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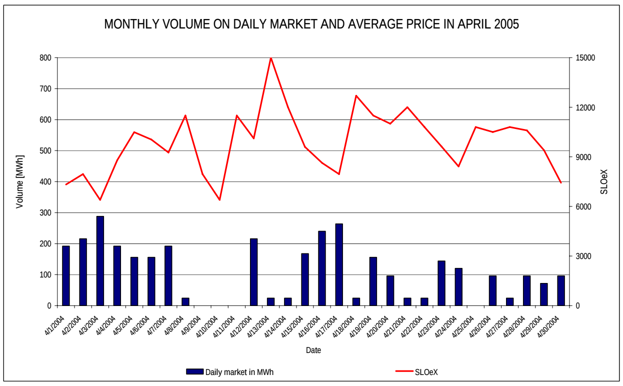
Trading on the Slovenian Power Exchange in April, 2005

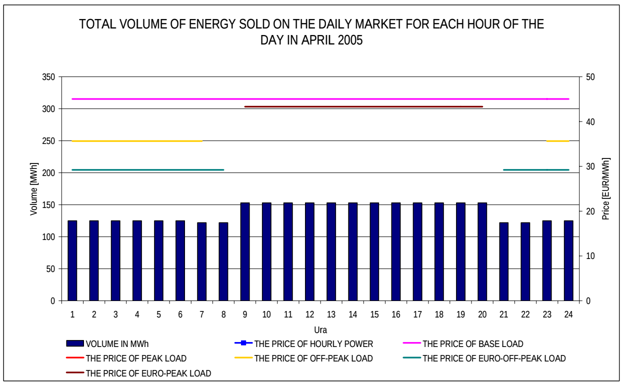
For BEST: Borzen management

BORZEN

The situation on the day-ahead market in April has not changed much compared to March; the trading on the Slovenian power exchange was still low. Warmer spring weather reduced demand and supply on the market, which was also one of the reasons for lower daily volumes on the market. Contrary to the spot market, where a relatively small number of bids were entered, trading for available cross-border transfer capacities was quite active with many bids and all of the available capacities being allocated. On 25th April 2005 Borzen, organizator trga z električno energijo, d.o.o., commenced, by the authorization of ELES SOPO, with the organization of daily auctions for the allocation of available cross-border transmission capacities (ATC). The auctions take place for the Slovenian-Croatian, Slovenian-Austrian and Slovenian-Italian border in both directions. At the first auctions only capacities for the Slovenian-Croatian border were traded (because of the reduction of NTC on the other two borders). From the 3rd of May onward the capacities for the Slovenian-Italian border are also available. The auctions did not induce higher trading volumes on the energy market. The available transmission capacities were namely low and the auction participants could cover only their yearly contracts/obligations with import. The quantity of available capacities varied on a daily basis between 160 and 175 lots of the base load product. The other two products traded in April on the Croatian-Slovenian border were euro-peak and euro-off-peak. Their available quantities varied between 20 and 35 lots. The prices for the capacities of base load on the Croatian-Slovenian border were in April in the range between EUR 31.64 /lot and EUR 65.51/lot.

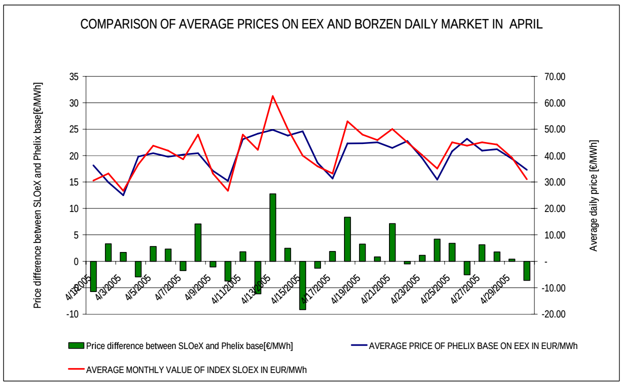


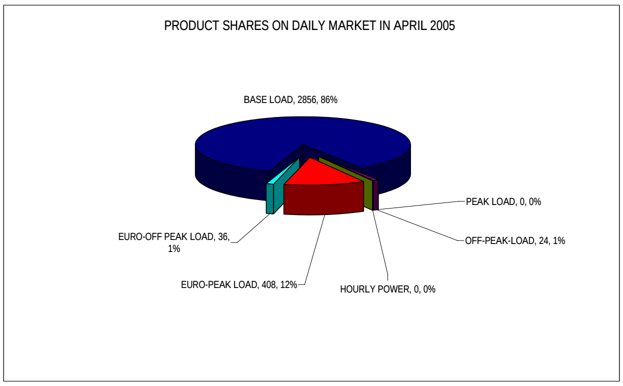
The activity of the members of the organized market in Slovenia decreased again in April compared to trading in March. The average monthly volume of trading reached 111MWh and it varied on a daily basis between no trading and 264 MWh on Sunday, 17th April. The total volume of trading in April reached 3.324 MWh, which is a 51% decrease compared to trading in March.



