mentalitie requires some time before this can pro before this can pro duce an effect.

Are pellets a potentia source of energy pro

duction in France? Yes, they are. This i among others. But, as France has about 28% of surface timbered we do think that ther exists a large possibil-ity for this means of

Tell us more

about Cogra mium grade pellet since 1982 in Mende and since 2006 i Craponne-Sur-Ar zon. We are exclusiv mporter of Harmai

(USA) pellet stoves. Our pellets are man ufactured with saw dust selected from the first transformation o timber, free of chem cal additives

Due to our contr rocedures. the resul of our long experience we manufacture fue with a high calorific value and low moisture content. We offer this in bulk or in bags fo toves and boilers

/Bernard Chapor /BI35/747/DI





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It appears that over the past 3 years, pellets production in the Western Balkans has been developing at full speed. Countries including Slovenia, Croatia, Bosnia-Herzegovina, Serbia and Montenegro are estimated with a capacity of half a million tons. Alen Bukvic of Hamburg based trading group Gratenau & Hesselbacher, has spent several months investigating the pellets situation in the Western Balkans.

s European pellets consumption continues to increase, the Western Balkans are rising Tup to meet the demand. Pellets are primarily exported, mostly to Italy and Austria due to the large demand for pellets for small-scale consumers, as well as the close proximity of the countries. With plenty of resources available, the future of pellets production in the Western Balkans looks positive.

Serbia

Serbia has five plants running at the moment, with a total capacity of 77 000 tons per annum. There is a small domestic market, though there is a lack

NOP09	Forforedling BA, Levanger	10 000	-	PTP08	Porto de Aveiro (Gesfinu), Aveiro	-	-
NOP11	Hallingdal Trepellets, Ål	45 000	-	PTP09	Porto de Sines (Gesfinu), Sines	constr.	0
NOP12	Merpellets AS, Meråker	constr.	0	PTP10	Biobriquete, Quimbres	30 000	-
	POLAND			PTP11	Flogistica, Vila Verde	-	-
PLP01	Arno-Eko, Szczecin	60 000	60 000	PTP12	Briquetes Raro, V N Gaia	-	-
PLP02	Barlinek, Barlinek	80 000	80 000	PTP13	Enerplegy, Lisbon	-	-
PLP04	Vapo, Slubice	80 000	40 000		RUSSIA		
PLP06	Task, Kiszkowo	20 000	12 000	RUP01	Ecotech, Podporozhie, Leningrad	10 000	-
PLP07	Vapo, Brzezinki	10 000	8 000	RUP02	RosPolitekhLes, St Petersburg	25 000	25 000
PLP13	Sylva, Koscierzyna, Wiele	12 000	-	RUP12	Enbima, Vladimir Region	70 000	6 000
PLP14	Pelety Kozienice, Kozienice	12 000	10 000	RUP14	Vologda Bioexport, Vologda	30 000	30 000
PLP19	Furel, Bialy Bor	24 000	6 000	RUP16	InterTeplo, Moscow	10 000	5 000
PLP21	Pellet-Art, Torzym	60 000	60 000	RUP17	Biotop, Valday, Novgorod	20 000	-
PLP25	Eko-Orneta, Orneta	30 000	15 000	RUP18	Biom, Arkhangelskaya	35 000	30 000
PLP27	E.M.G, Szepietowo, Bialystok	50 000	50 000	RUP19	Murashinskiy Biofuel, Kirov Region	10 000	-
PLP29	Libero, Kuczbork	18 000	12 000	RUP26	Vologdalesprom, Vologda	20 000	4 000
PLP30	Stelmet, Zielona Gora	140 000	60 000 *	RUP28	Lesprom, Cherepovez, Vologda	15 000	8 000
PLP32	Rape, Opole	10 000	5 000	RUP30	Algir Pellets, Noschul, Komi Republic	11 000	10 000
PLP35	Tartak Olczyk	20 000	20 000	RUP31	Euro Techno/ Pellemaks, Vologda	70 000	10 000
PLP37	PBH Zalubski, Jelcz Laskowice	36 000	12 000	RUP34	Topgran, Galich, Kostroma Region	10 000	-
	PORTUGAL			RUP36	Ecoles	25 000	20 000
PTP01	Biomad-Energias Renováveis, Lousada	2 000	-	RUP37	Ecopel, Kirovsk, Leningrad Region	60 000	-
PTP04	Enermontijo, Pegeos	85 000	-	RUP38	Ecoenergy, Pskov Region	60 000	-
PTP05	Pellets Power (Gesfinu), Viseu	100 000	-	RUP43	Biomag Ecotechnology, Petroza-	10 000	10 000
PTP06	Junglepower (Gesfinu), Porto	90 000	-		vodsk, Karelia Republic	10.000	
PTP07	Pellets Power 2 (Gesfinu), Setubal	90 000	-	RUP45	Veek, Pskov Region	10 000	-



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Western Balkans Pellets Boom



Alen Bukvic, Gratenau & Hesselbacher

of subsidies on the domestic level. Cheap pellet heating systems imported from China are available, and pellets can be bought at some supermarkets.

Bosnia Herzegovina

In Bosnia Herzegovina there are several plants existing, with total capacity of 120 000 tons



Croatian pellet plant of Visevica Komp, 25 000t/a

per annum. Lack of a significant domestic market means that pellets are exported, mostly to Italy and Slovenia.

Croatia

Croatia boasts the most significant capacity at 194 500 tons per year! This capacity is distributed among 7 production plants. The country has feed in tariffs supporting the use of renewable energy, encouraging alternative sources.

At the moment, 55% of Croatia's energy is imported. The increased use of biomass can play an important role by reducing the country's dependence on energy imports and creating new cont'd in gc jobs.









ont'd

Total forest biomass is estimated at 1 mil ion cubic meters. Do nestic consumptior emains small.

Slovenia

One of the oldest pe ts plants in the Wes n Balkans is Enerles cated in Sloven with capacity of 50 000 tons per annum Ninety percent of pro duction is exported to taly, the remainder i ised domestically.

Barriers & Opportunities

ligh investment cost nd no financial sup ort are significan parriers. Most producers are not able to neet European pelle standards (DINplus and ÖNorm) which limits the sale of pel lets especially in the domestic market. As in the rest of the pe ets world, volatility n the market prices generates difficulties or producers

Opportunities are available to West Bal kans pellets produc-ers. Medium scale pel-let heating systems in Italy do not insist on bellets below 0,5% ash content. providin a market opportunity Transport distances are relatively short. There is also a large opportunity for agri culture residues.

bright.

Maral Kassabiar based on studies by Alen Bukvi bukvic@gratenau.con www.gratenau.com

BI35/737/MK



Pellets

New Pellet Joint Venture USA and Esto nia involve

ulghum Fibres, Inc States, state of Geor gia and AS Graanul Ir est from Estonia have finalized their discus sions and formed a new joint venture: Fu ghum Graanul, LLC.

Based in Georgia

The joint venture is based in the state of Georgia USA and wil be focused on de veloping wood pelle projects in the USA and Canada. The newly elected CEO of the company is John Bradle

The plans are to build at least one 100-200.000 ton pel let production facility per year in the USA over the next five to ten years.

Heating plants

Fulghum Graanul wi also seek strong op portunities to furthe ntroduce pellets as fuel for heating and power plants in the lo cal markets where the production plants wil be established.

The parties expect to announce the firs pellet factory to be built during 2009, and further details will be disclosed as soon as the maior component are in place, including logistics, raw materia and financing.

Sales Sales activities for the pellets produced in the USA will be ca ried out by AS Graanu

Cont. g.c. p. 29



DRYERS

M-E-C is a worldwide leader in the design and manufacture of drying systems for the biofuel and forest products industries. M-E-C operates two manufacturing facilities where high quality single-pass, triple-pass and flashtube dryers are fabricated along with M-E-C's TherMec® Wood Fuel Suspension Burners, storage bins, conveyors and pneumatic equipment. M-E-C Company strives to be the preferred supplier of industrial drying systems through continuous innovation, consistent quality and reliable service.



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ww.buhleraroup.com

Code	COMPANY NAME/LOCATION	CAPACITY ton/year	PRODUCTION top/wear	ESP03	Ecowarm de Galicia, A Coruna	25 000	12 500
RIID46	Grinlat Rostov na Dony		100.000	ESP04	Ribsa, Burgos	60 000	20 000
RUD49	Enicev Krospoversky Region	40.000	25.000	ESP05	Rebrot i Paistatge, Barcelona	25 000	5 000
RUP49	Emisey, Krasnoyarsky Region	10 000	23 000	ESP08	Tresmasa, Salamanca	constr.	0
RUP51	Kaugov Cr, Nizily Novgorod	10 000	-	ESP11	Grans del Llucanes, Sant Marti	9 600	1 500
RUP32	Leanue Technology Tyer Design	10 000	-	ECD4.2	d'Albars	25.000	15.000
KUP35	Lesnye Technology, Iver Kegion	10 000	-	ESP13	Enerpellet, Muxika	25 000	15 000
RUP36	Plussky, Leningrad Region	10 000	6 000	ESP14	Energia Oriental 1, Granada	20 000	-
RUP5/	Keley, Kostroma Kegion	10 000	-	ESP16	Natural 21 / Farpla, Lleida	70 000	10 000
RUP59	Stod, I ver Region	50 000	25 000	ESP17	Pellets Asturias, Asturias	constr.	0
RUP63	EMC Dnepr, Smolensk	140 000	-	ESP19	Rebi, Soria	25 000	constr.
RUP64	Biogran, Karelia	12 500	-	ESP20	Enerpellet, Vittoria, Basque Country	15 000	0
RUP68	Granula, Moscow Region	20 000	2 000	ESP21	Enerpellet, Cordoba	15 000	-
RUP69	Green Power, Leningrad Region	20 000	20 000	ESP22	Reciclados Lucena, Lucena	10 000	5 000
RUP71	DOK N°5, Moscow Region	30 000	25 000	ESP23	Biogar, Legutio-Alava	15 000	1 000
RUP75	Ruskhimprom, Perm Region	20 000	6 000	ESP24	Bioterm Agroforestal, Cordoba	25 000	2 000
RUP76	VEEK+Salotti, Lodeinoe Pole	20 000	-		SWEDEN		
RUP77	VEEK+Salotti, LO, Lomonosov	10 000	5 000	SEP01	Pajala Bioenergi, Pajala	18 000	8 000
RUP87	DOK Salon Parketa, Bryansk	10 000	10 000	SEP02	BioEnergi i Luleå, Luleå	97 000	95 600
	SERBIA			SEP03	MBAB Energi, Robertsfors	42 000	25 000
SPP01	Bio Energy Point, Boljevac	35 000	-	SEP04	Skellefteå Kraft, Hedensbyn, Skellefteå	130 000	-
SPP02	Bio-therm, Vuckovica	18 000	8 000	SEP05	SCA BioNorr, Härnösand	160 000	160 000
SPP03	Varotech, Novi Sad	12 000	-	SEP06	Neova, Ljusne	40 000	40 000
SPP04	Zelena Drina, Bajina Basta CLOSED	23 000	10 000	SEP09	Neova, Främlingshem, Valbo	65 000	65 000
SPP05	O3, Bajina Basta	10 000	-	SEP10	Statoil Pellets, Säffle	47 000	38 000
SPP06	Briko, Nova Varos	11 000	-	SEP11	Laxå Pellets, Laxå	93 000	80 000
SPP07	Forest Enterprise	31 000	-	SEP12	Boo Forssjö, Katrineholm	53 000	53 000
SPP08	Cvijanovic & Compo	15 000	-	SEP14	Neova, Forsnäs, Österbymo	90 000	90 000
	SLOVAKIA			SEP15	Neova, Vaggeryd	130 000	130 000
SKP01	Drevomax, Rajecke Teplis	5000	4200	SEP16	Lantmännen Agroenergi, Malmbäck	90 000	65 000
SKP07	Biomasa, Kysucky Lieskovec	12 000	9 800	SEP17	Lantmännen Agroenergi, Norberg	90 000	80 000
SKP08	Amico Drevo, Oravsk Podzámok	10 000	-	SEP18	Lantmännen Agroenergi, Ulricehamn	90 000	70 000
SKP10	BIMPEX, Ltd. Pre ov	10 000	-	SEP19	Lantmännen Agroenergi, Sölvesborg	50 000	35 000
SKP11	Ekosolar, Ltd, Pie any	-	-	SEP20	Södra Skogsenergi, Mönsterås	40 000	35 000
SKP12	P.F.A. Lozorno	-	-	SEP21	Vida Pellets, Wisswood, Hook	55 000	55 000
SKP13	Ecodrim, Kosice	10 000	-	SEP22	Helsinge Pellets Edshyn	60,000	constr
SKP14	Helioplast, HelioPeleta, Ludanice	8 000		SEP23	Bureå Pellets, Bureå	20.000	2 000
SKP15	Italian Design. Trencin	12 000	-	SEP24	Mockfjärds Biobränsle, Mockfjärd	30,000	18 000
SKP16	Iugi. Poltar	8000		SED26	SCA BioNorr Stugun	20.000	20.000
SKD17	VT Service Repetre Rustrice	15,000		SEP27	Clammara Miliäanarai Clammaraträsk	5000	20 000
SKP17	MT Palat. Záva pá Poruha	6.000	-	SEP21	V Dallata Cruma	20.000	5.000
5KF 10	SLOVENUA	0 000	-	SEP31	V-renets, Gruins	55 000	3 000
CIDO2		15.000		SEP33		50 000	40 000
SIP02	Promies, Firusevje	13 000	-	SEP34	Smalandspellets, Korsberga	50 000	25 000
SIP03	PE Enerles, Postojna	50 000	48 000	SEP35	HMAB, Sveg	65 000	20 000
SIP04	M.A.D.J., Cerknica	24 000	-	SEP3/	Skelleteå kraft, Biostor, Storuman	105 000	0
	SOUTH AFRICA			SEP38	Rındı Alvdalen AB	constr.	0
SAP05	Zebra Pellets (GF Energy), Sabie	80 000	-	SEP39	Södra Skogsenergi, Långasjö Emmaboda	20 000	20 000
SAP06	Biotech Fuels, Howick	65 000	-	SEP41	Rındi, Västerdala AB, Vansbro	70 000	55 000
	SOUTH KOREA			SEP43	Stora Enso Grums	100 000	-
KRP01	Drying Engineering, Kunsan	300	300	SEP44	Fågelfors Hyvleri, Fågelfors	25 000	25 000
KRP02	Drying Engineering, Gunsan-Si	14 000	-		SWITZERLAND		
KRP03	National Forest Coop Fed., Yeoju-Gun	constr.	0	CHP01	Bürli, Willisau	12 000	10 000
KRP04	SK, Hwasun-Gun	constr.	0	CHP02	Tschopp Holzindustrie AG, Buttisholz	30 000	30 000
	SPAIN			CHP03	AEK Pellet, Solothurn	60 000	25 000
ESP02	Caryse, Villaseca de la Sagra	150 000	-	CHP04	Keller Konrad, Unterstammheim	6 000	6 000



