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PURE EXPERTISE

Magazine of Chemieanlagenbau Chemnitz GmbH

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IN A NUTSHELL

WELL POSITIONED TOGETHER
THE COMPANY SUPPORTS ERZGEBIRGE AUE FC
(2ND DIVISION) AND CHEMNITZER FC (3RD DIVISION)

HIGH-RANKING GUESTS AND PROFOUND CONTENTS

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Dear Readers,

Politics, business, fashion, sports... the list is never-ending. There are magazines to cover all areas of interest under the sun but, until now, none is giving first-hand information on the complex topic of chemical plant engineering.

What you are holding is the very first Chemieanlagenbau Chemnitz Magazine. We want to give anyone interested in the subject a greater insight and let them participate in our experience: how do you successfully master large projects in plant engineering? What new discoveries have there been in the various sectors of the chemicals industry? How can experts at CAC support you in finding solutions to your needs? No matter what questions you need answered, we will be here to gladly inform you about major innovations in process engineering, about valuable engineering services and other current topics related to chemical plant engineering.

In this issue, for instance, we highlight the challenges that exist in natural gas storage, or how intelligent engineering concepts can contribute to a secure and flexible energy supply (pages 4–7). In another article on pages 8 to 13, we look at current developments in chlor-alkali electrolysis and indicate how our expertise can be practically applied to specific projects.

So it is with these and other issues in mind that we are proud to launch our new magazine. We are proud to report directly to you and look forward to your feedback on this first issue: What did you like about it? Is there anything you wish to learn more about?

We hope you find our magazine an informative read!

Joachim Engelmann　　Jörg Engelmann

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Contribution to secure energy supply

It's easy to do at home: Leftover food can simply be put in the fridge to store for the next day, or for when we're hungry again. The storage of energy sources is much more complicated: An over-supply of natural gas, for instance, cannot be easily stored and retrieved when needed.

Sophisticated storage methods have been developed to address this problem. The key challenges in the storage of natural gas are security and flexibility. Modern gas storage facilities act as a buffer and thus contribute to a stable energy supply. "In order to achieve greater independence from prices and delivery conditions of gas suppliers, it is vital to have an appropriate infrastructure in place," says Dr. Mario Kuschel. He is Head of Process Engineering at CAC and responsible for everything relating to this field. Whereas in the past the main concerns were seasonal balance or daily fluctuations, the liberalisation of the gas market has brought about the added need to optimise the purchasing process. Since the focus of storage strategies is cheaper natural gas, flexible and responsive gas storage ensures a secure and economical natural gas supply to consumers. "The flexibility requirement is two-fold," says Dr. Kuschel. "The focus must be on the frequently changing market requirements as well as on possible capacity expansion in the future."

Compensating for fluctuations

On the one hand, the long-term storage of natural gas serves to compensate for seasonal fluctuations between continuous production and supply against a backdrop of changing conditions or fluctuations at different times of day. These arise, for example, on week-day evenings when most families are at home and many consumers need energy for heating and electricity. On the other hand, the storage of

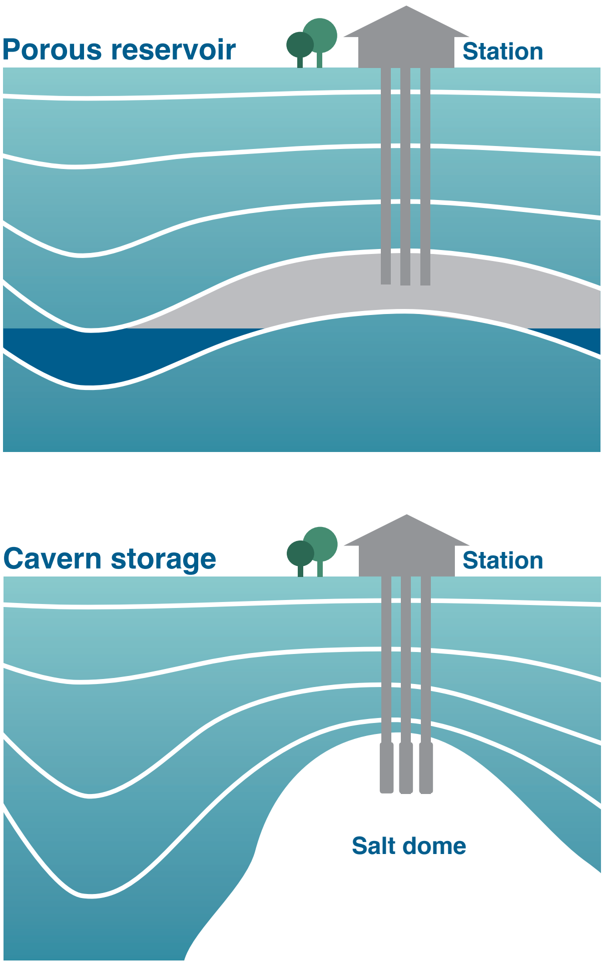
Natural gas storage facility in Haidach, Austria