Market participants traded mainly with products base load and euro-peak load - the liquidity of these two products was also the highest among all traded products in April (they had a 98% share in the total volume of trading). Prices increased in general compared to the previous month. The uniform price of the base load product decreased by 2% to EUR 40.61/MWh. The average monthly value of index SLOeX for April reached 9.884 index points, which means there was a 17% decrease compared to March.

The prices on the Slovenian Power Exchange were above the prices on the German Power Exchange EEX for most of the month, which can also be seen on the graph. The average spread between the value of index SLOeX and the value of index Phelix base on EEX was EUR 1.04/MWh. The biggest spread between the indexes was reached on Wednesday, the 13th of April - SLOeX was higher by EUR 12.78/MWh.





Foundation for the Economy and sustainable Development of the Regions of Europe
(www.fedre.org)

Featured conference: ENERGETIKA 2005

19.06 - 22.06.2005.

This year's conference should serve as a catalyst in finding optimal solutions in the areas like power strategy, but also in other important areas such as renewable sources, energy efficiency…
Besides all this, the conference should renew the power society and serve to everyone who decide to work in power sector.

UCTE
www.ucte.org

PRESS RELEASE
Contact: Marcel.Bial@ucte.org
13 May 2005

UCTE reliability standards become binding

A final agreement was reached during the UCTE General Assembly on 12 May on lifting the UCTE security and reliability standards up to binding standards to all UCTE member TSOs in continental Europe. This initiative of the UCTE TSO community is the second building block of the UCTE Security package (initiated with the publication of the first release of the UCTE Operation Handbook). The signing process of the related inter-TSO Multilateral Agreement (MLA) was officially launched by Mr. Martin Fuchs, UCTE President, with the signature on behalf of the UCTE association. The MLA is now set to come into force by 1 July 2005.

During the UCTE General Assembly meeting held yesterday in Rome, the 33 members of the UCTE interconnected system decided to bind themselves to a first set of security and reliability standards representing today's best grid operational practice on the continent and gathered in the UCTE Operation Handbook (see more details on http://www.ucte.org/ohb/e_default.asp)

The MLA constitutes a legal instrument linked to the actual release of the UCTE Operation Handbook. By signing this agreement, the UCTE TSOs provide thus a substantial contribution to an active and adequate security of supply in the interconnected UCTE system. This instrument will also allow to channel via return on experience future improvements of the security and reliability standards. At the same time UCTE members agreed on the next steps towards the full set of policies of the Operation Handbook foreseen end of 2005 and about the principles of a recurrent compliance monitoring procedure.

On this occasion, Mr. Fuchs declared that „UCTE is thus achieving a major first step towards an adequate security of supply, as currently under discussion between TSOs, stakeholders and market participants".

UCTE
www.ucte.org

PRESS RELEASE
Contact: Marcel.Bial@ucte.org
17 May 2005

Seven Actions for a Successful Integration of Wind Power into European Electricity Systems

Renewable energy sources play an increasingly important role within the European electricity system. Regarding the future growth in Europe´s RES capacities the major contribution will come from new wind power. According to EWEA, the European Wind Energy Association, a five-fold increase in European wind power capacities is expected from about 34.000 MW in 2004 to 180.000 MW in 2020. As of 2004 about two thirds of the wind power capacities worldwide are located on the European continental UCTE grid.

Fast capacity growth, limited predictability and the geographical concentration in coastal and remote areas constitute an enormous challenge for the successful integration of wind power into the European electricity system. In order to cope with this challenge, UCTE proposes a number of actions and investigations need to be taken by legislators, regulators, grid operators and grid users aiming at establishing a harmonised set of rules for the integration of wind power. This set of rules for the operation of the electricity networks in presence of intermittent generation is vital for guaranteeing the security of the electricity networks.

1. Speed up authorisation procedures for new grid infrastructure

The installation of new large-scale wind capacities, especially off-shore wind farms, must be synchronized with the parallel development of additional and properly planned grid infrastructure both on national and international level. Compared to the rapid construction of new wind capacity, realisation periods for new power lines last far too long and may take up to 10 years or more due to time-consuming licensing procedures and legal proceedings. UCTE therefore calls upon both European and national legislators to take appropriate steps to accelerate approval procedures and thus significantly shorten realisation periods for new grid infrastructure.

2. Enable wind turbines to actively contribute to grid stability

Unlike conventional power plants, most wind turbines do not actively contribute to grid stability. In the event of slight voltage drops in the transmission network – even if it is correctly cleared by the protection systems– the protection of wind generators may cause instantaneous disconnection of a significant number of wind farms with the consequent loss of power generation. With growing wind power capacities stability risks increase accordingly. In order to effectively tackle this problem all power generators – including wind power producers - should be obliged to meet certain fault-ridethrough capability standards. Regulatory documents (preferably harmonised at international level) should be published in every country. Such documents should be applicable to existing wind turbines which do not (yet) provide the necessary voltage support and system stability need to be technically refurbished or re-powered by modern turbines. Otherwise the increasing share of wind power and the regional concentration in certain areas might lead to grid situations with sudden capacity losses of more than 3.000 MW which could be followed by large-scale blackouts. UCTE therefore calls for harmonised grid code requirements to be fulfilled by wind power plants to minimize risks to system stability.