™B IO	ENERGY	
www.bioer	ergyinternatio	nal.com

Cont. g.c. p. 29

(www.graanulinvest of bringing to the European market at east 500.000 tons pe year of wood pellets both industrial and premium to satisfy the growing need i Europe for renewabl energy sources, espe cially biomass.

Added strength

Both parties feel that they can add thei core strengths to the project and make it a success. The newly formed joint ventur can benefit from the strong raw material knowledgeofFulghum Fibres as well as a good understanding of pellet production and sales in Europe from Graanul Invest.

Chip producer

Fulghum Fibres, Inc is one of the larges ndependent wood chip producers in the world with an annua production of approx mately 15 million tons of wood chips prima ily for the pulp and paper industry.

Largest in the **Baltic region**

Graanul Invest AS is one of the larges wood pellet produc-ers in Europe with an annual production ca-pacity of 450.000 tons of pellets, and since al ts production facilitie are currently located in the Baltic States, it is the largest producer in the region.

BI35/751/pres



GEE Energy Celsico **Multipack**

GEE Energy pres ents the innova ive celsico®multipacl - the new combine package of enviror ment-friendly biofu els for wood burn ng stoves and grat urnaces which pro /ides consumers wi a complete range o products from wood and bark briquette through to wood fire

ighters. The 8 kg multipacl has been produced to allow new custom ers to test the vari ous products whic the running of wood burning stoves and grate furnaces as we as to provide exist of these biofuels to meet their needs. Th multipack contains three celsico®rolle wood briquettes one celsico®barl bark briquette and four celsico®fire wood irelighters.

The wood briquet on a dailv basis. Ba briquettes are an idea supplement to woode ones. They are perfec for night-time heating period. Wood fireligh ers are the comple mentary choice for ic niting wood briquette as they are a natura odourless product All celsico® biofuel produce virtually no residues and are CO, neutral.

w.gee-energy.com BI35/697/DN

CHP05	Bartholdi Pellets, Schmidshof	12 000	3 000	1
CHP08	Pelletwerk Mittelland, Schöftland	constr.	0	1
CIII00	THE NETHERI ANDS	consti.	Ū	1
NLP01	Energy Pellets Moerdijk, Moerdijk	100 000	100 000	1
1.21.01	UNITED KINGDOM	100 000	100 000	
UKP01	Welsh Biofuels, Bridgend, Wales	50.000	CLOSED	1
UKP02	Balcas Brites Enniskillen	55,000	55.000	1
UKP04	Clifford Jones Timber	42 000	-	
UKP12	The Renewable Fuel Company Barking	5 000	-	
UKP14	Balcas Brites Invergordon Scotland	100.000	constr	
UKP15	Puffin Pellets Boyndie	25,000	0	ł
UKP16	Forest BioProducts Ltd. Perth	60.000	-	1
UKP18	Land Energy North Yorkshire	50.000		1
UKP19	Land Energy Powys Wales	constr	0	
	Biojoule I td. Oxford	10.000	0	1
	Agripolloto Warwickshiro	constr	-	
	Agripellete Alegeter	constr.	0	
UKP24	Agripenets, Alcester	constr.	0	
UKP25	Jack Moody Biomass, wolvernampton	constr.	0	I
			6.500	
UAPUI	K I K Impex, Summa	-	6 300	1
UAP02	Barlinek, Vinnica	20 000	10 000	
UAP03	Itac Group Mukaschevo, Pausching	75 000	-	
UAP04	Barlinek, Ivano Frankovsk, Kalvsji	24 000	0	1
LIGD & A	USA	<	68.000	1
USP01	New England WoodPellets, New Hampshire NE	65 000	65 000	1
USP02	New England WoodPellets, Schuyler NY	90 000	55 000	1
USP03	Green Circle, Jackson County, FL	550 000	-	
USP04	Dixie Pellets, Selma, AB	-	-	
USP05	Fram, Appling County Pellets, GE	130 000	-	
USP07	Great Lakes Renewable Energy, Hay- ward-Rice Lake, Wisconsin	-	-	
USP08	Corinth Wood Pellets, Corinth	-	-	5
USP09	Allegheny Pellet, Youngsville, PA	-	-	
USP10	Associated Harvest, Lafargeville, NY	-	-	
USP11	Bald Eagle Pellet, Tyrone, PA	-	-	
USP12	Barefoot Pellet Company, Troy, PA	-	-	
USP13	Dry Creek Products, Arcade, NY	-	-	
USP14	Energex Pellet Fuel, Mifflintown, PA	50 000	-	
USP16	Greene Team Pellet Fuel, Garards Fort PA	-	-	
USP17	Hamer Pellet Fuel, Kenova, WV	-	-	
USP18	Hassell & Hughes Lumber Com- pany, Collinwood, TN	-	-	
USP20	Lignetics of West Virginia, Glenville WV	-	-	÷
USP26	PA Pellets, Ulysses PA	36 000	30 000	
USP28	Penn Wood Products, East Berlin PA	-	-	
USP29	Potomac Supply Corporation, Kinsale VA	-	-	
USP31	Turman Hardwood Flooring, Galax VA	-	-	
USP32	Wood Pellets Co., Summerhill PA	-	-	
USP34	Anderson Hardwood Pellets Louisville KY	35 000	_	
USP35	Barnes Brothers Hardwood Flooring,	-	-	
	Hamburg AR			1
USP36	CKS Energy, Amory MS	-	-	
USP38	Fiber Resources, Pine Bluff AR	-	-	1
USP39	FutureFuel Chemical Company,	-	-	

USP40 Hassell & Hughes Lumber, Collinwood TN

USP41	Nature's Earth Pellet, Reform AL	-	-
USP43	Rock Wood Products, The Rock GA	8 000	-
USP44	Somerset Hardwood Flooring. Somerset KY	-	-
USP45	Southern Kentucky Hardwood Flooring, Gamaliel KY	-	-
USP48	Wabash Wood Products, Harrison AR	-	-
USP49	American Wood Fibers, Circleville OH	-	-
USP50	Bay Lakes Companies, Oconto Falls WI	-	-
USP51	Bert & Wetta Sales, Larned KS	-	-
USP52	Christopher Lumber Company, Crockett TX	-	-
USP53	Dejno's Inc, Kenosha WI	-	-
USP54	Elkhorn Industries, Superior WI	-	-
USP55	Fiber By-Products, White Pigeon MI	-	-
USP56	Good Times Wood Products, Rusk TX	-	-
USP57	Heartland Pellets / Pope & Talbot Inc, Spearfish SD	-	-
USP58	Koetter and Smith, Borden IN	-	-
USP59	Maeder Brothers Quality Wood Pellets,Weidman MI	-	-
USP60	Marth Wood Shaving Supply, Marathon WI	-	-
USP61	Michigan Wood Pellet Fuel, Holland MI	-	-
USP62	Michigan Wood Pellet, Grayling MI	-	-
USP64	Northcutt Woodworks, Crockett TX	-	-
USP66	Ozark Hardwood Products, Seymour MO	-	-
USP67	Patterson Wood Products, Nacogdoches TX	-	-
USP68	Pennington Seed Inc, Greenfield MO	-	-
USP69	Pike Pellets, Griggsville IL	-	-
USP71	Vulcan Wood Products, Kingsford MI	-	-
USP73	Bear Mountain Forest Products, Cas- cade Locks OR	-	-
USP74	CNZ Corporation, Sheridan WY	-	-
USP75	Enchantment Biomass Products, Ru- idoso Downs NM	-	-
USP76	Eureka Pellet Mills, Missoula MT	-	-
USP77	Forest Energy, Show Low AZ	-	-
USP78	Lignetics, Sandpoint ID	-	-
USP79	Southwest Forest Prod., Phoenix AZ	-	-
USP80	Sunizona Greenhouses, Wilcox AZ	-	-
USP81	West Oregon Wood Products, Co- lumbia City, OR	50 000	-
USP83	West Oregon Wood Products, Banks OR	50 000	-
USP84	Bear Mountain Forest Products, Brownsville OR	-	-
USP85	Bayou Pellets, Louisiana	75 000	-
USP86	Maine Wood Pellets, Athens ME	-	-
USP87	Bayou Wood Pellets, West Monroe LA	-	-
USP88	Piney Woods Pellets, Wiggins MS	-	-
USP89	Badgerland Pellets, Plymouth WI	-	-
USP90	Great Lakes Renewable Energy, Hay- ward WI	-	-
USP91	Pallets & Crates International, Ela Paso TX	-	-
USP92	SunRise Agra Fuels Development, Bird Island MN	-	-
USP93	Spur Mountain Timber, Boutiful UT	-	-
USP94	Briar Creek, Sylvania GA	15 000	-
USP95	Confluence Energy, Kremmling CO	-	-

Pellets

Pellets

ORC units - heat for the pellets indstry

Italian company Turboden is a specialist designer and manufacturer of Organic Rankine Cycle (ORC) turbines and turbogenerators. They have recently released a paper detailing the market opportunities for installing Combined Heat & Power (CHP) plants based on ORC technology to the pellet industry. The market opportunities focus on the use of ORC technology to supply the heat needed for drying sawdust to produce pellets.

he results of Turboden's study were presented in an article that examines the different technologies for drying sawdust to produce pellets and discusses the advantages of the CHP solution in detail. In addition, the com-

pany presented the results of an economic feasibility study, comparing CHP plants (ORC units of different sizes coupled with a belt drver) and traditional heatonly plants and their suitability to the pellet production process. The study takes into account the additional costs and additional incomes con-

mass boiler • A plant without cogeneration would have been built with a direct drum dryer and biomass boiler.

