BIOENERGY

NO 1 2008

WORLD BIOENERGY ASSOCIATION

Global state of bioenergy

Increased growth can be coupled with decreased environmental impact

Biofuel is good for Africa's farmers

International standards for solid biofuels

PREVIEW:

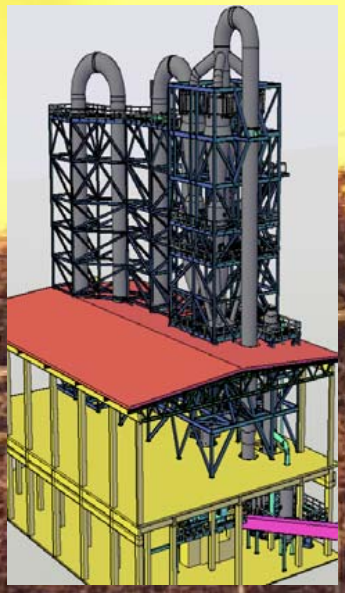
World Bioenergy 2008 Jönköping

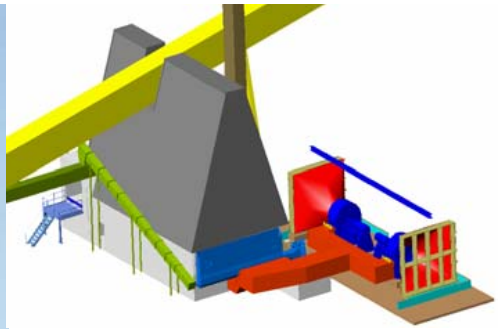
Exhibitor's guide

See who's here and where

www.exergyse.com

Protect Environment, Save Energy and Money with Exergy.





Exergy Drying for production of solid and liquid bio-fuels:-

Bio-Pellets ¤ Bio-Ethanol ¤ Bio-Diesel ¤
Bio-gas ¤ Sludge ¤ Animal Feed ¤
Boiler Fuels ¤ Bagasse ¤ DDGS

We market, design and engineer, supply, install and commission Exergy Steam Dryer and Exergy Bed Dryer together with process solutions for total energy-integration.

www.exergyse.com

- Experience and Know-How for Optimal Solutions -

Swedish Exergy AB
Theres Svenssons Gata 10. SE-417 55 Gothenburg. Sweden
Telephone: +46 31 51 39 90.
Fax: + 46 31 51 76 90.
E-post: info@exergyse.com

World Bioenergy Association

THE BIOENERGY BUSINESS needs a voice on the international arena. The debate about biofuels has been intense over the last months, but the experts within our own ranks have not always been heard.

Fruitful discussions have been held in the European Biomass Association (AEBIOM) about the possibilities to create a body acting globally with a loud voice telling the truth. We have come to the conclusion that we need a global organisation for bioenergy. Contacts with other actors all over the world have given the same impression.

Our plan is to launch a global bioenergy organisation in Jönköping at World Bioenergy 2008 called World Bioenergy Association (WBA). And to launch a magazine to communicate our message.

A first draft of the WBA Action Plan is shown below. It will be a subject for discussions in the WBA interim board on the 28 of May in Jönköping and a final version will be adopted.

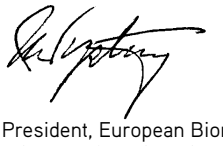
We would be very glad if national and regional organisations, institutions and companies showed interest in joining the new organisation and hope for a large number of members. The Bioenergy World need it.

Action Plan

The aim of the World Bioenergy Association is to promote the use of bioenergy globally in sustainable and economically efficient way. WBA wants to:

- Work for a fair distribution of the global resources of biomass for energy.
- Be a strong voice representing the global bioenergy actors, both industrial and institutional.
- Participate in the development and promotion of certification programmes, both for liquid and solid biofuels. The purpose is to guarantee that they are produced in an environmentally sustainable way under acceptable working and social conditions.
- Demonstrate the potential of bioenergy as a strategic renewable resource for meeting the challenges from climate change by reducing emissions of climate gases.
- Take an active role in influencing the public opinion and create alliances, especially seek cooperation with unexpected partners, to turn around the current negative debate on bioenergy.
- Initiate and promote a study of potentials of biomass for energy built on already presented research. Consequences for food and forest industry must be seriously treated and analysed.
- Based on these potentials the role for bioenergy in a global energy mix can be shown and disseminated to the public, media, educators and decision makers on different levels.
- Clearly state the need for steering instruments to increase the use of bioenergy and reward the most efficient ones. Analyse different incentives and disseminate the results to decision makers in national governments and parliaments, and international organisations.
- Give much attention to biofuels for transport, especially to the conflict between energy and food. Extra efforts shall be made to spread knowledge about state of the art for the second generation of biofuels for transport. Special attention shall be given to bioenergy combinate solutions, for the production of, for example, electricity, heat, pellets, ethanol, diesel and biogas.
- Initiate and promote the development of standards for different kind of biofuels and equipment, as for example boilers and burners. Standards are necessary for making bioenergy globally commercial and tradable.
- Initiate and support match-making to stimulate business and spread knowledge about equipment, fuels, systems and technical development.
- Follow the media debate, correct false information, and give a positive picture of bioenergy by presenting the true facts to media and the public.
- Develop a member magazine.

Welcome to apply for a membership in the World Bioenergy Association!



Kent Nyström
Vice President, European Biomass Association
Managing Director, Swedish Bioenergy Association

CONTENTS

Bioenergy is published by World Bioenergy Association.

Torsgatan 12, SE 111 23 Stockholm, Sweden
Tel: +46 8 441 70 80, Fax: +46 8 441 70 89
Web: www.worldbioenergy.org
E-mail: info@worldbioenergy.org
Publisher: Kent Nyström
Editor: Anders Haaker
Art and production: Malin Fredriksson, Jonas Gustafsson
Advertising sales: Sofie Samuelsson, Samy Said
Translation: David Landes
Print: Trydells, Laholm, Sweden
Cover photo: Leaves of sugar cane, Manuel Velasco, iStockphoto

See you at
World Bioenergy Conference

The World Bioenergy Conference and Exhibition on Biomass for Energy consists of almost 200 exhibitors together with almost 200 oral and poster presentations. On this page World Bioenergy Magazine presents a few topics that will be presented. For the total overview check the conference programme at www.worldbioenergy.se

---

Maud Olofsson

Climate strategy

Renewables are no longer an "alternative energy". They are an essential part of today's energy system and a corner stone in solving the energy and climate challenges we face, said Maud Olofsson, minister for Enterprise and Energy and Deputy Prime Minister, Sweden at the WIREC-conference in Washington in March 2008. In Jönköping she will explain more about the Swedish climate strategy.

Kees W Kwant

Sustainable Biomass Production in Developing Countries

Kees W Kwant from Senter Novem presents a case with a sustainable system for production of biofuels in Africa and the use of them in the Netherlands. A set of generic sustainability criteria and corresponding indicators were formulated in the Netherlands. Based on a casestudy with Jatropha oil production in Tanzania and utilisation for power and heat in the Netherlands an assessment was caried out. An analysis was caried out and an illustration prepared to present a win-win situation for both local sustainable development and sustainable energy supply.

SenterNovem and RIVM were asked by the Ministry of Environment (VROM) to prepare an illustration where a positive impact could result from producing biomass or biofuels in a developing country for utilisation in the Netherlands.