natural gas guarantees energy supply even during supply failures, e.g. as a result of natural disasters or political crises in the producer and transit countries. Stored gas enables self-sufficiency over a longer period of time. In addition to compensating for energy supply shortages in times of crisis or satisfying peak demand during consumption spikes, the storage of natural gas also allows excess energy to be skimmed off, for example, in the summer when heating and lighting needs are low.

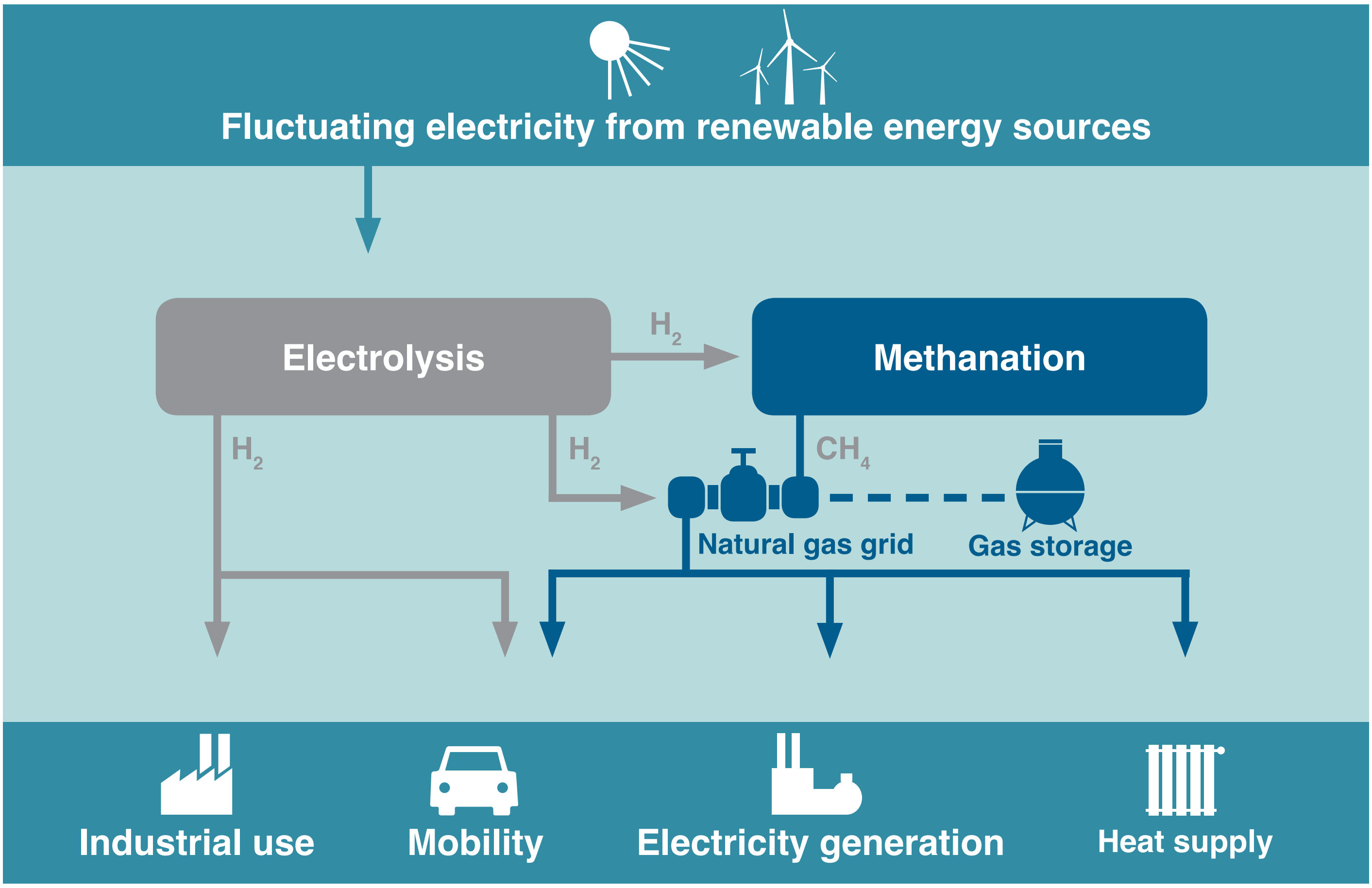
Pore and cavern storage

Storage sites for surplus energy are provided by nature in the form of underground pores and cavern storages. Porous reservoirs consist of porous rock which absorbs the gas like a sponge. This principle exploits existing geological conditions, where natural gas collected in the pores and fractures of underground limestone and sandstone layers over millions of years. Once the gas at these sites has been exploited and depleted, these porous reservoirs can be "refilled" with natural gas. These former reservoirs already proved their impermeability and, therefore, their suitability as a gas storage facility because gas was able to accumulate there over millions of years. They are sealed at the surface by a layer of rock (e.g. mudstone).

Pore storage in rock layers where water was displaced by pressurized gas during exploitation is known as aquifer storage.



Comparison of storage systems



Basic principles of power-to-gas concept

"Due to the large storage capacity, natural gas in pore storage facilities is mainly used to cover for seasonal fluctuations in demand, for example, in winter and summer when the demand for heating varies greatly," Dr. Mario Kuschel explains.

Cavern storage, however, is an artificially generated cavity, created by drilling holes, usually in salt domes. Water is pumped through a hole in a geological salt formation to create the storage cavity. In this case, the salt dissolves in a controlled process and the resulting brine is discharged through the same hole. Storage caverns are cylindrical in shape, up to 100 metres in diameter, with a height of between 50 and 500 metres and lie hundreds of metres below surface, in Germany sometimes at depths up to 2,500 metres.

In order for it to be fed back into the power grid and transported reliably, while also meeting all quality requirements, the gas must be dried. During storage, the gas absorbs ancillary substances that can cause problems during transportation and also at the terminals.