The results are evaluated in terms of discounted payback of the additional investment depending on the value of electric energy for all standard ORC sizes and for two different scenar-

New pellets producer in Portugal

Bioenergy International has interviewed Filipa Rebelo, Managing Director of Gesfinu SGPS from Portugal. The group has consolidated activity in real estate, wind energy, hydro energy and bioenergy areas. Gesfinu has developed and is now operating wind farms as well as hydrolics in Portugal, with a total generation of 75 MW.

ore recently Gesfinu start-L V Led up a project with 30 million Euro investment for the development of three wood pellets plants in Portugal Two of them are already in production and the 3rd one will be in operation from the 1st quarter of 2009. How does the energy

sector look like in Portugal today?

Most of our energy comes from fossil fuel such as coal, oil, and natural gas but we implemented a big effort from Portugal to increase the use of renewable ener-

build more pellets factories?

in Portugal?





nected with the installation of a biomass cogeneration plant compared to the most common heat only options in the pellets industry:

• A plant without cogeneration would have been built with an indirect belt dryer and bio-

watt Electric Turboden ORC unit installed in the Mudau pellet plant in Germany, which has been in operation since October 2006. In May 2008 the ORC unit reached 13 500 operation hours corresponding to an average operation time of the cogeneration plant of about 8500 hours/year. The other operational data largely exceeded the contractual data and the assumptions used as input data in the economical study.

ios of biomass cost.

Finally, Turboden pre-

sented a real-world case

study of its 1.2 Mega-

The article clearly



Pellet plant with Turboden's installed ORC

demonstrated that the installation of cogeneration biomass units. based on thermal oil boilers and Turboden ORC units, is economically profitable compared to the main heat only technological solutions for the most common production capacities in industry.

This is true also taking into account the additional cost and energy consumption of a belt drver if a direct drum dryer is considered as base case.

The majority of Turboden installations focus on biomass cogeneration, which uses an ORC module to generate both electricity and useful heat from wood biomass simultaneously. Turboden has sound experience in the area of ORC technology, especially in smaller size applications (0,5-2 Megawatt electric) and decentralised CHP biomass plants.

The complete study and a presentation of the assumptions and results are freely available at the following links on the Turboden website: www.turboden.it/en/ download.asp

> Andrea Duvia and Stefano Tavolo, Turboden BI35/700/DN

Gesfinu pellets plants

hree factories are located in Portual: the 1st one. Jun lepower is located one, Pellets Power ocated in the centre and the 3rd one, Pellet Power 2 is located in he south. The location of the plants was stra egically analysed, as ne company wanted nem to be spread over ne country and at the ame time near the prest and close to the arbour.

Junglepower has een in productior ince January 2008 and has a capacity o 90 000 tons per yea Vith a storage capac ty of 4000 tonnes, its listance from Aveiro arbour is 120 km.

Pellets Power has been in production ince April 2008 and nas a capacity of 100 000 tons per year. With a storage capacity o 4000 tons. it distance rom Aveiro harbour is '0 km.

Pellets Power 2 wil be in production in the 1st quarter of 2009 and will have a capacity of 90 000 tons per veal With a storage capacty of 4000 tons, it wi be 70 km away from ines harbour. The Aveiro Harbou

as storage capacit f 7000 tons.

s 100% for export nainly for North Euro ean countries

BI35/822/DN



gies such as wind energy, hydropower, solar, and more recently biomass. Are pellets a potential source to produce energy

Energy from biomass, such as wood pellets, has the potential to play a major role in several European energy policy tasks, and improve security of supply and CO. mitigations, but it will never have the scale to substitute fossil fuels. Are you planning to

The European market for pellets is recent and highly volatile, characterized by heterogeneous development stages.

Our strategy is first to consolidate our activity and after look for new opportunities.

What kind of raw material do you use?

The raw material used in our plants includes sawdust, shavings and chippings from sawmill (100% Mediterranean pine). We use logs from pine and eucalyptus in our production.

We are trying to work with large suppliers in order to increase the quantity of wood coming from certified forestry according FSC (Forest Stewardship Council). The lack of raw mate-

rial could be a problem in the future, but fortunately our partner in the pellets business indirectly controls 80 000 hectares of forest in Portugal.

Do vou have any national producers of pellets burning equipment in Portugal?

Basically there are the conventional boilers manufactures that are developing boilers, stoves and fireplaces that use pellets, but the offer is small and the demand is still very low.

In your opinion - how will the future of pellets

consumption look like next vear?

The consumption of pellets in Portugal is still very small, and there's little knowledge about it. We are frequently contacted by industries that want to convert their systems in order to use pellets. It will take time to change but we hope that the two power stations that we have in Portugal, that run on coal, will start to use pellets.

We have already small domestic consumption. but due to our mild climate, it will never have a big growth

BI35/748/DN



Equipment

Venezuelan biomass

A fter more than 30 years of reforestation for the paper and saw industry in Ven ezuela, there is more wood available thar can be used. Orinoco Woodch

. Inderstood that and put it into practice At a modern wood chipping plant, the process trees that ca not be used as tim ber. An average of 700 000 tons per year can be processed and directly loaded onto vessels as large as 35

000 tones each. The port facility b which the wood chip are loaded onto th ships meets all re quirements for inte tion: a large storage area, a modern doe for bulk loading (1 000 t/h) including fully au tomated band con veyors and process control.

Pellets from Argentina

ne of the pelle Oproducer pioneers in Argentina is GP Ener gy pellet plant in Capi oví. The presses that operate in this plan have been made ii Argentina and the rav al for the p the near surrounding of the production site Plant capacity is 2,5 t/h but the expansion to : t/h is already ordered. In August 2008 GP Energy was DIN plus certified and has successfully reached high production star dards.

Wood Pelleting Strona THE CPM ADVANTAGE Innovative engineering and design have been combined with the latest manufacturing technology to provide the highest quality pellet mills in the world with the best production levels ever achieved, allong with excellent pellet quality. Contact CPM / Europe BV 1031 HD Amster RECYCLING +31 20 494 61 11 Phot +31 20 636 42 94 Fax ope.nl or www.cr HIGH PERFORMANCES 📕 LOW COST MAINTENANCE 📕 MAXIMUM SAFETY





Pellets

Biomass in South America Starting Up A Market?



Not only in Europe is biomass a hot topic, other countries with large biomass potential are strongly thinking to start up solid biofuel production. Economic support and competition, transport and logistics, as well as political situations play important roles in the development of biomass in the South American continent.

Tirst investments were made in 2007 due to the market perspectives of high pellet prices all over Europe that led to an increasing interest of South American countries rich in forests. Some started to build up pellet production sites, but many of them had to shut down the production in 2008. Why? Because after the constant price increase in Europe 2006/07, the price development reversed and stabilized on a lower level at the end of 2007

Considering the concomitant increase of transport costs it was no longer economically feasible to export the produced pellets, but no alternatives seem to be available.

Todav's situation What should come first: the building of pellet production or the constitution of local market for pellet applications?

Many companies that have stopped their production are now rethinking their strategy. Experience suggests not

were visited.

are very peculiar.





to focus completely towards export, when all vour clients reside thousands of kilometers away. Instead they are now trying to establish cooperations with experienced, foreign boiler manufacturer or are developing their own systems. It is now the time for feasibility studies, e.g. on how to develop the local market for biomass power plants, boilers and stoves.

Support

Many national and international experts are willing to cooperate and support with the know-how developed in Europe. The Austrian Research Institute (OFI) for example, organized and performed a well accepted business journey in August 2008 where Venezuela, Brazil, Argentina and Uruguay

Although the biomass condition in the whole continent of South America is more or less the same, the circumstances found in each country

Energy sectors

Regarding the energy situation. Argentina is comparable to Venezuela. At the moment the fuel prices are very low, due to high subsidies to the energy sector. For Europeans inapprehensible filling up a car at the filling station in Venezuela requires less than 1 Euro. That means too difficult competition for biomass as local energy source.

In Argentina economic competitiveness is not given, too, but the situation on the electricity supply sector is quite unstable (many blackouts). It is not always the price but the site availability that makes biomass attractive.

Coming back to Venezuela the power supply is relatively secure. As long as the subsidy situation doesn't change, there is little chance for the successful development of a local biomass market in Venezuela.

In Argentina the chances are better but not bright yet. The first markets that seem to be attractive are CHP plants for own electricity production and stoves for heat supply of some rural areas.

In Brazil and Uruguay, the picture for local biomass market development is more positive due to relatively high fuel and energy prices. In these countries the high investment in biomass applications is the main barrier that has to be overcome.

Raw Material

All four countries are similar. Large areas are planted with pine and eucalyptus. When travelling in these regions, monocultures occupy the landscape as far as the eve can reach. This represents the raw material for many sawmills of different size and the paper industry. Especially the sawmill process is widespread still on a basic level with low automation. The absence of debarking units leads to low quality of raw material for pellet production (wood with bark).

At the moment in many areas the sawmill residues are thrown

in the back vard and are burned from time to time - an incredible loss of resources and a source of harmful emissions. But regional authorities and associations are becoming more and more aware of the potential that occurs in their municipalities. Many of them are looking for know-how and Joint Ventures, but often the development happens very slowly and frustration prevails.

Logistics

In this respect Argentina and Brazil share the same problem. Their forest plantations are far away from the next international harbour. That represents a critical factor especially during the start-up time of a pellet production.

As long as the national market for pellets is nonexistent, the production relies on export only. In South America that means overseas export to Europe or North America.

cont'd g.c.

f you have to transpor our product by trucks over long distance eventually on countr oads in bad shape to ell it FOB, the profininght diminish dra

On the contrary Uru uay with its modes ize and Venezuel vith its well estab shed industrial area ave an advantad hanks to their infra structure and connec ions to internationa

rading routes. Considering all the described pros and ons, the vast poter al for solid biomas roduction and use s outstanding and he mentioned barri-ers should be solved luring market deve opment. If it wasn' or the political situ ation! Although not in the same degree corruption is well es tablished; this interres and threaten II private and interna onal efforts towards nvestment and nev usiness.



GP Energy Argent



nall sawmill in

Text and photo Angelika Rubici ngeux. Martin Englisco, OF



Equipment

Some pellet market notes by November 2008

he overall situatio regarding supply of wood chips in Eu-rope is still, Novembe 2008. far away fror being balanced and has big regional dif

ferences. 45 percent of Ger-many's production of wood pellets was in early 2008, exported mainly to power plants and big users in BeN eLux and Scandinavia a volume decreased to some 27 percent sec ond half of the year. Long term contract

for industrial pellets are granted sensib Freight rates for bul

ocean freight have dropped dramatical egular fuel for those power plants that are co-fired with wood pellets. has seen a dramatic rise in pric es over the past 12 months over 80 per average price: North-East US and

Canada: There is ex cess demand in the market, and even im port of pellets fron other parts of the . world. It ihas also ever been hard to buy a pellet stove in some egions.

With kind permis-sion taken from "Pelle Market News & Trends [Nov. '08]", published by Jacob Jürgensei UniWood GmbH.

More inf BI35/768/LLi

Stela Laxhuber delivers Largest Belt Drying Plant

Droduction of wood pellets according to Önorm M 7135 and DINplus requires high-quality drying of the original product.