3. Re-examine Priority Rules for RES Electricity

In addition to the above technical provisions maintaining system stability requires a sufficient capacity of conventional generation, particularly when it comes to huge long-distance load flows. Such long-distance load flows will happen more frequently in the future due to the need to transport the energy from remote wind power production areas to regions with high electricity demand. European and national legislation must prevent that conventional power plants are driven out of these production areas due to limited grid capacity. In order to maintain sufficient conventional capacities as well as their reasonable allocation over the respective grid areas the existing priority rules for the transport of RES electricity need to be reexamined. Furthermore it should be noted that national priority rules become legally questionable as they do not only discriminate against conventional electricity but also against “green” electricity from other EU member states. UCTE calls for the re-examination of RES priority transport rules and for equal treatment of electricity transports regardless of generation sources and origin. Furthermore UCTE considers important that intermittent generation will be ruled at European and National level in order to safeguard the obligation for TSOs to reduce or switch off wind generation when security and stability of the transmission grid are endangered.

4. Safeguard sufficient Balance Management and Frequency Control

Due to limited predictability of the output of wind power capacities, they require sufficient reserve and balancing power capacities in order to cover the differences between demand and generation. The necessary grid and generation capacities must be available. With growing wind power feed-in the demand for reserve and balancing power grows over-proportionally. In order to reduce this demand an obligation on wind power producers to self-market wind power should be considered. Mandatory self-marketing creates incentives to reduce integration costs as well as an innovative environment for new solutions regarding reserve demand, storage techniques, DSM options etc.

5. Analyse future RES Scenarios and related Integration Tasks

The expansion of intermittent wind power generation in some EU Member States has significant repercussions for the European electricity system as a whole. For example: The concentration of wind power in Northern Germany is already producing huge load flows through the neighbouring transmission systems in Benelux and Central Europe. These spontaneous flows reduce system stability and increasingly affect trading capacities. In order to better analyse the future development of RES generation in Europe, the related impact on the electric infrastructure as a whole and the future tasks for infrastructure development a thorough examination is needed and should be carried out on the European level. UCTE calls upon the European Commission to launch a research project and offers the support of the association and its member companies. In order to maintain frequency stability new connection requirements and regulatory provisions should ensure that wind power turbines are obliged to reduce their power output in defined cases of overfrequency or critical grid situations. Depending on the results of the previous research projects, it could be advisable to consider the possibility for wind power producers to self-market.

6. More R&D for improved Grid Integration

Along with an in-depth analysis of the shape of future European Transmission Network, a special R&D focus should be on the development of advanced technical solutions that will help to integrate wind power more easily. Such R&D activities could concern improved forecasting tools (wind and electricity), new or better storage systems as well as technically improved grid infrastructure.

7. More Planning Security through RES Capacity Steering

In order to maintain a high level of security of supply more planning security for future grid extensions/enforcements is needed. Against this background UCTE suggests the introduction of a European wind capacity steering mechanism, e. g. through RES quotas. Capacity steering within a stepwise harmonised promotion scheme for RES in Europe would be a cornerstone for a better coordination of RES extension and infrastructural development. Moreover, better planning security would not only be a benefit for grid operators but for all market participants including the providers of balancing power and wind plant operators.

ALTERNATIVE FUELS – ETHANOL AND ITS MIXTURES WITH GASOLINE (PART 2)

For BEST:
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In the first Part of this article (Bulletin No. 16) basic facts on the ethanol and its mixtures with gasoline as alternative fuel were presented. The history, production processes, the properties of ethanol as the fuel and emissions of pollutants were outlined shortly.

In the present text the production technologies, production costs as well as process improvements/advancements are shown more detailed.

II. ETHANOL PRODUCTION USING NEW TECHNOLOGIES

Commercial Distillation

The production of gasohol requires the integration of a number of factors, two of which are considered in this section -- ethanol distillation facilities and their feedstocks. Although ethanol can be produced from any feedstock capable of being reduced to the proper sugars, present U.S. production technologies rely on sugar and starch feedstocks.
Suitable ethanol crops include corn, wheat, sugarcane, sugarbeets, Jerusalem artichokes, etc. [Gasohol – Technical Memorandum, September 1979,NTIS order #PB80-105885]
There is, however, no “best” ethanol crop, since different crops will be superior for ethanol production in different soil types and regions of the country.
In addition to primary crop production, there are numerous sources of spoiled grain and food processing wastes that can be used to produce ethanol, but their total potential is small. Other processes are under development that will permit the commercial distillation of ethanol from cellulosic (cellulose containing) feedstocks such as crop residues, grasses, wood, and the paper contained in municipal solid waste.
The ethanol conversion process consists of four basic steps. First, the feedstock is treated to produce a sugar solution. The sugar is then converted in a separate step to ethanol and carbon dioxide by yeast or bacteria in a process called fermentation. The ethanol is removed by a distillation process which yields a solution of ethanol and water that cannot exceed 95.6% ethanol (at normal pressures) due to the physical properties of the ethanol-water mixture (azeotropic mixture). In the final step the water is removed to produce dry ethanol. This is accomplished by adding to the solution a chemical that changes these physical properties and by distilling once again or using another, up-to-date techniques explained more detailed later.
The material remaining in the water solution after the ethanol is distilled away, called stillage, contains some dead yeast or bacteria and the material in the feedstock which was not starch or sugar. Grain feedstocks, for example, produce a high protein stillage (called distillers’ grain) which can be used as an animal feed while sugar and cellulose
feedstocks produce a stillage with little protein and less feed value.