Sharif Ahmed Mukul

Traditional homegardens and domestic biomass fuel consumption pattern in the developing world: the case from a south-central rural village of Bangladesh

Sharif Ahmed Mukul, Shahjalal University of Science & Technology in Bangladesh will make a presentation about "Traditional homegardens and domestic biomass fuel consumption pattern in the developing world: the case from a south-central rural village of Bangladesh" People living in most developing countries meet majority of their biomass fuel requirements from the forest. However, this usual practice becomes difficult to maintain as the forest of this region decreases in an alarming rate. In such context, homegardens will have to play the key role in near future where in many forest poor regions it's already playing the vital role.

News

Dryer for pelletproduction

The Atlas-Stord Rotadisc(r) drier is an alternative to the direct fired drum drier. The Rotadisc(r) drier is an indirect steam heated contact drier. The steam supply pressure can be between 2 - 10 bar. As a contact drier no fluid is used as carrier for the heat transfer and thus the vapours are almost pure water vapour with a high wet bulb temperature. By condensing of the vapours a recovery of up to 80% of the steam energy input can be recovered for district heating. Learn more at World Bioenergy 2008, stand A00:61.

Soot cleaning system

AEROVIT is a system for removal of soot and deposits from boilers, using compressed air to create computerized shock waves of immense power. Continuous cleaning results in proven higher efficiency and higher boiler output and decreases the number of manually cleaning with 80-100%. Before installing the Aerovit system, Värnamo Energi cleaned the boiler manually 10 times/year. Now the boiler is kept clean continuously and they don't have to stop the boiler for manually cleaning anymore. For further information at www.okrcleaning.dk .

Heinz Kopetz

European conditions for bioenergy

Heinz Kopets, president of European Biomass Association, AEBIOM and also Österreichischer Biomasse-Verband, will speak about the European conditions for bioenergy, focusing on north-south and east-west aspects.

Douglas Bradley

Biomass Exports from Canada

Canada has long been a world player in forest products and is recognized as a major potential supplier of forest biomass. The forest industry has been using mill residue for energy for years and in early 2007 surplus mill residues were estimated at only 2.1 million ODT (Oven Dry Tonnes). However more is being released to market by pulp mills and board mills that no longer operate. How much is available now? Douglas Bradley is president of Canadian Bioenergy Association will provide estimates of the amount of biomass that is economically available from mill residue, heritage piles and harvest waste, and will look at the costs to acquire it, what amounts might be utilized for domestic energy, and what volumes will be available for export.

Bjørn R. Sørensen

Green energy solutions in Chinese rural areas

Bjørn R. Sørensen from Narvik University College is going to present a pilot study on promoting the utilization of local renewable energy resources and increased energy efficiency for improving living conditions and environment on the Chinese countryside.

The project Green energy solutions in Chinese rural areas was initiated in the beginning of 2007. The 4 year spanned project is carried out in collaboration with Beijing Institute of Petrochemical Technology together with professionals from business life from both Norway and China.

Ohene Kwadwo Akoto

Bioenergy in Developing World: A successfull role model of Jatropha Plantation on large scale

Jatropha Africa has acquired a 50,000 hectare land for cultivation of jatropha in Ghana. The ultimate goal is to have a 300,000 hectare plantation producing one million tonnes of biodiesel per year. Ohene Kwadwo Akoto of Jatropha Africa is going to highlight the problems encountered in setting up plantation and pitfalls other investors must avoid in their quest to set up biofuel plantations and refineries in Africa using Ghana as a case study.

News

President Lula on biofuels

"Ethanol has created 1,5 million new jobs in Brazil"

President Lula da Silva in february 2008 spoke about biofuels at a conference in Brasilia for legislators from G8+5 countries (the G8 countries plus Brazil, China, India, Mexico and South Africa). Here are some of the points he stressed in the speech:

"Of the worlds 50 poorest countries, 38 are net importers of petroleum products. Of those, 25 import all the energy they consume. In many of those economies, six times more is spent on importing fuel than is invested in health care. In others, the petroleum account amounts to double what the state has earmarked to combat hunger and poverty."

"We are convinced that agro-energy offers an historic opportunity to bridge the gradual departure from the petroleum era, thereby promoting better distribution of wealth and opportunities among rich and poor all over the world. The ethanol industry has created, directly, 1,5 million jobs in Brazil, and 4,5 million jobs have been created indirectly. The biodiesel program, just getting started but expanding rapidly, now employs more than 250 000 people, especially small farmers living in semi-arid zones. It is generating income and helping to keep the population in the countryside."

"Biofuels are therefore helping combat hunger and generating income that helps the poorest people buy food. The output poses no threat to food security, since it involves only 2 percent of our arable land."

"Brazil has 851 million hectares of land. We have 210 million hectares of pastureland. Of those, 60 million hectares are no longer of äny use, not even for grazing. That leaves 60 million hectares that we can rehabilitate in order to produce food products or biofuels. Areas outside the Amazonas that we have not yet exploited amount to 101 million hectares."

Earthrace eco-boat begins round-the-world record attempt

Earthrace, the world's fastest, coolest and greenest powerboat started its round-the-world race on 27 April, in an attempt to break the world record and promote the use of sustainable fuels.

Earthrace is an incredible 78 ft wave-piercing trimaran that runs exclusively on biodiesel, and has a net zero carbon footprint, making it one of the world's most environmentally-friendly powerboats. Skipper Pete Bethune and his crew will blast off from the port of Sagunto, Spain, before crossing the Atlantic, Pacific and Indian oceans as they thunder around the planet's circumference at a maximum speed of 40 knots.

"For the next 40 days we're going to be living on adrenaline," says Bethune, who auctioned off his home and sold his company to fund the building of the GBP 1.5 million boat.

More than a year ago, Sekab started work on introducing sustainable-certified ethanol for customers in Sweden. The effort has evolved to become a close partnership between researchers and the Brazilan ethanol industry association Unica to choose criteria and start a system which guarantees sustainable ethanol to customers before the end of 2008.

By Anders Haaker

Photo: Sekab

Ethanol from Brazil first to be certified

"WHEN WE STARTED development about a year ago, the idea was to show that the ethanol Swedish customers pump into their cars or buses won't contribute to the greenhouse effect, child labour, or slave labour as some people claim it does. We know that's not true, but now we can prove it," explains Sekab CEO Per Carstedt.

Today no system exists which can guarantee a customer knows from where fuel originates. The debate in Sweden often highlights worst case scenarios, which can cause people to question whether or not it's a good idea to put ethanol in their cars – a reaction which Sekab hopes their work will help drivers avoid."

"WE'VE ESTABLISHED A partnership with a number of large producers in Brazil and a number of large oil companies in Sweden. We have also, together with researchers and the Brazilian ethanol industry association Unica, worked out a number of criteria for how to answer the kinds of questions which normally come up," said Carstedt.

Common issues include how much carbon dioxide ethanol contains; guarantees that workers are unionized and that no child workers are involved; as well as the whether or not a comprehensive ecological program exists.

In addition, the group has an ambitious programme for assisting with the changeover to mechanized harvesting. The situation in Brazil is reminiscent of developments in Sweden in the 1960s and 1970s when the Swedish forestry industry transformed from manual cutting with motorized saws, where working conditions caused back injuries and other problems, to mechanized forestry utilizing cutting machines, where workers instead sat in cabins with air conditioning, listened to music, and controlled things with a joy stick. The same changes are currently underway in Brazil. The transformation has resulted in strains on a society where every harvesting machine ends up replacing between 70 to 100 workers, demanding a delicate balance which ensures the toughest jobs are replaced by other jobs.

"We are working together with other actors who we think are the most progressive in order to come up with new jobs. Now the certification process has become enshrined in a commercial contract based on rather large volumes from the harvest which starts in May and June 2008," explains Carstedt.