Stela Laxhuber, a European market leader in the field of sawdust drying meanwhile realized projects up to a water evaporation of 45 000 kg/h with efficient and individually adaptable modular drving system by means of low-caloric heat.

New Zealand

Currently, an interesting project in New Zealand is being realized, a single dryer with a water evaporation capacity of more than 16 000 kg/h. The dryer has a length of 65 m.

The dryer in New Zealand is heated by geothermal water va-





pour. The drying air is heated up to more than 100°C by means of a sophisticated system of heat exchangers.

The modular construction of the drying systems allows individual adaptations without additional expenses.

BI35/t35/LLj



Left to right: Tobias Latein, STELA; Eric Gillan, Nature's Flame; Andy Matheson, Nature's Flame; and Thomas Laxhuber, STELA

The sawdust from wood processing is fed into the dryer by conveyor systems and spread evenly across the helt.

The product layer is adapted to the specific drying parameters of the product and brought into the drying tunnel.

A hot air flow ventilates the product layer and dries the product continuously and extremely carefully, as the product is heated up only marginally especially in the first drying step. The energy required for the drying process can be supplied by various heating media, among them air, fumes, hot water and steam.

Having passed the drying tunnel, the product is discharged from the hot air zone and the dried sawdust or wood chips fall into a discharge screw for further transport or processing.

An online moisture measuring system controls the drying process in order to achieve the maximum possible drying capacity.



Pellets

North American Pellets Perspective

John Swaan, Executive Director of the Wood Pellet Association of Canada shares his views on the Canadian and international pellets indusrty in an exclusive interview with Bioenergy International.

Canadian pellets expansion and the beetle

n 2008 Canada did experience some expansion including Pinnacle Pellet's new plant in Meadow Bank (BC) with capacity of about 200 000 t/y. All BC pellet producers are using mountain pine beetle wood in their pellets because that is the wood that is being harvested and processed by related industries at the moment. There is an effort being made on collecting the MPB affected material while it still has merchant value.

The eastern part of Canada including the Maritime provinces has seen growth in the past year. Unlike the rest of Canada, they do not have natural gas distribution and use primarily heating oil and propane to meet heating demands. Wood pellets have been very competitive with these 2 options, and there has been increased demand for free standing stoves.

Resources in Canada

In the past Canada has typically always produced to its capacity, which today is more than 2 million tons. This year it will not be possible. Plants in the province of Quebec simply cannot obtain enough material to feed their plants, due to large competition from other industries. After the sawmill industry pulled back, the plants in Quebec have not been able to be cost affective with their operations. The west coast does not have a resource problem

This year has been unprecendented for pellet appliances and pellets fuel in the US. With the current drop of oil prices, there has been some drop in the demand, but the overall pellets situation in the USA is going in a positive direction. Don Kaiser, Executive Director of the Pellet Fuels Institute, tells of the American pellet situation.

That is the driving force of the booming pellets industry in the north east? The north east uses fuel oil for heating, while other parts of the USA use electricity and natural gas. Increased oil prices cause people to look for other sources of heating.

What about the 'shortage' of wood pellets in the north east?

There are a number of pellet consumers stockpiling pellets in the past months. It is difficult for producers to cope with stockpiling. The supply of raw material is also struggling since the housing market has tumbled. New home construction has almost come to a stop. Producers are facing difficulties, and the price of pellets has increased. Will the new administration in the US be good for

the bellets market? I am very optimistic about it. The new adminis-

tration is progressive with renewable energy, and biomass and pellets as a part of that. The PFI has



- there is said to be 23 beehive burners (huge wood residues incinerators without heat recovery) still running. The main issue in the west is access to the resource. BC can maintain the levels of production it has now, and new growth of pellets will come when the global economics makes sense to harvest mountain pine beetle wood.

Local actions, global affects

John Swaan underlines this fact. At the moment, in Germany there is plenty of resources and pellets are being produced and sold. Prices are low in Europe, which affects the margins of North American producers and keeps the growth of pellets to a minimum.

- Producing pellets market on the global from excess resources such as MPB wood and forest debris - from around the globe - will not be feasible until the value of the wood pellet is improved. If producers will not pay an adequate price it will not allow the industry to use other materials.

The dead housing market in the US affected Canada differently on each of the coasts. The housing situation in the US is providing Canada with new opportunities to develop other material. First, however, the price of pellets needs to increase.

Very interesting times John Swaan hopes for the future is to see a more stable and mature

level. The true value of the commodity of renewable energy should finally start to see parody with other energies.

John Swaan looks forward to the establishment of some kind of index with which to negotiate better contracts.

- We are in very interesting times today, states John Swaan.

- Oil prices are extremely high and low. Currencies are up and down. These are extremely volatile times with economics and commodity pricing. But the opportunities that the volatility creates are plenty. We must take advantage of these times.

Maral Kassabian





been working with the government to promote pellets on a local and national level. The first incentive is in place, which gives appliance buyers a consumer tax credit of 300 dollars. I believe that even with decreasing fossil fuel prices, the people may forget about renewables but the government will push it.

Is the pellets industry able to attract investment capital?

Absolutely. There are a lot of new mills open, and some subsidies. Financing is coming mainly from the capital market.

Raw materials?

The PFI is looking to work with government to see if we can get

production tax credits for producers to make raw materials more affordable. The aim is to create a level playing field with pellet producers and others in the industry. Blending with agro products in gaining ground.

Maral Kassabian

Some Brief Notes about the developing Korean Pellet Market

🖊 Lee, FnD is An internationa rader who also impor pellets from Canada and South Africa. He has provided us

vith some informatior egarding the develop ment of the Korear ellet market.

There is a newly started pellet plant lo-cated in Gunsan-Si.

The company name s Drying Engineering vho has opened a 2 ton/hour plant. But the produced amount is obviously still very

Two more pellet lants are under contruction in Korea.

One is located or eoju-Gun and othe on Hwasun-Gun.

Yeoju plant is built for the National Fores Cooperative Federa tion and Hwasun fo

Each plants are planned to produce 2 ons/hour.

Next year anoth er two plants are lanned. One is Cheongwon

oun and other is lo ated on Gimhae-si.

The wood pel let market started to develop in 2007 in Korea.

There are also three four minor pelle oiler manufactures out imported products ominate

> KY Lee fndinc@gmail.com BI35/782/LL



Business

Scotland's first **Energy Box**

Perthshire Biofuels ÖkoFEN installer in Scotland, have re cently commissione the first ÖkoFEN En ergy Box in Scotland The installation is at the head offices of FPSCO, an indus trial cleaning special ist company based in Perth. The compan was expanding the premises and total refurbishing the hea ing system. The project was awarded a grar from the Scottish Bio mass Support Scheme which amounted to 50% of the eligible costs of the project.

The Type C Energ Box (9,5 ton capacit pellet storage) was craned into positic in the company cor pound and connecte into the heating sys tem (see photo).

The office is ope plan heated predomi nantly by radiators and the workshop and ser vice area and showe rooms are also heate by the Energy Box. Thi is the first installat of its type in Perth and there are plans for a . formal launch shortly to publicise the innovativ neating solution.

The Scottish Bio mass Support Scherr is a Scottish Executiv funded arant schem for businesses to pro mote the biomass in dustry in Scotland



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posed of in the past is now recovered as a valuable fuel: sawdust, wood chips and shavings are a great sustainable source of energy – provided they are pressed into briquettes. Companies operating in the various sectors of the timber industry are therefore well advised to find an optimised method to turn their sawdust and chips into something more valuable.

Briquetting is one of the most cost-effective options, as it offers a range of advantages over other solutions such as wood pellets. A study carried out by the Technical University of Graz in 1996 shows clearly that the amount of energy required for the collection of the wood material and the forming of the briquettes is only about half that necessary to form wood pellets – while both forms of fuel contain of course the same energy.

Choosing a briquetting unit

It is important to consider a number of criteria in order to find the most cost-effective solution. Apart from the initial acquisition costs, factors such as the output rate, the energy consumption and the reliability of the unit as well as the quality of the briquettes and the after-sales service offered by the manufacturer are equally important.

Another aspect to be considered is the space requirement of the machine and the size and shape of the end product.

Single-briquette press principle

For small carpentry shops that produce around 10 000 kg of wood waste per month, RUF recommends installing a low-cost briquetting unit based extrusion technology

simple:

GmbH.









Briquett machine RUF 1100



Turning wood chips and sawdust into A Valuable Solid Fuel

Where timber is planed, turned and sanded, manufacturers end up with large quantities of wood chips and sawdust. By briquetting this material, you can recover a valuable solid fuel. Where large quantities are produced, the single briquette pressing system developed by RUF GmbH is the most economical solution.

- If the amount of wood waste exceeds this limit, it is more economical to use a highquality briquetting unit that forms individual briquettes without using any bonding agents or other additives, says Roland Ruf, engineer and head of the R&D department of RUF

The company's units produce quality briquettes in a simple and highly efficient process. If requested, the machine can be fitted to produce vour logo on every briquette. The briquetting process is extremely

An extraction system transports the woodchips and sawdust from the wood processing point to the press, which is started automatically as soon as a sufficient amount of material has

been collected. Depending on the requirements and the type and quantity of wood waste, the units produce easy-tohandle rectangular briquettes.

The actual capacity of the units varies from 30 kg/h to 1500 kg/h, whereby hydraulic units with power consumption rating of 4 to 90 kW are used. RUF machines produce handy rectangular briquettes of 150 x 60 mm, while larger units produce briquettes of up to 260 x 100 mm in size.

As the wood is pressed into briquettes under huge pressure but without using any bonding agent, the briquettes are a natural product conforming to the environmental requirements laid down in DIN 51731 and ÖNorm M 7135.

Compact size

Another significant advantage of the single briquette press principle is the compact size of the machines. 1,4 m^2 to around 8 m² is enough space for their installation. Behind the press, the warm briquettes are collected in a container that must be replaced and emptied from time to time.

Briquetting machines applying the extrusion method require roughly the same floor space. There is however a caveat:

- If the extruded wood bar is to have the same density and quality as a briquette produced in a RUF machine, it would have to leave the machine at an extremely high temperature, explains Roland Ruf. As a consequence, the machine must be equipped

with a separate cooling section of up to 50 metres in length. Only after the bar has passed this section can it be cut into round blocks for storage. The space required by the additional equipment normally exceeds that needed for the machine itself.

Material type

The choice of machine must also be based on the type of shavings or dust and the density of the material. RUF units automatically adjust the settings to suit the actual bulk density and can process any type of wood waste, from the finest sawdust to 50 mm chips.

Roland Ruf info@brikettieren.de www.brikettieren.de BI35/711

Japanese Pellet update

apan produced 30 000 ton in 2007 i 47 factories. About a half of 30,000 ton was produced by a single wood product firm called Meiken (http:// www.meikenkogyo

About 87% of those 30,000 ton was used for boilers at various firms. Home stoves used only 13% of nose 30 000 ton.

Sales for the pas years were about 4,000 stoves and 62

The situation was upposed to change drastically in 2008 I say "suppose" be-cause we do not have definitive numbers

Kansai power com any has communi ated to import 60 000 ton from Canada for co-firing in their coalourning power plan at Maizuru. This is not

Two new pellet factories is opened by Mitsubishi, one is For-est Energy Hita, the other is Forest Energy Kadokawa, both ca bable of producing 25 00 ton/year each.

Both places produce bark pellets for co-fir ig plants in Japan.

Mitsubishi predict hat there will be ' illion ton market in Japan's co-firing by 2010, and 5 million tor y 2017.

Production in 2008 /ill be between 30, 000 nd 60 000 tons from 55 factories. I gues: around 40 000 ton.