Production process development was towards several processes which will be able to use cellulosic feedstocks as sources of sugar for ethanol production.. These processes require higher capital investments (2-3 times higher than conventional processes) because of expensive pretreatments, and this limited their applicability.
There are, however, a number of approaches to cellulose conversion which can improve its competitiveness by lowering the production costs of ethanol. These include improved ethanol yields (gallons per ton of feedstock), and process innovations.
A process developed by Gulf Oil Chemicals Co., for example, uses municipal waste paper, and municipal bond financing would make the distillery competitive with conventional processes.
Another way to reduce the costs of ethanol from cellulose is through process innovation. There are several possibilities for improvements, including major process innovations for concentrating and drying ethanol.

On-Farm Distillation

Apart from commercial distilleries, there has been interest expressed in the role which individual farmers can play in ethanol production. Producing ethanol on the farm, however, faces a number of limitations which may severely restrict its widespread practice.
On site distillation of ethanol for farm use may be possible at a cost of $1.00/gallon of 95% ethanol plus labor. If it is used as a fuel supplement for retrofitted diesel driven tractors this would be equivalent to diesel fuel costing $1.70 per gallon.
If the purpose of on-farm distillation is to develop a degree of energy self-sufficiency, the higher cost of ethanol may be acceptable. Due to technical limitations, however, ethanol can displace only 35% of the diesel fuel used in retrofitted diesel engines.
Limitations also apply where distillation is viewed as a process for diverting significant quantities of grain produced on the farm. A typical farm of 500 acres could produce 50,000 bu. of corn, of which 1,000 bu., or 2%, would provide as much ethanol (2,500 gallons) as could reasonably be used as a diesel fuel substitute in retrofitted diesel engines. Converting 20% of the crop to ethanol would produce 25,000 gallons, far more than could be used on the farm, and would require a significant investment of probably $25,000 or more.

The quality of the ethanol most easily produced on farms across the nation is likely to limit the uses for which it would be appropriate. As a gasoline additive, for example, ethanol must be free of water in order to avoid operating problems. Not only would producing dry ethanol change the economics of on-farm distillation, but the previous drying processes involved the use of dangerous chemicals. Alternate processes using drying agents, or desiccants, were still under development, but the costs were uncertain.

Production evolution

During times of weak ethanol markets, dry mills with only ethanol and one basic coproduct, distillers grain, were forced to search for innovative technologies to reduce operating and capital costs. As dry mill production yields approached 2.65 gallons of ethanol (anhydrous) per bushel in the late 1990s, both the cost of operations and the cost of capital investment were sharply reduced and continue to decline today.

Ethanol Production Costs

As previously stated, by the mid-90s, ethanol plant capacity increases were driven by technology improvements and the birth of the farmer-owned cooperative . These drivers resulted in production yield increases that drove the cost of operations down.
During the 1990s the price of ethanol was fairly stable with the exception of 1995 when corn prices skyrocketed to over $5.00 per bushel. For a brief time, this increase in feedstock cost forced ethanol plants to do everything possible to reduce other operating costs, curtail production or, in a very few cases, temporarily shut down in order to remain solvent

As can be seen on Fig. 2, the cost of operation (green rhombs) rapidly grown up in year 1995, and then declined to the value of 1.1 $/gal; the capital costs (pink quadrates) continued to decline to 1.4 $/gpy, and the yield (blue triangles) rised to the 2.65 gallons of ethanol (anhydrous) per bushel.

Technology Advancements/Improvements

Molecular sieve dehydration technology utilizes microporous particles such as alumino-silicates, possessing a very precise pore size. The pores make it possible to separate small molecules from large ones through selective adsorption. For example, ethanol dehydration is accomplished with molecular sieves having a pore diameter of 3Å (1 Å= 10^{-10}m), which entraps water molecules which have a diameter of 2.5Å. Ethanol molecules, which have a diameter of 4Å, cannot enter, and therefore flow around the material. Molecular sieves first entered the ethanol industry in the 1970s.These first designs utilized liquid phase separation . The advantages were the elimination of hazardous solvents and reduced distillation complexity. However, in the late 1980s, vapor phase molecular sieves were introduced, eliminating the capacity restraints that held back liquid phase systems.