THE CERTIFICATION WILL BE REVIEWED by independent, international third parties, who will carry out two investigations a year at every factory.

"We don't have the naive perspective that you can transform the entire Brazilian industry in a day. We are working on a qual-

ity assurance system. We've completed contracts where we've agreed on what we will do, and then we have a third party who can review everything. If the review uncovers any deviations, then we plan to implement measures to make improvements on smaller deviations ahead of the next inspection; if the deviation is a major one, people will get a few weeks to fix things; and if the deviations are really egregious, we can simply break the contract," said Carstedt.

"DURING THE TIME WE'VE been working, there's been a generational shift in the leadership of the ethanol industry association and a younger set of leaders has taken over. It's totally clear to them that something must be done. As a result, we're working on certification together with Brazilian industry.

"This is also something that will eventually drive the entire ethanol industry in Brazil. Unica wants to use the experience with us to drive development in Brazil and we have said that we will work to drive the development in Europe. We are the single largest importer in Europe.

"Doing this in Sweden demonstrates what's possible to the rest of Europe. As demand for certified ethanol increases, then producers in Brazil can work to improve their offering. This is our attempt to push these developments forward with the expectation that the EU and others will come out with something in one or two years."

"SEKAB IS ALSO ACTIVE in Africa and is looking to produce ethanol in Africa by 2011. Right now we're building an organisation that will be able to produce 120,000 to 130,000 cubic metres per year. Plus, it's the first ethanol project in Africa, which makes it unique in and of itself. Cultivating sugar isn't anything new, really, but the whole system is something new. We also have the ambition of getting the system's efficiency to be close to that of the Brazilians' within five to ten years.

"Both Tanzania and Mozambique are unbelievably well-suited to start producing ethanol and we are there to help break the ice in Africa. Sekab is leading the project and is one of the major owners. Twenty people are there on the ground working on the project and we're striving to create a strategic partnership in those areas where it's needed.

SEKAB IS EVEN LOOKING INTO the possibility of bringing new owners into the company.

"It's important that we find actors who share our values and plans for the future," said Carstedt.

Per Carstedt, CEO Sekab

The first meeting to start the work to create an international standard for solid biofuels take place in the end of May. The secretery for the ISO committee Lars Sjöberg explains about the work to be done.

International standards for solid biofuels

ISO/TC 238 will continue the work of the European committee on CEN/TC 335 for solid biofuels, through which 30 standards on solid biofuels have been generated since 2000. The standards comprise terminology, classification, sampling and test methods on solid biofuels. Today 20 countries are registered in TC 238, including India, China and United States, each of which generates a sizeable level of greenhouse gas emissions. During the first TC 238 meeting, attendees will select a leadership committee, lay out working group procedures, and create a business plan.

Sweden and the Swedish Standards Institute (SIS) have been appointed to lead the work of the new ISO committee. A Swedish chairman and secretary will be chosen to lead the secretariat once it is established, further emphasizing Sweden's leading position when it comes to solid biofuels. The proposal as chairman is Ms Birgit Bodlund of Vattenfall has been proposed to serve as chairperson of the secretariat, as well as chair of the TC 335 meeting. Mr. Lars Sjöberg of SIS is set to take on secretary responsibilities. The first meeting of ISO/TC 238 committee on solid biofuels will be held between the 21st and 23rd of May at Friiberghs Herrgård outside Stockholm.

The European standards will serve as the basis for work in ISO/TC 238. However, several new fuels from the countries outside Europe will also be included. European standards, as well as national standards, are important tools for the working groups crafting new drafts for ISO standards. These drafts will be circulated for comments before a final voting procedure takes place to get them out as ISO standards. A date for the publication of the ISO standards has not yet been set, but plans are for a publication date sometime in early 2011.

In the Swedish Mirror Committee for solid biofuels, there are today 25 participating companies and authorities. Interest in the standardization work on solid biofuels has increased since the ISO committee was established, and anyone interested in joining the work is encouraged to contact Mr. Lars Sjöberg at lars.sjoberg@sis.se. Companies outside of Sweden are encouraged to contact their respective national standardization bodies for more information about how to participate.

For the third time in a row, SIS will be among the exhibitors at the World Bioenergy Conference. This year, Skellefteå Kraft AB is co-sponsoring the SIS exhibit through which SIS will present the work of the new ISO-committee and Skellefteå Kraft and offer visitors the latest news on pellet fuels.

Lars Sjöberg
SIS Swedish
Standards Institute
www.sis.se

European standards for solid biofuels

SIS-CEN/TS 14588	Solid biofuels - Terminology, definitions and descriptions
SIS-CEN/TS 14961	Solid Recovered Fuels — Specifications and classes
SIS-CEN/TS 15234	Solid biofuels - Fuel quality assurance
SIS-CEN/TS 14778-1	Solid biofuels - Sampling - Part 1: Methods for sampling
SIS-CEN/TS 14778-2	Solid biofuels - Sampling - Part 2: Methods for sampling particulate material transported in lorries
SIS-CEN/TS 14779	Solid biofuels - Sampling - Methods for preparing sampling plans and sampling certificates
SIS-CEN/TS 14780	Solid biofuels - Methods for sample preparation
SIS-CEN/TS 14774-1	Solid biofuels - Methods for determination of moisture content – Oven dry method – Part 1: Total moisture – Reference method
SIS-CEN/TS 14774-2	Solid biofuels – Methods for the determination of moisture content – Oven dry method – Part 2: Total moisture – Simplified method
SIS-CEN/TS 14774-3	Solid biofuels – Methods for the determination of moisture content – Oven dry method – Part 3: Moisture in general analysis sample
SIS-CEN/TS 14775	Solid biofuels – Method for the determination of ash content
SIS-CEN/TS 14918	Solid Biofuels - Method for the determination of calorific value
SIS-CEN/TS 15103	Solid biofuels - Methods for the determination of bulk density
SIS-CEN/TS 15148	Solid biofuels - Method for the determination of the content of volatile matter
SIS-CEN/TS 15149-1	Solid biofuels - Methods for the determination of particle size distribution - Part 1: Oscillating screen method using sieve apertures of 3,15 mm and above
SIS-CEN/TS 15149-2	Solid biofuels - Methods for the determination of particle size distribution - Part 2: Vibrating screen method using sieve apertures of 3,15 mm and below
SIS-CEN/TS 15149-3	Solid biofuels - Methods for the determination of particle size distribution - Part 3: Rotary screen method
SIS-CEN/TS 15150	Solid biofuels - Methods for the determination of particle density
SIS-CEN/TS 15210-1	Solid biofuels - Methods for the determination of mechanical durability of pellets and briquettes - Part 1: Pellets
SIS-CEN/TS 15210-2	Solid biofuels - Methods for the determination of mechanical durability of pellets and briquettes - Part 2: Briquettes
SIS-CEN/TS 15104	Solid biofuels - Determination of total content of carbon, hydrogen and nitrogen - Instrumental methods
SIS-CEN/TS 15105	Solid biofuels - Methods for determination of the water soluble content of chloride, sodium and potassium
SIS-CEN/TS 15289	Solid Biofuels - Determination of total content of sulphur and chlorine
SIS-CEN/TS 15290	Solid Biofuels - Determination of major elements
SIS-CEN/TS 15296	Solid Biofuels - Calculation of analyses to different bases
SIS-CEN/TS 15297	Solid Biofuels - Determination of minor elements

Denmark will in 2009 host the UN Climate Change Conference (COP15) in Copenhagen and the Danish Government are determined to work towards a new global, comprehensive and ambitious climate change agreement.