Basically, drying the gas involves the removal of water vapour and higher hydrocarbons. The actual drying method to be used depends on the conditions in the storage formation.

Increased demand

If a higher proportion of future electricity demand is to be met by renewable energy sources, gas storage will play an important role in the search for efficient energy storage options. One important aspect is the development of power-to-gas technologies with the aim of producing synthetic natural gas (SNG) and feeding this via the extensive existing pipeline network into underground natural-gas storage facilities.

This allows excellent compensation for wide variations between energy production and consumption. This is of particular importance for wind or solar energy systems, since, as these depend on the weather, they are very irregular in generating and supplying electricity.

The main problem currently is that electricity generated though renewables cannot be stored efficiently, and the transport infrastructure between origin (mainly in the north) and main consumers (especially in the south) is not yet developed to the extent required in Germany. This means that a large part of regeneratively produced energy is discarded. In order to store this energy, the first step must be to make it storable.

To this end, the electricity produced by wind turbines is used for the production of hydrogen in an electrolysis plant. This hydrogen can then be used for industrial purposes or to fuel vehicles. However, the hydrogen can also be converted to methane gas and further processed in a methanation process by adding carbon dioxide (CO_2). This methane gas can be wholly fed into the natural gas network or placed in gas storage. Like this, it can supply heat for house-

Natural gas routed through pipelines
to the storage facility

holds, and power a growing number of vehicles running on natural gas, or it can even be reused for power generation.

Dr. Mario Kuschel: “Our expertise in this area relates to all components of the main gas stream and associated auxiliary equipment. Modern gas storage is of vital importance in order to compensate for variations in both production and delivery, not to mention consumption.”

Just like the refrigerator at home, modern gas storage prevents us from having to throw things away or from finding the cupboard bare.