Fig. 2 Ethanol Production cost

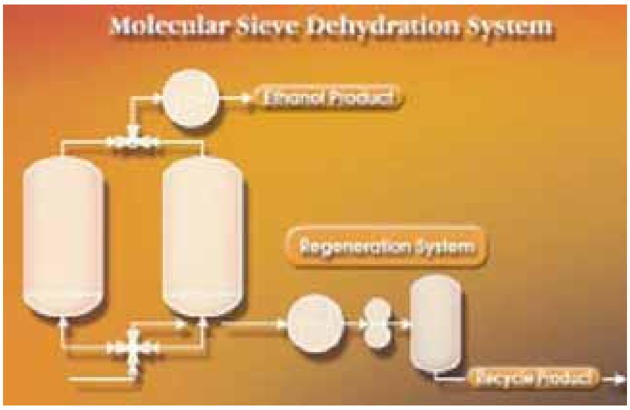

Fig. 3 Molecular Sieve Dehydration System

Described ethanol dehydration system is applied in Serbia since year 1997 in Pharmaceutical factory Zorka-Pharma in Šabac. Process is carried out in dual bed adsorption column system with molecular sieves type 3A, alternatively cycled between adsorption/desorption steps providing continual operation. This produces so called “absolute alcohol” (ethanol abs.), and in similar way it is possible to remove the water from other organic solvents also, like butyl alcohol, acetone, benzene etc. Capacity of production line is 50,000 liters/year.

The process is protected by the registered patent YU 49264 [Intellectual Property Gazette 2004/6].

Process Automation

Prior to the mid-1980s, process automation was comprised of analog loop controls and complex pneumatic controls with individual, large circuit boards dedicated to each
control loop. These systems were normally located in control rooms, so the sensors and controller outputs had to be physically connected to the control room. Since the systems were somewhat bulky and required direct interconnections with the process, there were often several satellite control rooms for various parts of the process. These systems required sophisticated maintenance by skilled instrument technicians, and data-logging was done on strip chart recorders. Despite the disadvantages, these systems allowed the plants to reduce labor and improve consistency of operation.

Distributed Control Systems

Distributed Control Systems (DCS) were introduced in the late 1980s, enabling centralized process monitoring and control. DCS systems placed integrated circuit board
controllers close to the processes that they controlled. Inputs from field instruments and outputs to valves and pumps were converted to 4-20 milliamp signals to minimizesignal loss and noise. These DCS cabinets were then connected to a main control computer, usually using 0-10 VDC signal wires. This allowed the process instruments, output to pumps and valves, and controller settings to be driven from a computer console located in a central control room. This design also enabled monitoring and control from multiple (redundant) locations, such as local control rooms, engineering offices, or even remote locations.

The advantages of DCS systems, data warehousing and analysis include:

- A reduction in manpower by allowing one operator to monitor and control several processes at once.
- The ability to see small changes in production variables and correlate them to changes in conditions, raw materials, or ingredients.
- An increase in overall plant efficiency, since operators can fine-tune process parameters using real-time data and sophisticated analysis.

Enzyme Improvements/Advancements/ Changes

Enzymes were first discovered in the 1830s, but industrial enzymes were not introduced for ethanol production until the 1950s. Since that time, considerable improvements have been made in the enzymes available to this industry.
Enzymes are simply proteins produced by microorganisms grown in controlled fermentations. However, these proteins contain catalytic sites which allow specific chemical reactions to occur at more moderate temperatures and pH's than normal. The goals of biotechnology have been to select or modify these enzymes in order to allow them to operate reliably in industrial conditions. Enzymes have a positive impact on emissions and energy consumption, while improving the ease of operations. For example, today's alpha amylases eliminate the need to add lime, as was previously done to stabilize the enzyme. This new generation of alpha amylases also tolerates lower pH, allowing more thin stillage to be recycled to the slurry tank. Both of these help reduce environmental impact and ethanol production cost.

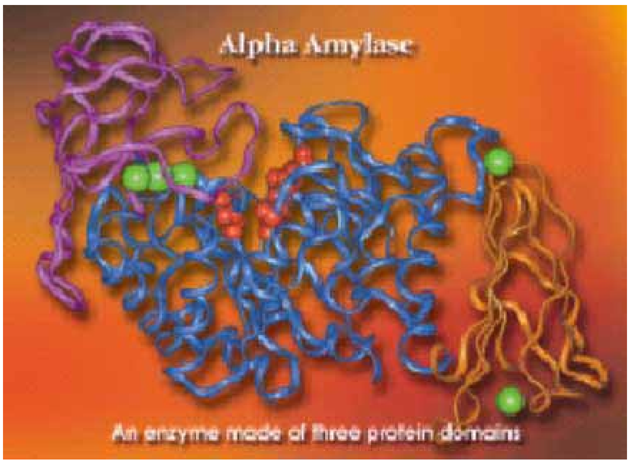

Fig. 5 Enzyme Alpha Amylase

Enzymes play a critical role in ethanol production. As the fuel ethanol industry has seen dramatic change over the last 30 years, parallel changes have taken place within the enzyme industry: new developments improved ethanol production efficiencies and, also, lower pricing has reduced enzyme costs by as much as 70% over the past 25 years.