By Kristian Thomsen, Royal Danish Embassy

Danish companies use World Bioenergy as a step towards COP15 in Copenhagen in 2009

A GLOBAL AGREEMENT needs to effectively address four issues, namely 1) Mitigation– that is medium term emission reduction targets; 2) Adaptation to the negative consequences of climate change in the poorest countries; 3) Technology development and technology dissemination and 4) Financing of the adaptation and technology efforts.

As companies and their environmental technology will play a major part in ensuring that the world can fulfill a new climate change agreement, the COP15 will provide an exceptional opportunity to demonstrate environmental technology and solutions to world business and policy leaders when they meet in Copenhagen. But the demonstration and highlighting of Danish environmental technologies and solutions has already begun at World Bioenergy 2008, and other initiatives will follow,

Danish strongholds

In Denmark, biomass currently accounts for approximately 70 percent of renewable energy consumption, mostly in the form of straw, wood and renewable wastes. Between 1980 and 2006, the consumption of biomass for energy production in Denmark has more than quadrupled.

Collaboration and partnerships between companies, universities, research institutions and public authorities has been crucial to the development of new Danish environmental technologies. Governments can play an important role in ensuring the creation of optimal framework conditions for sustainable development.

As a result of targeted efforts over many years, Denmark has gained a strong position in the development and application of environmental technologies, and so is well placed to play a central role in finding new and better solutions for many of the environmental problems facing the world today.

14 Danish companies contributes with a joint exhibition at World Bioenergy

The World Bioenergy Conference & Exhibition is a natural venue for companies to demonstrate their core competencies within the Bioenergy sector. To facilitate this, the Danish Biomass Association, DANBIO, and the Royal Danish Embassy in Stockholm have arranged a joint exhibition gathering 14 Danish companies, both large and small, with various state-of-the-art technologies and services.

Companies present at the Danish joint exhibition:

- Boiler Works A/S
- Danfoss A/S
- Dansk Bioolie A/S
- Egedal Maskinfabrik A/S
- Grontmij | Carl Bro A/S
- Nordic BioEnergy ApS
- Nortec Energi ApS
- Novozymes A/S
- Ny Vraa Bioenergi I/S
- OKR Cleaning ApS
- Scanboiler A/S
- Scandinavian International Sales
- SCF Technologies A/S
- Aaen A/S

EXHIBITOR'S GUIDE

– WHO IS HERE AND WHERE

WORLD BIOENERGY 2008

Conference & Exhibition on Biomass for Energy

27 - 29 MAY 2008, JÖNKÖPING - SWEDEN

SVEBIO Elmia

(Updated until 25 April 2008)

A

Aaen A/S, Risskov, Denmark A03:32
ABB AB, Malmö, Sweden A03:52
Adelmann, Germany A04:01
Ageratec AB, Norrköping, Sweden A02:51
Alfa Laval Nordic AB, Tumba, Sweden A06:21
Allan Bruks AB, Bro, Sweden U514
Amandus Kahl Gmbh & Co Reinbek, Hamburg, Germany A:0071
Andritz Sprout A/S, Esbjerg, Denmark A05:22
Atlas-Stord Denmark A/S, Rødovre, Denmark A00:61
Austrian Business Agency Österr. Industrieansiedlungs - Und Wirtschaftswebungsgmbhwien, Austria A03:02
Austrian Energy & Environment Ag & Co., KgraABa/Graz, Austria A02:02
Austrian Trade, Stockholm, Sweden A02:02, A03:02
Benet Oy, Jyväskylä, Finland A02:33

B

Binder Gmbh, Bärnbach, Austria A03:42
Binder+Co Ag, Austria A01:36
Bioenergi Förlag AB/Bioenergy International, Stockholm, Sweden A04:30
Biogas Väst, Göteborg, Sweden A02:01
Biogas Syd, Malmö, Sweden A02:01,
Biopress AB, Ljungby, Sweden A01:41
Bipro AB, Broby, Sweden A:0071
BN Energikonsult AB, Västerfärnebo, Sweden U202
Boiler Works A/S, Tønder, Denmark A03:42
Bracke Forest AB, Bräcke, Sweden A04:19
Bruks AB, Arbrå, Sweden A02:52,U217
Busch Vakuumteknik AB, Mölnlycke Sweden A01:18
Bühler AB, Malmö, Sweden A05:12

C

Ca-verken AB, Sävsjö, Sweden A02:11
Canadian Embassy Stockholm, Sweden A02:45
Cde Ltd, Great Britain A01:36
Cellwood Machinery AB, Nässjö Sweden A01:50
C.f. Nielsen A/S, Baelum, Denmark A03:56
Cpm/Europe Bv, Amsterdam, The Netherlands A06:30
Ctu - Concepte Technik Umwelt Ag, Winterhur, Switzerland A02:44

D

Danbio, Denmark A03:42,A03:32,U204
Danfoss A/S, Hesselager, Denmark A03:32
Dansk Bioolie A/S, Sakskøping, Denmark A03:32
Döscher & Döscher Gmbh, Hamburg, Germany A04:56
Ecoex - West Swedish Environmental Export; Göteborg, Sweden A02:01

E

Ecomb AB, Södertälje Sweden A02:19
Ecopar AB, Angered, Sweden A02:01
Egedal Maskinfabrik A/S, Tørring, Denmark U204
Ekosystem AB, Gävle, Sweden A03:60
Eko-vimar Orlanski, Otmuchow, Poland A01:20
Eldfast i Sweden AB, Vänersborg, Sweden A01:22
Embassy of the republic of Poland, Trade and investment promotion section, Stockholm, Sweden A01:20
Energikontor Sydost, Växjö, Sweden A06:29
Energimagasinet, Halmstad, Sweden A05:36
En-tech, Energietechnikproduktion Gmbhst./vein/glan-hunnenbrunn, Austria A02:02
Ep Maskiner AB, Stockholm, Sweden U668
Eta-Florence Renewable Energies, Florence, Italy A01:34
Europlasma S.a, Bordeaux, France A05:10
Exhausto Cdt, Märsta, Sweden A04:36

F

Filcon A/S, Sorø, Denmark A02:20
Finbio - The Bioenergy Association Of Finland, Jyväskylä, Finland A02:33
Finnmetko Oy, Helsingfors, Finland A02:33
Firefly AB, Stockholm, Sweden A05:30
Fisker, Denmark A04:01
Fisker Skanderborg A/S, Skanderborg, Denmark A04:20
Fordonsgas Sweden AB, Göteborg, Sweden A02:01
Forus, Germany A04:01
Freshfilter B.v., Geertruidenberg, The Netherlands A03:43
Fulghum Fibrefuels Ltd, Georgia, US A01:60

G

General Dies S.r.l., Colognola Ai Colli, Italy A06:19
German Pellets Gmbh, Wismar, Germany A02:29
Green Energy, Seglora, Sweden A02:01
Grontmij Carl Bro AS, Glostrup, Denmark A03:42
Hargassner Ges.m.b.h, Weng Im Innkreis, Austria A03:02

H

Hjo Värmeteknik AB, Hjo, Sweden U211
Hvg Hanseatische Veranstaltungs-gmbh, Division Messe, Bremen, Germany A01:28

I

Ingenjörs Firma R. Sjöstrand AB, Huddinge, Sweden A04:16
Isa - Invest In Sweden Agency, Stockholm, Sweden A06:35