Kazuo Abe. Japa nese Pellet Club kazuo.abe@kek.jp BI35/806/LL



the Business Guide the Business Guide

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9

Sizing up the potential of pellets and wood chips

The Astwood proj ect was launched in December 2006 with the aim of promoting the use of pe lets and wood chips ii Sierra de Gata (Spair Cova da Beira (Pc tugal) and the Be lovo metropolitan are (Bulgaria

After two years of development the results are remark able. After the data o the specific potentia has been collected for each participatin region, the partner performed intensiv know-how transfer. Austria acted as a

example and share the lessons learned from the developmen of the biomass man ket. The project wa performed with stron nent of reaic al politics and lead to one new demon stration plant in each region with an "ope day" to facilitate the " to faci dissemination of th achievements

Astwood convinced the participating municipalities to dedica a certain budget fo biomass subsidies. A results are available at the project website www.astwood.info.



ss studv tour i /Angelika Rubi OFI Austr





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product can be handled in an easy way.

Pellets references: www.fisker.as

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aunched in Janu ary 2006, the Bio lousing project aim to promote the use o iomass-based heat ng systems in private

Among other pro notional tools, infor nation about biomas heating systems i peing produced and disseminated to endusers. One such item is a web-based energ alculator. The Bio lousing Heating Too nables the user to stimate his individua ituation concernin eat demand, boile size and investmer and fuel costs.

The Tool is connect ed to official websites where the actual fu rices are published . Based on the adapt able data a compar on of the most impor ant heating alterna

ves is available. The compared ap ications are differen or each country, be cause the Heating too nas been adapted to the different climation zones in Europe.

The calculator is a ree Tool that can be accessed by anyone and is published ir English, French, Ger man, Italian, Span-ish and Finnish lan-

The "Heating Tool" s now available or

ofi Austrian Researc nstitute for Chemistr and Technolog

BI/35/810/DN



Business Guide

Market status Italv

National production of pellets in 2007 was estimated, on the basis of a survey car ried out by AIEL, at over 650.000.

Apparent consump tion of pellets was estimated at over Million tons, at leas 400.000 t/y imported most from Austria.

Alongside spe cialised importers o pellets, import is also carried out by stove nanufacturers.

90 very heteroge neous pellet produc ers are active fron a few thousand tons per year <u>to 30-40 000</u> tons. About 60% o national productio is concentrated in the Northeast, particularl in Lombardia, Venet and Friuli Venezia Giu

Most common rav naterial are sawdust and shavings, most bought on the market. Most pellets are

badded and used ir small stoves for do mestic use. As we as stoves there is als quite a high share o boilers installed in single-family houses schools, public build ngs, etc.

Pellets is not so fai used in power plants

The number of the nstalled pellet stove is about 740.00(units, with over 70% in northern Italy. More than 70% of those are used as one of the main domestic heat ing sources.

Annalisa Paniz - AIEL Associaz one Italiana Energ BI35/498/LL

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when drying is part of your bu



In late November the large Swedish sugarcane ethanol importer and second generation ethanol developer SEKAB together with Bioalcohol Fuel Foundation BAFF arranged a seminar 'Sustainable Ethanol' where the SEKAB initiatives were presented. They included:

- · Securing supply of sustainable ethanol for the E85 market until EU regulations or other measures are in place
- · Embracing and supporting the process in Brazil towards a more sustainable and verifiable production
- Influencing and accelerating the EU process for sustainability criteria.

The International Audit firm SGS presented their first audit and concluded amongst other things that no rainforests had been harmed and no child labour was used. They presented their results of 7 criteria.

Proven Sustainable Ethanol the Sekab initiative

weden is the largest importer in Europe of sugarcane ethanol from Brazil and a leading country in the market of flexifuel cars. In Sweden there is also a distribution system with ethanol pumps at gas stations nation wide.

SEKAB, Svensk etanolkemi AB in Örnsköldsvik is the main importer and also involved in the development of the second generation of bioethanol from wood in their own pilot plant. Sekab is also developing ethanol production in East Africa in Mozambique and in Tanzania.

To verify the degree of sustainability in the ethanol imported from Brazil, they have asked the international audit company SGS to make an audit of the 7 ethanol plants in Brazil who are producing and delivering the fuel to SEKAB. All 7 mills are located

in Sao Paulo State in Brazil, the audit included the land and mill and

An area was identified where the land owner had obtained authorization for deforestation of 49 ha of rainforest in year 2004 and after this the mill rented the area for plantation of sugarcane. 4. No child labour was found in accordance with ILO Con-

forests.

JK Maskinsalg A/S Plants and machinery for wood pellet production

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n Ita

Page 40







the chain to Sweden. At the Stockholm seminar Vanda Nunes (vanda.nunes@sgs.com) from SGS presented the results. All sites were visited by the audit team. Findings are classified as Major non-compliance, Minor non-compliance and Observation.

The main conclusions of the criteria studied are presented below. 1. Net Green House Gas Reduction con-

firmed from 77 percent to 81 percent 2. Mechanisation lev-

el: from 33% to 72%. 3. No unauthorized deforestation of other

In one mill an observation was raised:

vention and Brazilian Local Legislation for all audited sites.

5. Labour rights, No major observations, 4 minor non-conformances was raised. There were thee not properly registered accidents, incorrect use of pesiticide packages, documents missing for control program for occupational Health and also PPRA documents (risk analysis and control) and there was also 14 observations.

6. Environmental Certification trough the Green Protocol (Environmental Agency), The Green Protocol certificate was valid;

7. Chain of custody was verified from agriculture to export to Sweden

Emmi Jozsa from Sekab commented and said that some lessons were learned during audit round 1 and the next step will come already in Ianuary

• 85 percent reduction of fossil CO₂ - Different calculation methods for fossil input

• 30 percent mechanized harvesting - Harvesting 2008 verified in full next audit

Verified Sustainability Criteria's

• Zero tolerance for felling of rain forest -No problems assessing

• Zero tolerance for child labour - No problems assessing

• Labour rights - No defined verification method, assessed as much as possible

• Implementation of the Green protocol - Environmental state agency not reviewed

individual plans

Next steps

Audit round two will be done in Jan-March including visits in 5 mills. Development of crite-

ria for year 2: • Broaden the scope

on social issues. • Specific focus on health & safety issues

• More focus on environmental issues.

 Further evolve criteria for year 1.

BI35/743/LLj



Brazilian ethanol production areas

Expert: Palm oil prices have reached the floor

November 10, 2008 Vegetable oils forecast expert Thomas Mielke be-lieves palm oil prices have bottomed out and expects sharp ncreases ahead, Ma laysian media report-ed on Monday. – I believe prices reached the floor two

eeks ago and the arket is now in tran ition, Mielke told a forum of more than 100 palm oil trad-ers in Petaling Jaya, satellite city of Kuala umpur, recently.

Eight months ago oalm oil futures soared to their record iah of 4 486 ringgit (1 271 U.S. dollars) per ton but have since fallen. Two weeks ago, they closed as ow as 1 390 ringgi 394 U.S. dollars) pe ton, 70 percent of its record. Last Fri lay, the third month benchmark palm oil futures on Bursa Malaysia Derivatives Market closed at 1 609 ringgit (456 U.S. dollars) per ton.

Mielke stated,

 It is just a mat-ter of time, before there will be sharp ncreases in palm oi prices because the have started to stimu-late global demand for food, oleochemicals and fuel.

Source: Xinhua http://english.people com.cn/90001/9077 8/90858/90863/6530 524.html

BI35/703/LLi



Biofuel Biofuel Efficient Sustainability Criteria for Biofuels

Swedish Lantmännens new ethanol plant

n a few months the production will be . up in full capacity and produce 200 000 m ethanol and 175 000 tons of protein fodde

in a year. With this second olant in Norrköpin antmännen confirm it's role as the only arge producer of bic

ethanol in Sweden. The whole prodution is run with gree energy and therefor green house gas emis sions with this ethand are lowered by 70 - 80 percent compared to

- We also get five times more energy than we put in, say: Joakim Säll, CEO fo Lantmännen Agroet nol and also busine manager for Lantmä nen Energy

The plant is one of the most modern and energy efficient in the world.The construction has taken 1.5 vears and cost 130 million Euro.

- The plant will be ested according to a program the comin 3 months, but so fa everything is workin very well, states Joakin

Their first plant opened already 2001 This new one will in crease the productio 4 times

Most ethanol is used for low blend fuel and customers are the large petroleum com-.

Grain is the feed stock and 540 000 tons is needed every year. This equals 10 percent of the Swed www.lantmannen.co BI35/789/LLi

In the end of October, leading policy makers from across Europe discussed in Berlin the latest issues affecting the currently volatile biofuels market. The question of food versus biofuel was on the agenda, but the latest collapse of world grain and oilseed prices settled the debate clearly. The fact that biofuels have played only a minor role in the sudden rise in global food prices is considered today as obvious. Leaders from Europe's biodiesel, ethanol and biogas producers, oil and gas majors, agribusiness companies, governments and regulatory bodies, technology providers and automotive manufacturers amongst others gathered in the German capital to learn what the others were thinking and how all that will affect their business. The event was organized by the World Refining Association.

ness-as-usual, is that

we will have a hostile

public opinion which

will increasingly turn

against biofuels and we

will end up losing the

bioenergy market for

According to her

there is a need to focus

on technology which

has less competition

from the food market,

especially important for

- That way we can

go forward by support-

ing biofuel development

that can have poverty al-

leviation benefits, rural

employment and rural

investments without the

negative impact, stated

World food prices

Over 200 conference

delegates received re-

assuring information

in this matter from the

next speaker, secretary

general of German Bio-

Ethanol Industry Asso-

ciation, Dietrich Klein.

demand destruction.

but excessively volatile

prices, following the

path of oil made food

prices jump during the

first half of this year, as-

He mentioned even

sured Klein.

- Not biofuels, not

Astrid Agostini, FAO.

poor consumers.

good, she told.

ne of the conference chairpersons, Astrid Agostini, economist from United Nations Food and Agriculture Organization (FAO) underlined in her key note speech that despite the new assessments, the demand for biofuels has still put pressure on the cereal and the oilseeds market.

- This has been one of the significant factors, but of course it is not the only factor contributing to the rise in food prices, Agostini explained.

- The analyses done at FAO show that there is some risk attached to the prevailing biofuel policy especially when it comes to food prices.

- We would like these inputs to be used by countries to reformulate clearly their biofuel policies in line with some agreed principles, said the FAO economist.

There should, she pointed, be a joint approach at the inter-governmental level for biofuels to make sure there is a better way forward to manage the risks associated so that the world do not throw away the opportunity for better biofuel options.

other price increasing factors like weath-- The risk, if we go about biofuels as busier-related disasters – droughts in Australia and Russia, frost in the Midwest USA, torrential summer rains in Europe - made a mess of crops over the past year.

Rising incomes in China and India mean many more people are eating higher on the food chain, sending more crops to feedlots to grow beef and pork. Earlier high prices for fuel and fertilizer also contributed to the food woes.

According Dietrich Klein the correlation between the latest rapid decline of oil prices, which fell from a record \$147 to below \$65 today, and crashing agricultural commodity prices is obvious.

- The movements of all the internationally traded grains were part of a bigger speculative commodity boom, tied to oil, which itself fluctuated alongside the value of the dollar, and possibly in anticipation of the credit crunch. Dietrich Klein explained.

- He reminded that biofuels output rose only very gradually over the course of the past two vears, whereas prices for feedstocks jumped and then crashed. Today, the same

amount of biofuels is be-





Clockwise: Astrid Agostini, Economist, Bio Energy Group, United Nations Food and Agriculture Organization (FAO); Peter Boisen, Chairman, NGVA Europe; Roy Sela, gasoline trader from Israel; Ambassador Luiz Felipe de Seixas Corréa, Brazilian Government.



Secretary General of German Bio-Ethanol Industry Association, Dietrich Klein

ing produced worldwide than before the food price crash, and people are not eating less. But prices of feedstocks and food are now in free-

fall, said Klein. He pointed out that the EU bioethanol fuel sector is today a clear growth market. The European bioethanol industry is the partner for meeting the requirements of the EU-direc-



- We all need to obtain coherency of EU Member State's policy instruments, clear and efficient sustainability criteria for all biofuels and single ethanol standards, stated Klein at the end of his speech.