Very High Gravity Fermentation (VHG)

This process utilizes highly concentrated mash of greater than 30% solids. Laboratory fermentations have demonstrated the ability to produce ethanol concentrations as high as 23% v/v. Many major breweries throughout the world are also experimenting with VHG processes, producing beers that contain higher alcohol content and remarkable quality.

Yeast Propagation

Yeast can be propagated in batch, semi-batch, or continuous propagators. It can also be done in the first fermenter of a continuous fermentation process. Yeast propagation has become a separate process in most batch plants, supplying active, budding yeast to the new fermenter.

Fig. 6 A microscopic view of an active yeast culture

Fermentation, Saccharification,Propagation Combinations

Saccharification is the process of breaking down oligosaccharides to simple sugars, such as dextrose. Saccharification to high dextrose levels helps reduce fermentation time in continuous fermentation processes.
Then, Simultaneous Sacchariification and Fermentation (SSF) process was developed and consequently the Saccharification, Yeast Propagation , and Fermentation process (SSYPF). The goal of this combination is to increase contact time with the yeast and to further reduce bacterial growth.
There are three benefits of combining these technologies:

1. Improved yields – there have been yields in the range of 2.75 gallons per bushel utilizing this process.
2. Earlier production of ethanol – reducing of bacteria growth within the fermenter.
3. Reduced storage and handling of large stocks of yeast.

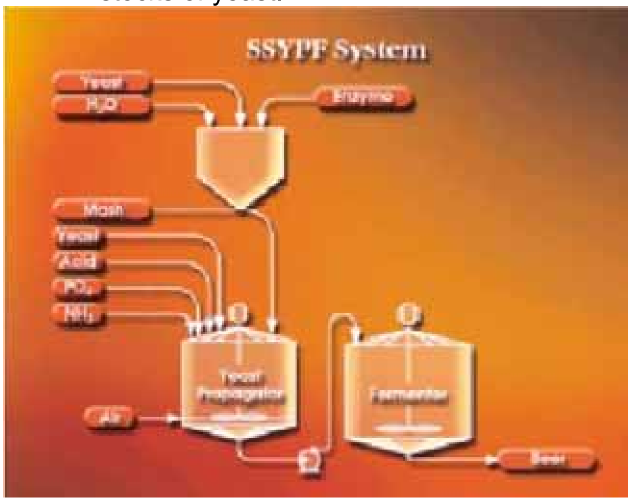

Fig. 7 SSYPF System

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Drive Concept for the Wind Power Stations of the Future

For BEST:

The Customer Magazine of Voith Turbo

VOITH
Engineered reliability.

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According to the Federal Ministry of the Environment, some 15 800 wind wheels with an output of approximately 15 300 MW can now be found in Germany, where they generate ten percent of the country's entire power requirements. Producing 54 percent of all energy created from renewable sources, wind power has established itself as the most successful method and clearly overtaken hydropower. With the new hydrodynamic drive system WinDrive, Voith Turbo is making an innovative technical contribution for the wind power stations of the future.

Following the increasingly intensive utilization of regenerative energies, the output range of wind power sta-tions has been continuously improved over the last few years. While it had been possible to operate smaller plants at one or two constant speeds, this would no longer be efficient in the output ranges used today and subject the drive system to far too high loads. High-performance systems (up to 5 MW) are therefore fitted with variable-speed rotors. This means that the speed of the wind rotor can be adapted to the wind speed.
Until recently, it had not been possi-ble to convert variable rotor speeds into constant generator speeds. It was therefore necessary to connect the electric motor to the grid via a frequency inverter. Thanks to WinDrive, variable input speeds can now be converted into constant output speeds. The technology is based on the Föttinger-principle in combination with a superimposing gear. The hydrodynamic gear allows coupling the slowly turning rotors with the fast-running generators. Depending on the prevailing wind speed, the wind rotor is always oper-ated at optimum speed.

By the dynamic decoupling of input and output side, load peaks caused by gusty winds are evened out. Mastering such load peaks with fre- quency inverter solutions has proved to be dif.cult in the past. Addition-ally, the WinDrive is considerably more compact than conventional drive systems: due to the lighter drive train, the percentage of volume and weight savings will be in the two-digit range. Savings such as these last but not least also have a positive effect on the tower and the plant foundation.

Voith will enter the wind energy market initially in the performance class with nominal outputs of 2.5 MW. The rotor diameter of those plants with towers measuring 80 to 100 meters in height amounts to approx-imately 90 meters. The rotor speed is in the region of 10 to 16 rpm.

A wind energy plant produces its nominal output from a wind speed of about 14 m/s. In a project study, the Voith drive concept has already been tested for plants of up to 5 MW. At the Voith location Crailsheim, a separate test stand has meanwhile been put up for assembling and testing the new variable-speed drive designated WinDrive.