J

Janfire AB, Åmål, Sweden A00:29
Jenz Gmbh Maschinen- Und Fahrzeugbaupetershagen, Germany U668
Joensuu Regional Development Company
Josek Ltd, Wenetjoensuu, Finland A02:33
Jyväskylä University Of Applied Sciences, Jyväskylä, Finland A02:33

K

Karlshamns Hamn AB, Karlshamn, Sweden A04:32
Klm Energi & Mekanik AB, Norrtälje, Sweden A04:11
Kmw Energi AB, Norrtälje, Sweden A02:30
Kob Sweden AB, Vaxholm, Sweden A05:02
Kompogas Ag, Glattbrugg, Switzerland A02:44
Komptech Gmbh, Frohnleiten, Austria A02:02
Korea Trade Center Stockholm, Danderyd, Sweden A05:52
Landtechnik Urch Gmbh Gross-St. Florian, Austria U570

L

Lantmännen Agroenergi AB, Huskvarna, Sweden A02:42
Larus Implanti S.r.l. Credera Rubbiano (Cr), Italy A00:20
Lesprominform Magazine, St Petersburg, Russia A05:45
Løgstør Smede & Maskinfabrik Aps, Løgstør, Denmark A01:30

M

M+w Zander Fe Gmbh, Stuttgart, Germany A02:44
Macon AB, Gävle, Sweden A01:10
Mafa i Ängelholm AB, Ängelholm, Sweden A01:01
Ingenjörsfirman J Mared AB, Huskvarna, Sweden A04:01
Matene A.s, Vettre, Norway U205
M-e-c Company Us-kansas 66757, US A04:22

Photo: Elmia

Mge-teknik AB, Trollhättan, Sweden A02:01
Mhg Systems Oy Ltd, Mikkeli, Finland A02:33
Mm Enviloop AB, Västerås, Sweden A02:21
Mockfjärds Biobränsle AB, Mockfjärd, Sweden A04:61
Fredrik Mogensen AB, Hjo, Sweden A06:11
Morums Mekaniska, Stocka, Sweden U207
Münch, Germany A04:01

N

Nakkilan Konepaja Oy, Nakkila, Finland A01:59
Nazzareno, Italy A04:01
Neova AB, Hudiksvall, Sweden A00:11
Next World Sweden AB, Kista, Sweden A02:46
Nordic Bioenergy, Odense, Denmark A03:32
Nordisk Energi/conventus Industry AB Stockholm, Sweden A04:59
Nordisk Etanoproduktion AB, Karlshamn, Sweden A04:16
Nortec Energi Aps, Engesvang, Denmark A03:42
Novozymes A/S, Bagsvæd, Denmark A03:32
Noxor AB, Örebro, Sweden A03:33
Ny Vraa Bioenergi I/S, Tylstrup, Denmark U204

O

O.oe. Energiesparverband/oekoenergie-cluster, Linz, Austria ,A03:02
Okr Cleaning Aps, Brabrand, Denmark A03:32
Opcon Energy Systems AB, Stockholm, Sweden A03:30
Osby Parca Div, Enertech AB, Osby, Sweden A02:12

P

Peal AB, Helsingborg, Sweden A01:36
Pelleting Technology Nederland Ac, Schijndel, The Netherlands A02:32
Pentin Paja Oy, Joensuu, Finland A02:33
Petrokraft AB, Göteborg, Sweden A06:41
Powerscreen Ltd, Ireland, A01:36
Prodesa Medioambiente S.l., San Juan De Mozarrifar / Zaragoza, Spain A04:09
Pycon - Pyroforce Conzepte Ag Stans Switzerland, A02:44

R

Raiffeisen Leasing Gmbh, Wien, Austria A02:02
Repotec Umwelttechnik Gmbh, Güssing, Austria A02:44
Rogbico AB, Östersund, Sweden U514
Roland Carlberg Processystem AB, Göteborg, Sweden A:0071
Rosenlew Rkw Finland Ltd, Pori, Finland A04:52
Russian Biofuel Company, St Petersburg, Russia A00:55

S

S&h Teknik AB, Staffanstorp, Sweden U516
Salmatec Gmbh, Salzhausen, Germany A00:10
Scanboiler A/S, Silkeborg, Denmark A03:42
Scandinavian International Sales, Hillerød, Denmark A03:42
Scf Technologies A/S, Herlev, Denmark A03:42
Sdc Ek För., Sundsvall, Sweden A00:56
S-e-g Svenska AB, Bromma, Sweden A03:12
Sekab Biofuel Industries AB, Örnsköldsvik, Sweden A02:34
Sht - Heiztechnik Aus Salzburg Gmbh, Salzburg-Bergheim, Austria A02:02
Silexport International Sas, Saint Boil France A04:42
Silvaro AB, Lidköping, Sweden A04:51
Simpson Spence & Young AS, Oslo, Norway A04:16
Sis, Swedish Standards Institute, Stockholm, Sweden A06:31
Skellefteå Kraft AB, Skellefteå, Sweden A06:31
Sonnys Maskiner AB, Grästorp, Sweden A00:70
St1 Biofuels Oy, Helsingfors, Finland A06:09
Sustainable Business Hub, Malmö, Sweden A02:01
Svebio, Stockholm, Sweden A06:51
Swebo Flis & Energi, Boden, Sweden U203
Sweden Power Chippers AB, Borås, Sweden 00:51
Swedish Exergy Consulting AB, Göteborg, Sweden A05:35
Swedish trade, Stockholm, Sweden A05:42
Svensk Rökgasenergi AB, Spånga, Sweden A03:30
Sågspecialisten AB, Jönköping, Sweden A01:31

T

Taurus Energy AB, Lund, Sweden A02:43
Terex-pegson Ltd, Storbritannien A01:36
Terminator Service AB, Falköping, Sweden U570
The Trade Council Of Denmark, Stockholm, Sweden A03:42
Tomal AB, Vessigebro, Sweden A05:41
Torkapparater AB, Stockholm, Sweden A01:32
TPS Termiska Processer AB, Nyköping, Sweden A05:60
Traktorcentralen AB, Sala, Sweden U209
Träenergi Teknik AB, Vimmerby, Sweden U200

U

Ulma AB, Svenljunga, Sweden U205
Uny-konsult, Målilla, Sweden A00:10

V

Van Aarsen International B.v., Heel, The Netherlands A05:32
Vb Maskiner AB, Lycksele, Sweden U530
Vecoplan, Germany A04:01
Vogelsang A/S, Tarm, Denmark A03:16
Vtt, Jyväskylä, Finland A02:33
Vänertekno AB, Lidköping, Sweden U205
Värmeprodukter AB, Mölndal, Sweden A04:46
Västra Götalands Återvinning AB, Trollhättan, Sweden A02:01

W

Walki AB, Sweden A05:20
Walki Group, Valkeakoski, Finland A05:20
Weiss, Denmark A04:01
Windhager Zentralheizung Gmbh, Seekirchen, Austria A02:02
Wärtsilä Biopower Oy, Kiuruvesi, Finland A02:62