Brazilian viewpoint

One of the participants had a diplomatic background, but without being too diplomatic, which had constructive impact on debate.

Ambassador Luiz Felipe de Seixas Corréa, representing the Brazilian Government, said that his country wants to rationalize the discussion about the relation between biofuels and foodstuffs.

- Agroenergy has been singled out by countries and international organizations as one of the villains responsible for rising food prices on a global scale, and our government has been putting in an effort worldwide to explain that, in the case of the country, the sector does not compete for space with food production, Seixas Corréa told.

Seixas Corréa.

in the United States.







The 3rd Annual Biofuel Meeting in October 2008 held in Berlin, organized by London-based World Refining Association.



Brazilian ethanol is manufactured from pure sugarcane, rather than from raw materials also used for feeding humans and animals, such as corn, which is used for alcohol fuel production

- Furthermore, Brazil still has a vast area to be used for all types of crops, thus there is no need for sugarcane to take over other crops or preservation areas, said

According to him, there is not an exclusive multilateral organization focused on biofuels, therefore the issue ends up being discussed at different forums, such as the Food and Agriculture Organization of the United Nations (FAO) and the International Energy Agency (IEA). In other words, the debate ends up not including all of its aspects at once, such as agriculture, energy and environment.

- We want to spread awareness of that, and of the fact that the dialogue must include different fields of knowledge, its various aspects and idiosyncrasies, stated the diplomat.

In his opinion, the subject cannot be made to look simple, as biofuels production depends on the reality of each country: for some it might be a great opportunity, whereas for others there might be spatial limitations, environmental restrictions or risks to food production.

- We want to demystify also the notion that biofuels compete with oil. From the Brazilian vantage point, biofuels are not going to replace mineral fuels in the global energy matrix. What can happen is that the mixing of alcohol into gasoline, or of biodiesel into diesel, might slow down the pace of oil consumption, said Seixas Correa.

Focus on transport

Peter Boisen from Uppsala, Sweden, and chairman in NGVA Europe, reminded delegates of WWF report in April 2007 introduced the discussion of sustainable and non-sustainable biofuels.

- The same report recommended increased use of NG as a vehicle fuel in a short and mid term perspective – for a more sustainable future. Around 12 000 gas vehicles are running in Sweden now, Boisen told.

The EP review of the draft EU directive (23 Ian 2008) on renewable energy and biofuels now highlights three resources – all kinds of organic waste, aqua cultures (algae), and grass or crops only from 'degraded' agricultural land.

– Even if it would be possible to maintain crude oils supplies, meeting the world demand at a reasonable price, we cannot continue to increase the CO₂ emissions. Sunshine, wind, and water can be used to generate electric power, but not fuels. Let us prioritize the use of available biomass resources for use as fuels, and let us choose the biofuel alternatives that will maximize oil substitution. No other biofuel can compete with biomethane in terms of fuel per ton of waste.

or per hectare of cultivated land, stated Peter Boisen.

Debate in the Berlin conference showed that bioenergy experts and advocates have learned important lessons.

- All the new EU regulations have immediate impact, on Israel too. It goes very fast. Some people are going to be surprised, but we are moving also towards the use of biofuel, first 2 percent per year and soon up to 5 percent. My refinery is already importing biofuel and we mixing it with gasoline and even selling it further to Cyprus and Turkey. The conference was very interesting and useful for us, told Rov Sela, gasoline trader from and Israeli oil refineries in Haifa.

This debate made explicit a whole range of very important topics which can, indeed, be discussed better and sooner rather than later. These are issues like biofuels' impact on the environment and on biodiversity, on rural and urban communities in the developing world, and on big and small farmers.

Markku Björkman BI3/787/LLJ

VeraSun files for bankruptcy and claims to have an interested buyer for all assets

VeraSun headquar-tered in Sioux Falls, S.D, has filed for bankruptcy. VeraSun Energy

Corporation is a lead ng producer and narketer of ethano and distillers grains ounded in 2001, the company has a flee of 16 production fa cilities in eight states Currently the annua production capacit ootential is approx mately 1,64 billion ga ons of ethanol and S nillion tons of distillers rains.

The production has een affected by the alling price of corn ushing up compet ion, with the produce entering long-term greements to buy he feedstock at a high

ion and drop in oi price to \$60 a bar el, from highs nea \$150 earlier this year further diminished the

Verasun has filed fo Chapter 11, which neans it will have time o regroup and rene otiate its commit

Nov 25 Verasun an nounced that it re ently received a non nding unsolicited ndication of interes vith respect to the urchase of substan ally all of its assets

For more informa tion, please visi http://www.verasun

BI35/701/LLj



Home heating Home heating



CALIMAX Calimax Sandor pellet stove available as 8kW and 10kW.



RIKA Pellet stove Memo Heat output is 2-8 kW Space heating ability is $50-210 \ m^3$



COLA Technical solution with a panoramic ceramic glass and a upper grate with a big finned surface from Italy<u>. Nominal heat</u> output 1,5 - 6 kW. Efficiency nominal output 85 - 87%. Pel. output 85 - 87%. Pel tank capacity 15 kg. Heatable space max *Heatable space max* 129 *m*³, *depending* on the insulation conditions in the house.



Ecofire[®] Diamante from Palazzet

ioenergy is getting more and more popular every year. Smallest sector - single family house owners are getting interested in replacing their existing oil, gas, and coal boilers to biomass units. Some users would just upgrade the existing biomass unit. At the same time different producers are trying hard to fulfill all needs and expectations of the customers. They are putting together nice designs - that can fit into appropriate spaces - and high level technologies. Some of the units are so "clever" that we don't need to deal with them more often than few times in the whole year. They have automatic feeding systems, high efficiency, low fuel consumption, are easy to maintain and the only thing we need to do is to pay. Price can, as

always, vary very much depending on our needs and budget.

Bioenergy International presents here some interesting products popular among our readers. We asked the manufacturing companies directly why their product was the most attractive.



PALAZZETTI - Heating in style (large photo) With Diamante, fire becomes the star of the home and heats it while furnishing it in a original and exclusive way.

Easy to recognise thanks to its markedly geometric shape, Ecofire Diamante is part of a collection of pellet-burning stoves with various front options, available in glass, marble or satin steel. An array of innovative multi-material combinations for a stove that guarantees a thermal power of max 9,450 kcal/h - 11 KW and that is distinguished by its high-capacity pellet box, capable of ensuring an operating autonomy of up to max 27 hours.

The large pyroceram door allows you to watch the fire with all its charm.

Diamante features Palazzetti's Dual Combustion system that is famous for its very high thermal power combined with a drastic reduction in polluting emissions and the optimisation of operating costs.

A balanced blend of tradition, technology and creativity for a completely free interpretation of the fire.

PIAZZETTA

C tate of the art, efficient, easy to operate, to install **J**and to maintain. This is the new Piazzetta P965 Thermo pellet heater with boiler.

The stove features a closed expansion tank and a 40 litres boiler. With a 93 percent efficiency, it has a total 19 kW heat output, of which 14 kW to the water system.

Available either with painted steel side panels (P965 Thermo) or completely clad in hand made majolica (P965m Thermo), the stove is available in a range of four different colours.

Certified to several european standars.

Measurements: w 82 cm x d 75 cm x h 163 cm.



SUNMACHINE The Sunmachine Pellet is a most inno-

L vative way to produce electricity and heat at the same time at home! The basic principle has been approved

for decades and is very simple: inside there is a Stirling engine, which drives a generator by transforming the temperature gradient between burner flame and heating water into action

The produced heat will be used as thermal heat and domestic hot water. The kinetic energy is transformed into electricity.





ÖkoFEN Energy Box Type C illustration



Icts of the Year 2008



SWEBO BIOENERGY

The New Waster Pellet Burner will be ready to sell in the begining of 2009! It is very special. The two strongest arguments for this kind of units are:

- The burners have a capacity to burn everything from traditional pellets to pellets made from various crops and waste products. The benefit for the customer is that they are not bound in using just one fuel. They can change depending on availability and economics.

- The design itself is made to be selfcleaning without compressed air or other moving parts.

WINDHAGER

The new generation in wood gasification boilers. The LogWIN is leading its class in performance and output ranges. The new down firing technique ensures maximum performance and cleaner burning.

With its small footprint and large filling chamber the LogWIN sets new standards in the industry.

LogWIN appliances are the clean, efficient and effective solution to today's demanding needs, they provide an exceptionally economic method of supplying heating and hot water in an environmentally sustainable way. When coupled with the Calo-WIN accumulator it is possible to achieve the most effective use and distribution of stored energy.

Keliminates the need of a chimney! It is a unique solution that makes it possible to install the Ariterm pellet stoves Mysinge and Solberga



at an external wall, without chimney. With installation of Drag the costs are only a fraction of a normal chimney.

Because of Drag's patent-pending design, the flue gas temperature is lowered to quite harmless levels by mixing the flue gas with ambient atmosphere before it is discharged.



TERMO-TECH

Dellets boiler Bio-Master of Polish pro-P ducer Termo-Tech is equipped with specially desigin burner Termofire. The efficiency of the boiler is 92%. There is also another version available with different grate to burn logwood only. The Bio-Master Plus Ceramic - that is the proper name of the product was the most popular in 2008. An attractive characteristic is that it has the ability to burn both pellets and wood.

ÖKOFEN ENERGY BOX

This is the ideal solution for buildings without a cellar, terraced houses, and other applica-tions where indoor space for a boiler room and pellet store is limited. It is also suitable for temporary buildings or short term leaseholds - the entire heating unit can easily be relocated to another site with minimal work. Every Energy Box is supplied ready for connection and, following delivery by crane-lorry, can be ready for use in a matter of hours.

The Energy Box is offered in a large variety of sizes. Based around a durable timber construction and manufactured from 42 mm triple laminated sections, the Energy Box is available in a variety of colours and allow to tailor the design to suit individual needs. With a nominal capacity ranging from 8 to 224 kW, the Energy Box is equally suited to a single isolated home or a large urban complex, in the domestic, commercial and government sectors.



ESTER 20 -Po



ll<u>et-wood co</u>mbi boiler thermodual TDA (15 and 25 kW) With this combi-boile gwood and pellets n burn without nanual intervention. The efficiency is up to 93% because of two ustion chamber



IOTECH

BIOTECH PZ 100 RL wood pello boiler which has been choosen by schools as an environmental iendly heating system Power ranges between 10 to 99 <u>kW</u>



Politics

Events

nBAPs update: National Biomass Action Plans seminar Feb 9 2009

he most importan seminar regardin the development of the National Biomas Action Plans all ove Europe is planned. European Bioma

Association togethe with the Europear Commission is orga nizing a conference on national biomass action plans and sus ainability scheme or 9 February 2009 at 2.30pm.

take place in Brusse within the Sustainab Energy Week. The pa ticipation is free o charge

Register on www eusew.eu Edita Vagonyte

New pellets plants in the UK

lifford Jones Tim 🜙 ber has com nissioned their new plant in Sept 2008 The plant is located in Wales, with a capac ty of 40 000 tons pe innum. Raw mate rial is supplied directly from the timber mi site adjacent to the plant. Puffin Pelle successfully opene a 25 000 t/a plant i 2008 in the UK. Ir Scotland, Balcas wi start up a 100 000 t/a plant in April 2009 Land Energy plans to build 3 new plants ir the coming year, and is currently looking for used equipment.