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E-mail: info@synergy-events.com

Metering, Billing & CRM/CIS Europe 2005
20 – 22 September 2005, Barcelona, Spain
Website: www.metering.com/events

EMART Energy 2005

9 & 10 November 2005, Nice, France
Website: www.emart-energy.com

5th BALKAN POWER CONFERENCE

Future Challenges for Balkan Power Industry

September 7th - 9th 2005
Sofia, Bugaria

Conference fee

	Before 1.8.05	After 1.8.05
Regular	490€	390€
Students	110€	190€
Accompanying person	110€	150€
Participants from countries beneficiaries of the Stability Pact for SE Europe have special rates *	150€	

* Albania, Bosnia and Herzegovina, Bulgaria, Croatia, FYRO Macedonia, Romania, Serbia and Montenegro, Turkey.

For further information on the conference and registration instructions please refer to BPC homepage
http://www.balkanpower.org
or send us e-mail on
info@balkanpower.org

International Bioenergy in Wood Industry
Conference and Exibition
12-15 September 2005
biowood2005@jsp.fi

Emerging Europe Energy Summit
Vienna Marriott Hotel, Austria
3 – 4 November 2005

International Business Promotion and Austrian Energy Agency are organising the Emerging Europe Energy Summit that will convene at the Vienna Marriott Hotel on 3 – 4 November 2005.

The introduction of competition in the energy sector on the Emerging European markets has led to significant restructuring across the utility sector as companies are having to rethink their strategies for a new competitive era.

Deregulation of the energy markets anticipates changes including a downward trend in price, as well as improvements in, and greater sophistication of, sales and marketing schemes and customer service.

As the world's energy needs grow dramatically, our region of emerging economies has become a strategic focus. Its privileged location between "East and West" is more and more pronounced with high economic and political stakes not only for the countries across the region, but for other adjacent states depending on the region for energy and transit needs.

Emerging Europe Energy Summit will provide the audience with detailed country assessments for the oil & gas and power markets in the Central, Eastern and Southern European countries: Albania, Bulgaria, Croatia, Czech Republic, FYR of Macedonia, Greece, Moldova, Poland, Russia, Romania, Serbia & Muntenegro, Turkey and Ukraine.

The Summit will be attended by: Government Officials from the CEE & SEE countries; Senior Representatives of the European Commission; CEOs, Presidents, Directors and Managers from Multinational Oil & Gas, Infrastructure & Parts Manufacturers Companies from EU, USA, Japan and Emerging Europe, Senior Representatives of International Organizations involved in the supervision and regulation of interstate Oil & Gas transit & supply systems, Engineering Companies, Financial and Legal Consulting Firms, International Financial Institutions, Energy Analysts, etc.

For more details regarding the event please contact us as follows:

International Business Promotion
Phone : + 40 21 224 39 33; + 40 21 224 39 38;
Fax: + 40 21 224 41 88; + 40 21 224 41 89
email: conferences@ibp.ro

CONFERENCE ON GAS AND GAS INDUSTRY WITH INTERNATIONAL PARTICIPATION
VRNJAČKA BANJA, June 13 - 17, 2005
SERBIA&MONTENEGRO

GAS ASSOCIATION

OF SERBIA&MONTENEGRO-GAS

TOPICS

1. Production of natural gas.
2. Transportation of natural gas.
3. Distribution of natural gas.
4. Use of natural gas.
5. Liquid petroleum gas.
6. Technical gases.
7. Regulations and standards in gas industry.
8. Pollution control.

About 40 papers will be presented at the Conference.

Contact address and information:

GAS ASSOCIATION OF SERBIA&MONTENEGRO-GAS, Terazije 13/II, 11000 Belgrade, SERBIA&MONTENEGRO
Tel/fax +381 11 324 84 51

Tel. +381 11 324 82 45

e-mail: gasas@beotel.net

Forms of Work

Conference work will be in the form of plenary sessions. Papers will be presented orally and integral texts will be printed in the Conference Book to be distributed to the delegates at registration.

Registration Fee

Registration fee is 150 EURO per person.

CEE 2005 Power Conference
14 - 15th June • Budapest, Hungary

Delivering Power Quality in the Enlarged EU

In June 2005, European Power News and International Power Generation magazines are holding a two-day conference in Budapest, CEE Power Conference 2005. This is the follow on from the very successful 2004 event, Modernising Central European Electricity Markets, which took place in Prague.

For more information, please refer to the conference website: **www.ceeconference.com**

The event will cover power quality issues from the distributed power back-up solutions, through to management of major grid incidents.

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International Energy Fair
and
International Ecology Fair

4-7 october 2005, Belgrade, Serbia and Montenegro

Contact: : +38111 655202,
Email:vzivulj@sajam.co.yu; gas@sajam.co.yu

IPG'05 CONFERENCE
FULFILLING EMISSION DIRECTIVES FOR LARGE COMBUSTION PLANT
September 2005

Owners of generating plant in Europe above 50MW, particularly coal - and oilfired, are faced with some difficult, and potentially very expensive, decisions as to how to comply with EC legislation:

- **Large Combustion Plant Directive (LCPD)**
- **Integrated Pollution Prevention and Control (IPPC)**

Options include retrofitting pollution reduction equipment such as flue gas desulphurisation (FGD), switching to lower sulphur fuel, reducing output, closing the plant completely, or building a new power station using a cleaner fuel.