Å

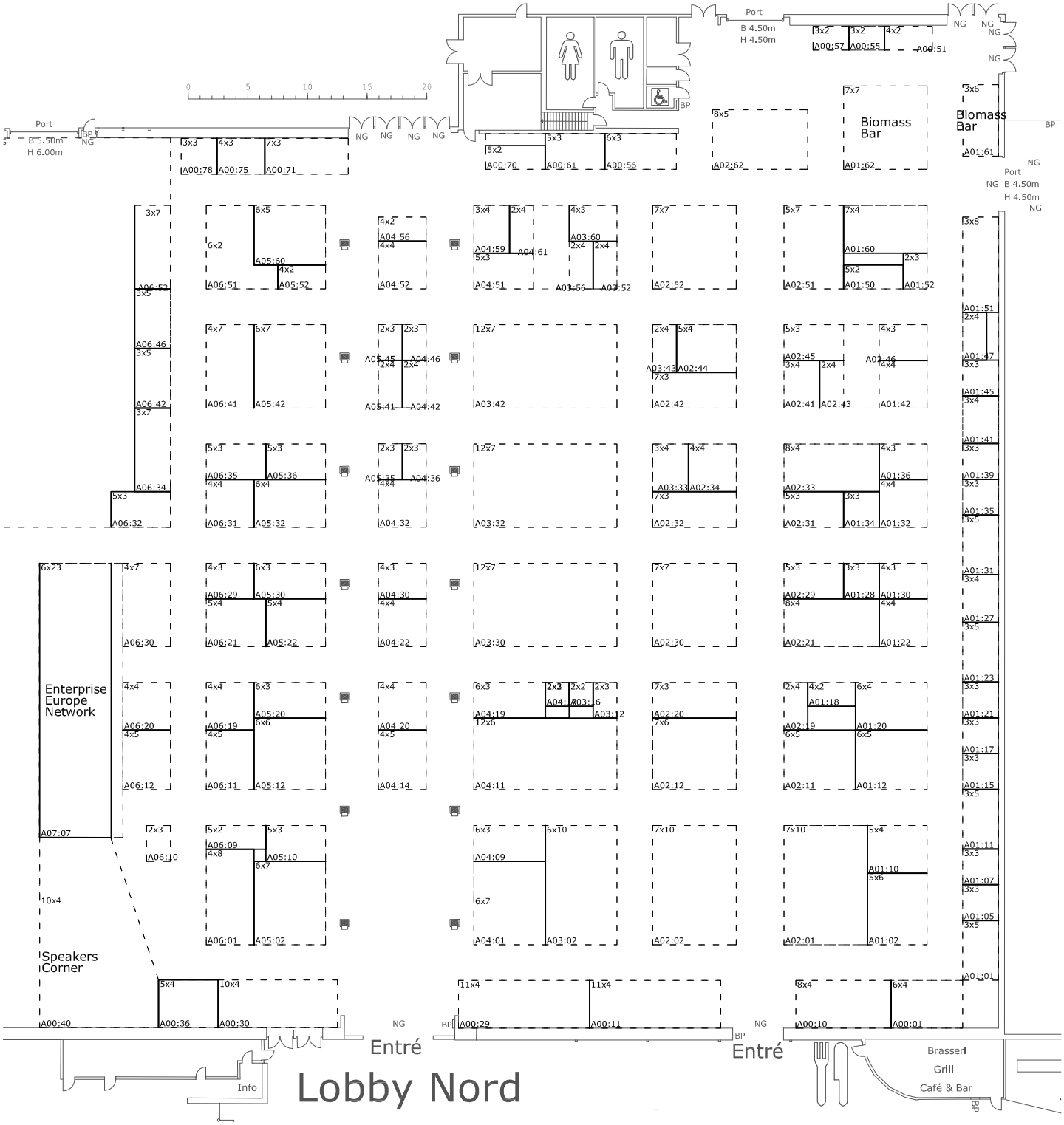
ÅF-consult AB, Malmö, Sweden A02:31

Ä

ÄFAB, Lidköping, Sweden A02:01

Indoor exhibition area

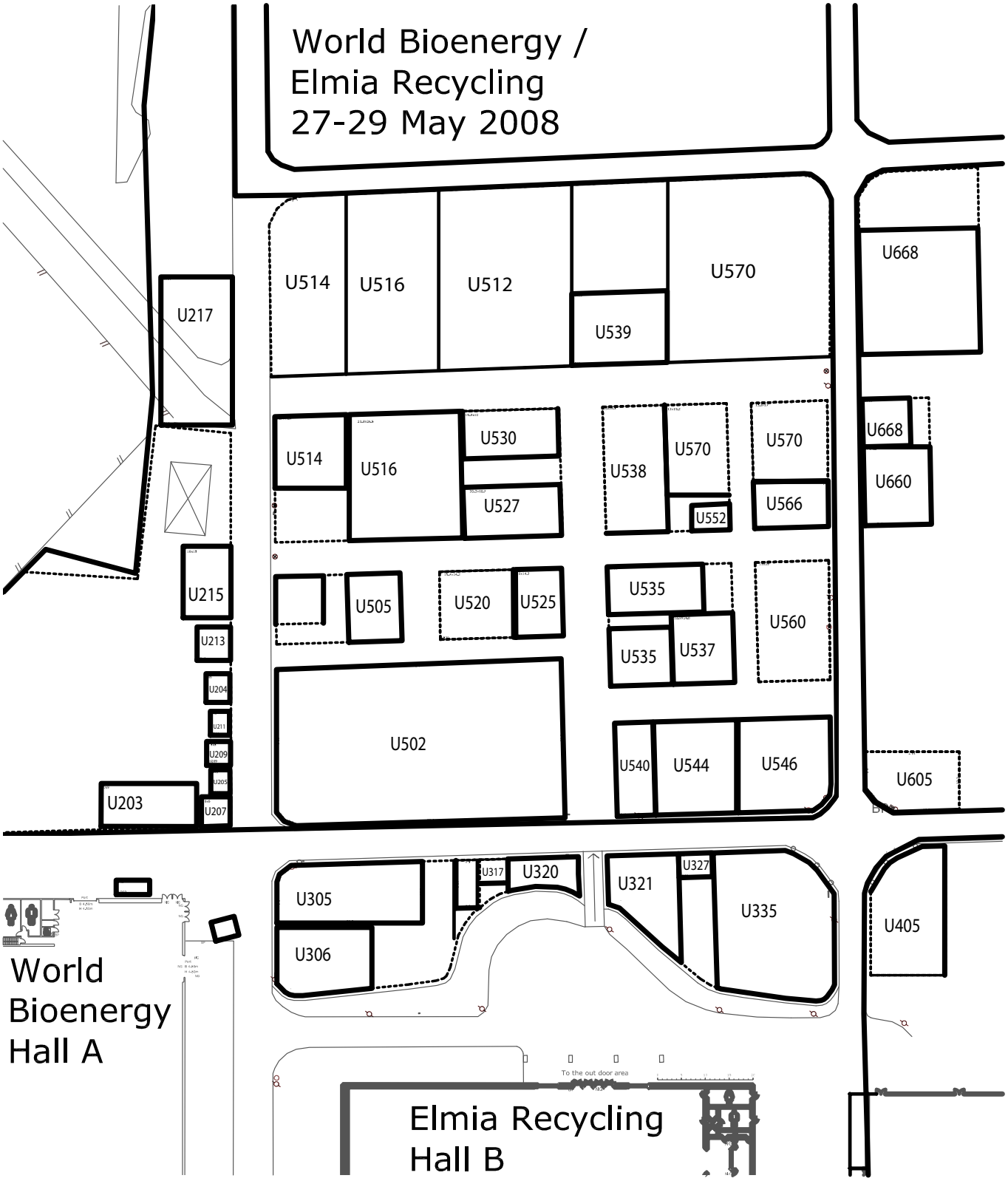
WORLD BIOENERGY 2008
Conference & Exhibition on Biomass for Energy
27 - 29 MAY 2008, JÖNKÖPING - SWEDEN
SVEBIO Elmia



(Updated until 25 April 2008)

Outdoor exhibition area

WORLD BIOENERGY 2008
Conference & Exhibition on Biomass for Energy
27 - 29 MAY 2008, JÖNKÖPING - SWEDEN
SVEBIO Elmia



(Updated until 25 April 2008)

HOTAB GRUPPEN Bio Energy Experts Since 1979

One Big Thing

USA's ambassador Michael Wood has listed 48 Swedish spearhead companies within the field of environment and energy technology. This project has been baptised One Big Thing. HOTAB is one of these companies.