The Renewables Directive

The European Parliament and the Council are finalising the agreement on the renewables directive. The directive will be adopted this year after it is voted in the plenary session of the European Parliament. Edita Vagonyte from AEBIOM gives us an update.

be regretful to leave it

out from biomass tar-

The Council's posi-

tion also disagreed with

the Parliament on peat

and, therefore, peat will

not be excluded from

MEPs and Council Presidency reach deal on

renewables directive 2008-12-09 16:57

A tiators have reached an agreement structure on renewable energies Presidency on a proposed directive on renewable energies tiators have reached an agreement with the Council's

including biofuel targets. The compromise agreed on Tuesday

morning still needs to be formally endorsed by the full Council

and put to a first-reading vote at Parliament's December plenary

MEPs and the Council's Presidency reached an informal com-

promise on a proposed directive which establishes mandatory

national targets to be achieved by the Member States, so as to

ensure that the EU will reach its climate target of at least 20%

Satisfied with the agreement, Parliament's rapporteur, Claude

- This is a good day for climate and energy security in Europe.

With this major legislation renewable energy will be put at the

very heart of EU energy policies and at the same time reinvigo-

rate the European economy and jobs through green technology

2014 review will not change the 20% target

On the morning of 12 Dec, MEPs and the Council Presidency

solved the last outstanding issue: they agreed that the Com-

mission's evaluation of the implementation of the directive,

which is to take place by 2014, will not affect the overall 20%

target but will serve to improve, if necessary, the efficiency of

renewable energy in the total energy consumption by 2020.

fter several rounds of informal negotiations, EP nego-

gets.

I ignificant changes from the biomass definihave been made as tion. The biodegradable Compared to the part of waste after sep-European Parliament's aration processes have vote on the directive. taken place is still quite significant and it would

Biomass definition To the relief of incineration plant owners, the agreement wipes out the "separated biodegradable fraction of waste" from the biomass definition.

session in Strasbourg.

investments.

Turmes (Greens/EFA, LU) stated:

cooperation mechanisms.

The European Parthe renewable energy liament wanted to indefinition. Nevertheless, troduce such a change there are quite a few rewhich would have exstrictions for peatlands cluded a big quantity under the sustainability of biodegradable waste criteria.

Renewables target The agreement sticks to the binding 20 percent renewables target and 10 percent biofuels target.

Intermediate renewables targets

Commission proposed the indicative intermediate targets for 2014, 2016 and 2018 and despite the European Parliament's will to introduce the mandatory aspect of these targets and the penalties for non-compliance to them, the final agreement goes back to initial Commission's proposal (indicative intermediate targets).

National action plans According to the Commission's proposal for the directive, member

PRESS STOP PRESS STOP PRESS STOP PRESS STOP

states will have to adopt national action plans with national binding targets for heating and cooling, electricity and biofuels from renewables

The Parliament and the Council further agreed that the Commission will have to provide a template for the national action plans by 30 June 2009. Member States will have to comply with this template in the presentation of their national action plans (by 31st March 2010 at the latest)

Flexible mechanisms The Council and the Parliament agreed to reject the introduction of guarantees of origin and rely on statistical transfers and joint projects between member states

Achieving national targets jointly through

cooperation mechanisms

The political agreement fully incorporated the Industry Commit-

tee's proposals for cooperation mechanisms to allow Member

States to: run joint projects with one or more Member States on

green electricity production, heating or cooling; transfer renew-

able energy "statistically" between each other; join or partly

The compromise also adds the possibility to count green elec-

tricity consumed in a Member State but produced by newly

10% target for the transport sector

The informal compromise backs the target of at least 10% renew-

able energies in the transport sector by 2020: second-generation

biofuels produced from waste, residues, or non-food cellulosic

and ligno-cellulosic biomass will be double credited towards

the 10% target; renewable electricity for trains will be counted

only once; renewable electricity consumed by electric cars will

be considered 2,5 times their input; to be counted biofuels must

save at least 35% of greenhouse gas emissions compared to fos-

sil fuels; from 2017 greenhouse gas emission savings of existing

installations must be at least 50%, those of new installations

at least 60%; the Commission will develop a methodology to

measure the greenhouse gas emissions caused by indirect land use

changes - that is when crops for biofuels production are grown

in areas which have previously been used to grow a food crop

and this food crop production then moves to other areas which

The informal compromise will now be tabled to a first-reading

coordinate their national support schemes.

constructed joint projects with third countries.

as well as on joint support mechanisms.

Sustainability criteria The sustainability criteria remain applicable only to transport biofuels and bioliquids as proposed by the Commission. According to AEBIOM, the European Parliament's proposed levels are too high and might favor imported biofuels.

The final agreement to date on sustainability criteria is similar to the one proposed by the Commission

This is rather "fortunate" for the biomass industry because the European Parliament aimed at severe sustainability criteria.

> Edita Vagonyte BI35/753/LLj

Jatropha World Hamburg 2008: **Putting together the** mosaics of Jatropha

A crop that can produce income in a drought, without needing guaranteed rainfall might not be a bad idea? Growing wild over enormous amounts of land, this plant is treated like a weed and grows unassisted anywhere on the well temperate latitudes. Yes, it is Jatropha, an interesting biofuel crop moving closer to commercialization. About one million hectares of jatropha are already planted and forecasts estimate a development of 5 million hectares by 2010, mainly in Africa, Asia and Latin America.

t the end of October 2008 several hundred A jatropha investors, venture capitances, and investors, government officials, agronomists, biodiesel producers and bioenergy managers from all four corners of the globe gathered in Hamburg to get insight into optimal jatropha practices and discuss investments to insure its success as an alternative energy source.

Jatropha World 2008 was organized by the Centre for Management Technology whose purpose is to provide access to the latest technology and business intelligence through high profile alternative energy conferences.

Jatropha as a feedstock

Conference chairman. Werner Körbitz, from the Austrian Biofuels Institute opened the discussion by establishing that the single "ideal" fatty acid profile is not yet fully defined although jatropha comes very close to the ideal.

- Proper blending and breeding can provide further improvements in suitability and performance of tailor-made biodiesel, Körbitz stated.

He is yet convinced that jatropha has taken the lead for a most promising new segment of agriculture: non-food oilseeds for biodiesel production.

Ethiopian scientist, Jiregna Gindaba, underlined the fact that jatropha curcas L is among the best biofuel feedstocks.

- However, like any other crop, the plant demands intensive management and care so that an economically viable yield may be attained, he told.

According Gindaba the susceptibility of jatropha to weed competition, pest and disease damages has to be highlighted more. Some details on selection of sites suitable for jatropha growing (climate and soil conditions) and important site preparation procedures for its establishment must be provided.

Finally, Jiregna Gindaba said, future research needs for proper domestication of jatropha should be discussed.

plenary vote at the December II session.

were not in use before (e.g. existing forests).







JATROPHAWORLD 2008 in Hamburg was organized by the Centre for Management Technology



Conference chairman, Werner Körbitz, from Austrian Bio fuels Institute opened the discussion



Christoph Weber, CEO of German Jatro AG.

Jatropha oil

Sales manager Josef Schneider's company is among the machines producing even presses for jatropha. He stated that the plant's oil composition and properties make it a perfect substitute for rapeseed or soybean oil for biodiesel



Jiregna Gindaba from Ethiopia, crop scientist, Sun Biofuel Ltd.



Ruud van Eck, CEO for Diligent Energy Systems, operates in Tanzania

production.

- Crude jatropha oil needs to only be degummed and neutralized prior to transesterification, said Schneider.

Projects & research Piero Venturi from the Biotechnology Research unit of the European



Piero Venturi from Biotechnology research unit directory of European Commission



Mr. Giovanni Venturini from Agrooil company

Commission, informed of new EU-funded jatropa projects. At the same time he said that much more scientific research is needed to reduce crop variability in the field and between fields, low crop yield predictability

Cont. p 48



Daina Millers-Dalsiö onsultant at SWECO Inv. and Waste Mana

Green Cities with SWECO

n 2002 SWECO de veloped the "Sus-ainable City Concept" or the World Summi of Sustainable Deve opment in Johannes

burg, South Africa. New system solu-tions provide scope for synergies betwee sewage, waste and energy productior and enable co-ordi-nation with efficient land use, landscape planning and transport ystems. This concept for Stockholm's Ham-marby Sjöstad eco-village and has also peen implemented ir countries like China Canada and Ireland.

Currently Daina Mill-ers-Dalsjö, is involved in two projects: the project "Biogas Production for Sustain able Development ir rural Georgia" and a project in China aim-ing at developing Tangshan - Caofeidiar nternational Eco-City n which at least hal million people are

expected to live. SWECO is one of ne largest engineering consulting companie n Europe, based ir weden, with subsidaries in 10 countries BI35/721/NG



Events

Events



Diana Röhm

RENEXPO 2008 ternational trade fair and conference fo renewable energy and energy efficient con-struction and renovation in Augsburg wa held 9-12 of Octobe in Augsburg, Germa

RENEXPO re cieved 13.907 visi tors from around the World.There was a wide range of topics starting from biogas and cogeneration to wood energy, passive houses, energetic re modeling, innovativ as hydro- and wind

According Diana Röhm, from the RE-ECO Group the num ber of exhibitors grev 11 percent. A number of confe

ences in bioenera was orgaized. Wood Energy, Bio Natura Meeting for Small and Midsize Wood Energy and the 2nd Trade leeting on Decentra ized Small and Micro Cogeneration.

RENEXPO will ce brate its 10 year an niversary from Se tember 24th-27th i the Augsburg Trade Fair and Conventior

BI35/613/NG

BioEnergy Event 2008

esting discussions with

ternational BioEnergy Europe covered everything from wind farms to homegrown fuels. The week

Cont. from p. 47

pressure. necessary to decrease harvesting and pruning costs and achieve low flower ratios and avoid long flowering periods, Venturi remarked.

According this EUrepresentative there is also need to create a clear biorefinery concept for jatropha and methods to increase detoxification of the Jatropha cakes.

– This is my fourth Iatropha conference, but I am still in the process of learning. Our historical knowledge of weed, corn and maize has been collected during several thousand years. History of jatropha as a cultural plant is only 20 years old. That's why we lack experience, but from each event I learn more and more, told Laszlo Kondor, co-chairman

Bioenergy Europe at Euro Tier in Hannover

For the second time, BioEnergy Europe was held within the scope of EuroTier at the Hannover Exhibition Grounds from 11 to 14 November 2008. As the leading international exhibition for bioenergy and local energy supply, it offered investors and interested parties from municipalities, industry and agriculture a comprehensive overview of products and services in this dynamically growing market.



Tith 200 incustomers and initial exhibitors contacts with potential new customers.

The number of exhibitors has grown by 15 percent. Over 1700 was characterized by exhibitors and 44 adthrongs of visitors, inter- ditionally represented

of the conference and

director of Vienna-based

According to Kondor.

the handling of jatropha

is still characterized by

understandings which

has to be cleared and

- That's why these

kind of conferences are

needed to put together

the mosaics of Jatropha,

He experienced the

Hamburg conference as

a definitive improvement

compared with earlier

- There wer certain

He pointed out that

vears

iatropha arrangements.

stated Laszlo Kondor.

settled.

Bio Diesel company.

and pest and disease

- First of all it is misconceptions and mis-

More to learn

subjects like detoxification of press cakes and cultivation methods which can be detected and generated. It is obvious that especially the large upcoming quantities of jatropha is a new experience for us. Kondor said. the real summary of last 15 years development can be done in two



firms from 46 countries presented their programs and innovation

With some 130 000 visitors, EuroTier 2008 was the information forum for forward-looking investors. More than 22 000

- When bigger quantities flow into the market our knowledge and experience increases both in agriculture and on the biofuel field, Laszlo Kondor stated.

Toxic issues

A lively discussion took place especially regarding the need of detoxification before mixing the jatropha oil with fuels.

Prof. Dr. Harinder Makkar, leader of **BMBF-MOST** Jatropha Project at the University of Hohenheim, Stuttgart did not believe that use of toxic jatropha leads to any serious consequences. He presented his latest research study.

- Oil and protein contents of the toxic and non-toxic genotypes are similar. Oil yield per kg of the seeds from the non-toxic jatropha is not expected to be lower than from the toxic Iatropha, he said.