The deadline for full compliance is 1 January 2008. And the clock is ticking…

In September 2005, ***International Power Generation (IPG) magazine*** is staging a two-day conference – **FULFILLING EMISSION DIRECTIVES FOR LARGE COMBUSTION PLANT** – to be held in Germany, examining the requirements in depth, how plant owners can get financial, technical and training assistance, and the best available technology on offer to bring power stations in line. Speakers will include government officials, OEMs, consultant engineers, EPC contractors, market analysts and environmental agencies.

For further information on the conference please contact:
Susi Linnell, Marketing & Event Co-ordinator
+44 (0)1322 611216
s.linnell@highburybiz.com

EUROPEAN CONFERENCES AND FAIRS

ELECTRICITY, GAS, RENEWABLE ENERGY, ENERGY EFFICIENCY

May 2005

- **Slovregula**
  10-12 May 2005, Bratislava, Slovakia

  9th Specialised Exhibition of Measuring and Regulation Techniques

  Information: http://www.incheba.sk/
  Tel: 6727 2209; E-mail: coneco@incheba.sk

June 2005

- **MIOGE 2005**
  21 - 24 June 2005, Moscow, Russia

  8th Moscow International Oil & Gas Exhibition & Conference

  Information: www.gima.de
  Tel.: +49 (0)40 23524-0
  E-mail: info@gima.de

- **Russian Petroleum & Gas Congress 2005**
  22 - 23 June 2005

  The second edition of the Russian Petroleum and Gas Congress will be dedicated to in-depth discussion of the country's priorities within Russia 's energy sector with a special focus on the development of Russia 's energy strategy until 2010.

  Information: www.ite-exhibitions.com/og/
  Conact: Matthew Moss,Conference Director
  Tel: +44 207 596 5237; E-mail:
  Matthew.moss@iye-exhibitions.com
  Elena Sayegh, Conference Manager
  Tel: +44 207 596 5078;
  E-mail: Elena.sayegh@ite-exhibitions.com
  Siobhan Enright, Event Co-ordinator
  Tel: +44 207 596 5166;
  E-mail: Siobhan.enright@ite-exhibitions.com

*** ECOLOGY ***

May 2005

- **HYDROTEC**
  10-12 May 2005, Bratislava, Slovakia

  3rd Specialised Exhibition of Water Extraction, Utilization and Protection

  Information: http://www.incheba.sk/
  Tel: 6727 2209 ; E-mail: coneco@incheba.sk

- **Ekotechnika**
  10-12 May 2005, Bratislava, Slovakia

  12th International Environmental Protection Exhibition

  Information: http://www.incheba.sk/
  Tel: 6727 2209 ; E-mail: coneco@incheba.sk

- **World Renewable Energy Congress - Innovation in Europe**
  22 - 27 May 2005, Aberdeen, Scotland

  Information: http://wrec2005aberdeen.co.uk
  Tel: +44 1224 272506 ;
  E-mail: WREC2005@aecc.co.uk

- **WasteTech**
  31 May – 03 June 2005, Moscow, Russia

  4th International Trade Fair and Congress on Waste Management and Recycling
  Trade Fair profile: collection, transportation, storage, treatment, utilisation of municipal solid waste, industrial, agricultural, medical and biological wastes; sanitary landfilling; selection, recovery and recycling; street cleaning and maintenance, snow-removal and greenery planting.

  Information: http://www.waste-tech.ru
  Tel : +7 095 782 1013 ;
  E-mail: waste-tech@sibico.com
  Contact: Olga V. Martynova, Exhibition Director , E-mail: martynova@sibico.com

June 2005

- **ELMIA WOOD**
  01- 04 June 2005, Jonkoping, Sweden

  International Forestry Trade Fair

  Fundamental Industries / Agriculture, Forestry, Fishery Building, Construction / Equipment for Public Facility, Urban Development Machinery, Industrial Technology / Occupational Safety and Health, Labor Management/Environment / Environmental Protection, Waste Disposal, Recycling

  Information: http://www.elmia.se/wood
  Contact: Brännström Gunilla , Fair receptionist
  Tel: +46 (0)36 15 20 00
  E-mail: gunilla.brannstrom@elmia.se
  Frisk Christina, Conference Administrator
  Tel: +46 (0)36 15 21 38
  E-mail: christina.frisk@elmia.se

- **Belagro**
  07-10 June 2005, Minsk, Belarus

  International Exhibition for Machines and Technologies in Agriculture
  Main industry sector: Fundamental Industries / Agriculture, Forestry, Fishery/Environment / Environmental Protection, Waste Disposal, Recycling/Trasportation, Logistics, Packaging / Packaging (Materials, Machinery & Equipment) Living / Food & Beverages, Food Processing

  Information: http://www.minskexpo.com.by
  Tel: (37517) 226-98-58 ; E-mail: mmir@minskexpo.com.by

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Balkan Energy Solutions Team – BEST
April 2005

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