For more information, visit our homepage **www.hotab.se**

HOTAB Gruppen
www.hotab.se

Hedentorspsv. 16
SE-291 62 Kristianstad

Tel +46 44 218400
Fax +46 44 218484

Biofuel is good for Africa's farmers

A female farmer in Zimbabwe inspects her jatropha bush.
Photo: Hanna Wetterstrand

The map shows countries in Africa where projects are planned or already underway.
Source: Swedish Cooperative Centre, www.utangranser.se

Increased demand for biofuels is a positive development for Africa's farmers. Farmers have been getting paid less and less for their products, but now prices for farm products are on the rise, and farmers' incomes are rising with them.

By Kjell Andersson

THE PRODUCTION OF BIOFUELS and investment in ethanol and biodiesel production is creating new job opportunities, advancing technological developments, and reducing oil dependency all at the same time, according to a report from the Swedish Cooperative Centre (Kooperation Utan Gränser).

There has been a lot of information in the media in recent months about how the push into biofuels may lead to competition for natural resources and food shortages in developing countries. But the Centre's report gives a completely different perspective. The Swedish Cooperative Centre asked a number of representatives from Africa's farm industry, and they have a positive attitude toward energy crops.

"Everything that can raise the price of farm products means more money in farmers' pockets and it appears as if biofuels can do that," said Ishmael Sunga from SACAU, an organisation which represents farmers in southern Africa.

BETTER PRICES LEAD TO increased investments and increased production, both of food and bioenergy crops. This may break a trend which has resulted in Africa's farmers getting less and less money for their production over the last 20 years. For example, after years of suffering from falling sugar prices, African farmers are finally seeing prices head up due to increased demand for sugar cane ethanol, which in turn makes it more profitable to grow the crop.

Camilla Lundberg Ney is editor of the report. When the report was presented during a well-attended breakfast seminar in Stockholm, she said:

"Many argue about whether we should decide to commit to biofuels in Africa. But the decision has already been made. The ball is already rolling. Our projections show that more than 20 countries in Africa have already adopted national strategies for the development of biofuels and other bioenergy."

Lundberg Ney summarizes the problem like this: 75 percent of the world's poorest people live in small villages. They live on less than one dollar per day. There are 200 million undernourished in Africa. Those poor farmers are making less money producing food. Biofuels give hope of reduced poverty, new markets, more jobs, technological development, and reduced oil dependency.

The report is entitled "Med utveckling i tanken" (Development in the tank) and can be downloaded or ordered (in Swedish) by visiting www.utangranser.se.

Camilla Lundberg Ney, Swedish Cooperative Centre
Photo: Magnus Rosshagen

Additional bioenergy use explains Sweden's unique break with conventional wisdom:

Increased growth can be coupled with decreased environmental impact

Sweden has succeeded in doing what no other country in the world has accomplished so far: combined increased economic growth with a reduction in greenhouse gas emissions, due primarily to the country's rapid increase in bioenergy use. Between 1990 and 2006 greenhouse gas emissions dropped by around 9 percent, while Sweden's GDP grew by 44 percent. During the same period, Sweden's bioenergy use went up 73 percent.

By Kjell Andersson

IF SWEDEN HAD CHOSEN to use oil, natural gas, and coal to satisfy its energy needs instead of increasing its use of biofuels, emissions would have increased by 21 percent, according to a report by Svebio. The use of biofuels increased from 67 TWh in 1990 to 116 TWh in 2006, or nearly 50 TWh, representing the most significant change in Sweden's energy use habits over the past 17 years.

Climate goals impossible without biofuels

In 2006, the use of bioenergy was around 75 TWh greater than bioenergy use in the 1970s. According to the assumptions used in the study (50 percent coal, 25 percent oil, 25 percent natural gas), had that increase in energy use come from fossil fuels, CO_2 emissions would have been 21.2 million tonnes higher than the 51.5 million tonnes actually measured. Furthermore, Sweden's total greenhouse gas emissions as reported according to the Kyoto Protocol would have been 87 million tonnes (CO_2 equivalent), an increase of 20.8 percent from 1990. Instead, Sweden's emissions went down 8.7 percent, a roughly 30 percent difference. Sweden wouldn't have reached its national goal (a 4 percent reduction) or even the goal put forth by the EU's burden sharing agreement (a 4 percent increase) had it not been for its increased use of bioenergy. The example illustrates that increased use of bioenergy has been the key factor for Sweden in reaching the goals set out by Kyoto.

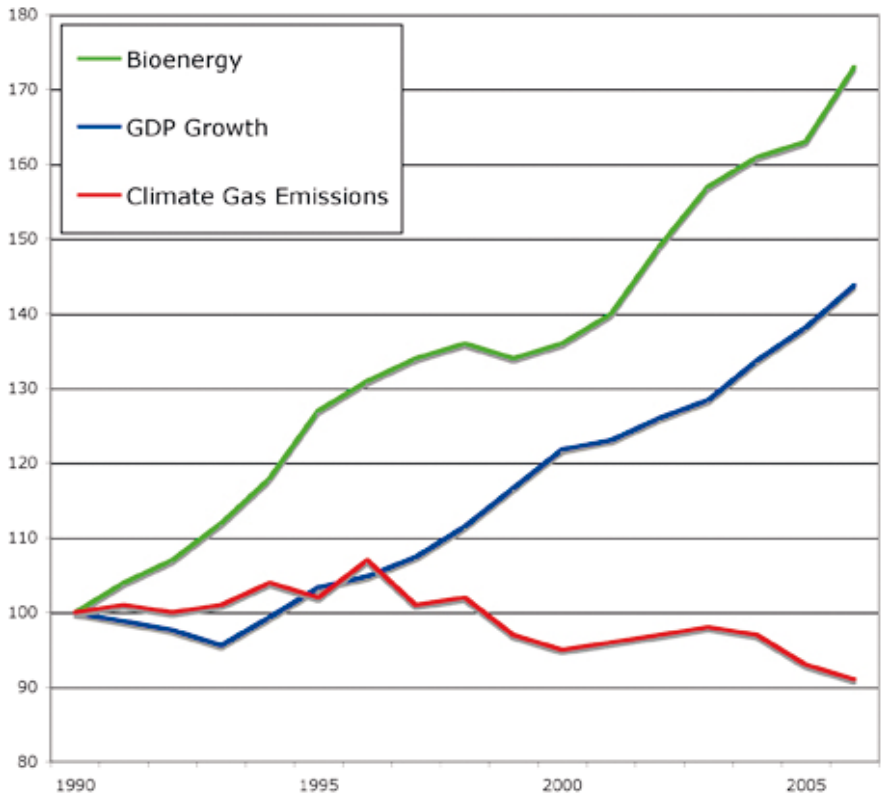
Strong increases since the 1970s

Before the first oil crisis in 1973, Swedish society consumed about 40 TWh of bioenergy, primarily in the form of spent liquor from the pulp industry and other forest industry byproducts, as well as small scale wood burning operations. Oil dependency was quite high--70 percent of Sweden's energy use came from imported oil. As a consequence of the oil crises of 1973 and 1979, the development of modern bioenergy technologies began in earnest. In order to stimulate the use of biofuels, various incentives were introduced at the same time as taxes on fossil fuels were raised--policies which continue to this day. The introduction of a carbon dioxide tax in 1991 was also a transformational step, and Sweden's 'green tax exchange' has strengthened incentives further since then. Other important measures were electricity certificates (since 2003); the abolition of taxes on biofuels; and different programmes to encourage local investments to reduce emissions and foster long-term environmental sustainability (LIP and Klimp). Using 1970s level as the base-level, bioenergy supplies today are 75 TWh higher than they were in the 1970s.