According Makkar the shells of both the genotypes are equally



visitors came from abroad

Highlights The highlight of the exhibition was the BioEnergy Event focus-

good sources of energy.

ented dialogue between DLG (Deutsche Land-

Though there are some differences. Total saturated and monosaturated fatty acids are lower in the non-toxic genotype and total polyunsaturated fatty acids are higher in the non-toxic genotype. – Both the genotypes

are equally good sources of biodiesel. Biodiesel produced from both the oils meets EU standards, told Harinder Makkar.

On the contrary, he pointed out that jatropha, besides its role as a oil plant, contains so many other useful ingredient, including pharmaceutical compounds.

- Phorbol esters from the toxic genotype could be exploited as a biopesticide. These esters have strong insecticidal, molluscicidal, anti-bacterial anti-fungal, antinemotode effects and could have innumerous industrial, medical and agricultural applications, Harinder Makkar

tion for bioenergy and local energy supply in ing on the future oricooperation with the

ergy supply

bioenergy and local en-

- Our concept of

developing BioEnergy

Europe to an exhibi-

commented

Pharmeceuticals He said that Jatropha latex could be used even for wound healing, bark for making blue dye, and its seed cake from the toxic genotype is suitable for producing various enzymes and hormones and hormone intermediates.

Local initiatives needed

Focus of the debate on the Hamburg conference was directed on need of local initiatives and/or necessity of outside players from industrialized countries. Christoph Weber, CEO of German Jatro AG, drew guidelines for a successful jatropha project.

- Successful commercialization of jatropha goes beyond planting, irrigating and harvesting. We are not in the business of gardening. Needless to say that 10 ha doesn't equal 10 000 ha. Don't discount

wirtschafts-Gesellschaft – German Agricultural Society) is beginning to bear fruit, stressed Thorsten Herdan, Managing Director of VDMA Power Systems.

– The amendment to the Renewable Energy Act (EEG) has given the branch new impetus that has been reflected clearly in the course of the exhibition, EEG has improved in particular the frameworks for using semi-liquid manure in biogas plants, for plants in conjunction with intelligent heat concepts. and for feeding treated biogas into the natural gas grid.

In Germany alone an aggregate investment volume of 25 to 39 billion Euro up to the year 2030 is expected. This was the conclusion drawn by a by a

the impact of jatropha biomass on power generation, fertilizers, nutraceuticals and pharmaceuticals. Weber told the audience.

- He stated that now the bean counters have to develop the best costeffective models.

- Let research institutes and nursery production centers provide the best varieties of seeds. Let agronomists provide best practices on irrigation, fertilizer and soil enrichment techniques platform across the whole value chain. Weber said.

There have been critics against industrial biofuel companies which has tried to establish jatropha plantations in

developing countries. Mr. Ruud van Eck, CEO for Diligent Energy Systems, which operates several jatropha projects in Tanzania, underlined that Diligent does not have plantation workers.

- The staff at Diligent

benefits, Ruud told.

000 farmers in coming 15 years. - Each farmer will plant from 0,4 to 3000 ha and the production is suppose to grow to 170 -200 kiloton jatropha oil every year. Side products will provide the same amount of energy for local applications, according to Mr. Ruud.

in that country and can be found in every province - Jatropha is used for living fences and for



study prepared jointly by the business consultants A. T. Kearney, the DLG and VDMA Power Systems and presented at BioEnergy entitled "Bioenergy and local energy supply - Chances in Germany and Europe".

Market situation

The market situation will grow distinctly in Europe too. The European Union's goals up to 2020 are ambitious: twenty percent renewable energies, twenty percent savings of CO, and twenty percent increase in energy efficiency. As energy demand is rising worldwide energy supply should increasingly be provided locally.

The bioeneray solution In his speech Gerd Krieger, Deputy Managing

processing plants is relatively high educated, and are provided good remuneration and labour

Those projects are expanding to 200 000 ha of jatropha. Diligent Energy Systems will contract more than 500

Jatropha in Laos

Laos is not a well known country, but according Jakob Rietzler, managing director of Lao Institute for Renewal Energy (LIRE), jatropha is widespread

Director, VDMA Power T. Kearney presented a Systems, underlined the importance of bioenergy against the background of the enormous price rises on the commodities markets in recent years.

- In the opinion of experts, bioenergy assumes a key role in solving future energy supply problems as it offers answers to both the fuel sector and the sector of electricity and heat production. An important success factor for bioenergy lies in its use in local energy supply.

For example, the installed electricity output of electricity generation plants based on biomass in Germany has increased more than five-fold since 2002 to over 2 500 MWel in the year 2007.

Business consultant A.

some medical applications. Climatic conditions are very suitable for jatropha. Now the Lao government promotes and supports the cultivation of jatropha, but is still lacking a clear policy for biofuels. Though there is high interest of foreign investors, said Rietzler.

Jatrophabook.com

Mr. Giovanni Venturini from Agrooil company announced at the meeting the launch of unique Jatrophabook.com, the first free jatropha proxy in the world.

- The primary purpose of Jatrophabook is to promote sustainability within the jatropha supply chain by reconstructing the traceability of jatropha sources informing end users in a clear and transparent way, explained Venturini

According to him the ambitious project will enable registered members to put up informastudy according that in the year 2030 bioenergy will make a contribution of 126-170 terawatt hours to commercial electricity and heat production in Germany (these figures do not cover the use of liquid bioenergy sources). By 2020 the share of electricity from renewable energies is set to rise from its current level of

14% to 30%. The share of electricity produced by power-heat co-generation should then have doubled to 25%.

The next EuroTier will be held in Hannover from 16 to 19 November 2010.

Text based on press release Photos: Nino Geladze BI35/719/NG



tion about their projects, share their experiences from around the world and start specific discussions about jatropha energy supply chains and biofuels sustainability.

Registered Jatrophabook members will have the possibility to tag each other on the interactive map, allowing integration and a sharing of sustainability practices.

According to Giovanni Venturini, Iatrophabook.com and its community will cooperate with some of the most important international institutions to establish guidelines to improve iatropha sustainability. Local institutions will also support the delineation of ad hoc principles for every jatropha growing country and will provide assistance to the registered members.

The final result will be a bottom-up process in which, through the participation of all the members, from the seed

producers to the end users, jatropha sustainability will be achievable. For more information, visit: www.jatrophabook.com.

Practitioner workshop

The Jatropha Practitioner Workshop after the official conference debate provided also several practical approaches to setting up and running jatropha projects. During the workshop, a panel of experienced jatropha practitioners from Asia, Africa & South America presented Iatropha planting best practices for plantation set up and management.

Comment at the end of the conference:

- Keep an eye on jatropha, if this crop is half as good as they say, I'd sav we'd be fools not to look into places where it can be planted.

Markku Björkman

Biogas: decentralized production regional benefit international gain

he biogas indus try's key confer ence with accompa nying exhibition takes place in Hanover fron 8-5 February 2009 The German Biogas Association expects nore than 3.000 vis ors on the three days of the event. Beside the many plenary sea sions and workshops companies will pres ent their latest prod ucts and services a Europe's biggest bio gas exhibition.

 Times have been hard for the biogas ndustry, says Josef Pellmeyer, President of the German Bioga ssociation.

corn and grain price or the 2007 crop an the long and tough negotiations on the econd amendmen o the Renewable En ergy Act caused the industry to slip into a recession, from which t is only now gradually ecovering, Pellmeye ontinues

- The indications or the new Renew able Energy Act (into orce on 1 Jan 2009 are basically posi manure bonus and the increased renew-able raw materials and codeneration bonus plitics has made the lants attractive, es pecially for smalle ivestock farms.

For more info www.biogas.org BI35/745/MK



Keen interest in RENEXPO South-East-**Europe 2008**

On the 21st of No Vember 2008 the doors to the interna-tional RENEXPO® South-East-Europe 2008 closed. The ir ternational trade fai with conference in Bu charest has exceeded all expectations. "With 1.530 visiting

experts, it has been a great success! The visitors came from Germany, Austria China, Italy, Swe den, just to name a few". Johann-Geord Roehm, manager of the trade fair orga nizer REECO Gmbl is excited to say abou the successful pre mier of RENEXPO South-East-Europe 2008 which took place n Bucharest.

The visitors could nform themselves on the energy sup ply of the future, wit renewable energies and energy efficiency Biogas, wood energy, geothermal energy, solar energy, hydro power as well as energetic renovation. Ove 59 exhibitors informed Just under 46 % of the exhibitors came from all over Europ

Over 465 confe ence participants fron all parts of Romania as well as Germany Italy, Austria, Sweder and Japan came to the 5 conferences with 70 top-class speakers.

Nothing is left in the way of RENEXPO <u>2009, ends Diana</u> Roehm. head of Inte national department www.energy-server.de /BI35/773/LLj





• Phu Khieo Bio-Energy Co., Ltd. • Roi Et Green Compan • Nanyang Technological University • Pure Power Global Alstom Power
Novozymes (China) Investment Co. Ltd.

on "Prospect of Biomass to Liquid"

Visit us at www.futureenergyevents.com/biomass/ to Register or contact **sasha@cmtsp.com.sg**



Events Calendar 2009

JANUARY

- 19-21 World Future Energy Summit
- 29-31 Clean Energy Power 2009 21-22 The Permanent Oil Crisis

FEBRUARY

- 03-04 Pellets 09
- 03-05 18th Conference of German Biogas Association
- 09-10 Biomass World 2009
- 12-13 BioPower Generation Europe 16-17 Jatropha World Asia 2009
- 25-26 European Pellet Conference
- 25-27 ReTech 2009
- 25-27 World Sustainable Energy Days
- 25-01 Energiesparmesse
- 26-28 The Spring Biofuel Congress 2009

MARCH

- 03-06 Global Sustainable Feedstock
- 10-12 Renewable Energy World Conference & Expo
- 11-12 Swedish National Energy Convention
- 16-18 World Biofuels Markets 2009 25-26 BioPower Asia
- 26-28 Enreg Energia Regenerabila
- 30-31 Arabian Power and Water Summit

APRIL

- 02-04 PowerGen India & Central Asia
- 02-05 Bois Energie
- 06-08 Energy Efficiency and Renewable Energy Sources
- 14-17 European Conference on Energy in Industry
- 16-18 Renexpo Central Europe 23-24 BioPower Generation Americas
- 23-25 China EPower
- 28-30 Int'l Biomass Conference and Trade Show

MAY

- 05-08 Vietnam Re-Energy 2009
- 08-10 BioOptima
- 12-14 Genera 09, Energy and Environment Fair
- 18-22 Ligna 2009 19-21 Green Power
- 20-21 All Energy 09
- 26-28 Nordic Bioenergy 2009
- 26-28 PowerGen Europe

JUNE

- 02-05 Waste-Tech 2009
- 03-06 Elmia Wood
- 10-12 Biofuels Summit and Expo
- 16-19 4th International Bioenergy Congress 24-26 Pellets Expo & Pellet Update Conference
- 29-02 17th European Biomass Conference & Exhibition

SEPTEMBER

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Pellets Professionals Gather in Stuttgart

nterpellets 2008 experienced 3 suc-cessful days at the New Stuttgart Trade Fair Centre. Around 5 300 visitors, came to Interpellets to find out more about pellets echnoloa

Manufacturers dealers and suppli ers from the pellets industry presented their products, servic-es and technical soluions across 7 000 m² of exhibition space.

The pellets industr took full advantage of this opportunity to show what it has to offer: delivery trucks were on display along ide demonstrations of pelleting presses in action, a large se-lection of boilers and stoves. and techni cal solutions from the supply sector.

- Interpellets is a reflection of the industry as a whole, and as such it has benefited from the optimism in the market, said Markus Elässer of Solar Promo ion GmbH, organize of Interpellets. Barbara Pilz, project

nanager for the Indus try Forum, summed

- 480 participants from 37 countries used the main forum and several furthe sessions to discuss the political frame work of the Germar and European pellets

Alongside market developments. centra topics included fue production and the challenges faced by the pellets industry. *BI35/829*



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