Incentives the key to development

Svebio's study used comparisons and calculations based on the mean bioenergy use (biofuels, waste, peat, etc.) between 1970 and 1979 prior to the second oil crisis, arriving at figure of 42.3 TWh. We treat this figure as the "normal level' prior to the introduction of incentive programmes to encourage the use of biofuels. Our assumption is that the use of biofuels would have remained at the 42.3 TWh level if powerful incentives had not been introduced.

It's possible to speculate about whether the use of biofuels would have increased even without the incentives, as a side-effect of rising fossil fuel prices, for example. We



Sweden has succeeded in doing what no other country has accomplished so far: combining higher growth with a reduction in greenhouse gas emissions.

don't believe this would have been the case for the following reasons:

• Oil prices dropped drastically during the 1980s and have only in the last few years begun to come close to the levels seen around the time of the 1979/80 oil crisis. Coal prices have been lower the entire time. Without a carbon dioxide tax, we would have surely had a larger development of natural gas than is now the case.

• Developments in other European countries without incentives (specifically a carbon dioxide tax) show that the use of fossil fuels continued to increase.

• During the 1970s, the tendency was actually to reduce the use of biofuels, especially in the household/residential sector. For example, the use of biofuels in private homes (i.e. wood) dropped from 12 TWh in 1970 to 6 TWh in 1975. And the industrial use of bioenergy was the same in 1982 as it was in 1970. It was only at the start of the 1980s that biofuels use began to increase quickly both for district heating and industry--the same time that incentive programmes become more powerful.

Rising at an increasing rate

Bioenegy's significance for reducing CO2 emissions in Sweden increases every year. The average growth in bioenergy use has been more than 4 TWh per year since 2000. During the 1990s, the increase was 3 TWh a year, up from only 2 TWh per year in the 1980s. Bioenergy supplies have also risen at an increasing rate.

Positive effects on the economy

The economic impact of the increased use of bioenergy is significant. It is estimated that every new TWh of bioenergy creates an additional 200 to 300 jobs. Put another way, an increase of 75 TWh has added between 15,000 and 20,000 long lasting jobs, along with the associated tax revenues. If Sweden had instead imported 75 TWh worth of fossil fuel, the corresponding import costs would have been between 17 and 25 billion kronor per year (calculated based on world market prices and depending on the exact mix of fossil fuels used).

Contributions from other kinds of energy?

People sometimes claim that the explanation for why Sweden has reached its environmental targets is our large nuclear power sector. Compared to other countries, it's true that nuclear power contributes to a large proportion of Sweden's electricity production resulting in rather low emission levels (hydro-, nuclear-, bio-, and wind-power). But the expansion of nuclear power took place prior to 1990. The last reactor came online in 1986, and between 1990 and 2006, two reactors have been decommissioned, while efficiency was increased at other nuclear power plants. Thus, the level of nuclear power generation was exactly the same in 2006 as it was in 1990, while the supply of bioenergy increased by 73 percent during the same period.

- Total annual energy use in Sweden is about 400 TWh per year.
- Sweden's total CO_2 emissions were 51.5 million tonnes in 2006, and the collective emissions of all greenhouse gases had a CO_2 equivalent of 65.8 million tonnes. Emissions from the transport sector account for about 20 million tonnes.
- 1 TWh = 3.6 PJ. Coal produces emissions of 90.7 grams CO2/MJ (90,700 tonnes per PJ) or 326,520 tonnes per TWh (0.327 million tonnes CO_2/TWh). Oil produces emissions of 0.274 million tonnes CO_2/TWh, and natural gas produces 0.203 million tonnes of CO_2/TWh.

Järnforsen Energi System AB

WORLD LEADER IN SUPPLYING WOOD WASTE COMBUSTION PLANTS

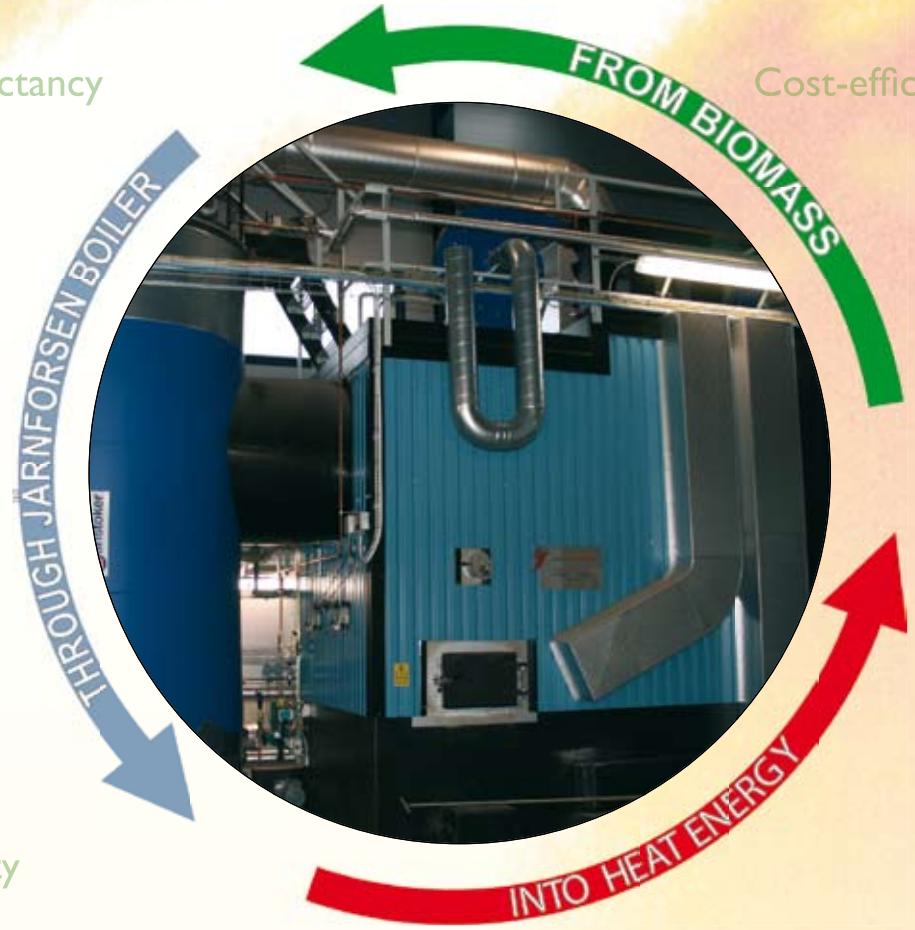
Long life expectancy

World leading

Tradition

Low emission

High availability



Cost-efficient operation

High standard

Capability

Experience

High efficiency

Offices in Halmstad, Järnforsen and Broby

Järnforsen Energi System AB
Stenvinkelsgatan 2C, SE-302 36 Halmstad
Phone: 035-17 75 50 | Fax: 035-17 75 59
Email: info@jf-energi.se | http://www.jf-energi.se