Dr. Mario Kuschel
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Equipped for the future

Chemieanlagenbau Chemnitz GmbH (CAC) entrusted with upgrading the Potasse et Produits Chimiques electrolysis plant and modernising and expanding their bromine recovery plant.

Part of an electrolysis plant

"Progress first happens in the mind," says Philippe Robin, Chairman of Potasse et Produits Chimiques (PPC). "We had a specific requirement for which we needed support, and CAC developed an appropriate technical solution. The engineers' goal-oriented approach particularly impressed us."

Smooth operation

At the start of each project it is extremely important to carry out a comprehensive inventory. "While doing this, the engineers perform a meticulous examination of the entire plant in order to get a detailed picture of the characteristics and components of the plant, as every upgrading project is individually customised. There is no blueprint for a standardised plant upgrade," explains Stefan Hauser, Head of the CAC Chemicals Department. For each individual project, CAC carries out the following tests: Which plant components are suitable for re-using under new process conditions? What needs to be renewed or replaced? In addition, valuable client feedback is taken into consideration and incorporated into the upgrading process.

"Clients know their existing plant better than we do, so we don't just march in like some sort of radical upgrading troupe, but rather as partners and consultants," says Stefan Hauser. Interaction between the CAC engineers and plant operators happens not only during preparations, but throughout the entire project so as to define and comply with all interfaces for the integration of new units into the overall plant.

During plant modernisation, possibly newly emerging interfaces must be defined and planned for existing facilities. This calls for extensive on-site assessment procedures to be on the agenda for every upgrading project done by CAC.

Eco-friendly membrane process

This particular project was structured as follows: The client, Potasse et Produits Chimiques, planned the upgrading of its existing mercury electrolysis plant into the more modern, energy efficient and much more environment friendly membrane electrolysis process.

CAC used its vast engineering expertise to monitor the conversion of the electrolysis technology, integration into the existing piping networks, connection to ancillary facilities and the optimised integration of the electrolyser, besides planning additional units, e.g. for brine preparation and brine concentration. “The modern, energy-efficient membrane process increases environmental sustainability and raises the competitiveness of PPC in the long term,” outlines Jörg Engelmann, CEO of CAC.

The project, which should be commissioned in 2015, is valued at 30 million Euros. CAC’s responsibilities include the detailed engineering, procurement and supply of all equipment and materials, construction and installation, as well as commissioning based on the basic engineering also elaborated by CAC. In cooperation with selected partners, CAC offers an electrolysis process that uses ion-selective membranes to separate the anode and cathode chambers.

Numerous benefits

Jean-Pierre Soufflet, former General Director of PPC and presently an ICIG consultant, explained the practical benefits offered by this method: “Membrane electrolysis is cleaner, consumes 30 percent less energy, saves space and is easier to maintain and operate – all at a reduced cost. At the same time, very pure, high-quality chlorine is produced. Soon, three electrolysers are to be installed in Thann for membrane electrolysis, in which the potassium ions are conveyed to the cathode, leaving the chlorine behind”.

Compared to the commonly used diaphragm process plants, membrane cell technology can generate a more concentrated potassium hydroxide solution. The solution recovered from this reaction has a concentration of up to 35 percent. With the diaphragm process, only 12 to 15 percent concentration can be achieved. Another advantage of membrane cell technology: The membrane consists of plastic, not harmful asbestos as used in the diaphragm. The chemical processes at the electrodes correspond to those in the diaphragm procedure, only the membrane was modified – and herein lies the core difference.

In the mercury process used until now in Thann, the cathode consists of harmful mercury. As a consequence of new laws, mercury electrolysis will be banned from the end of 2019. PPC therefore commissioned a study to find an alternative method. Converting the existing mercury based plant to the energy-efficient membrane process will increase ▸

Electrolyser detail

Chlor-alkali electrolysis in Sayansk, Russia

efficiency and ecological sustainability. An alternative type of cathode, made of nickel, is used in the membrane process. The result is that, in future, there will no longer be any environmental impact from mercury, and working conditions for the operating staff will improve significantly. In addition, the conversion will reduce energy consumption per tonne of final product by 30 percent.

“Confirmed Expertise”

CAC’s engineering services – ranging from basic engineering to commissioning – are called for by clients in the chemicals industry, the pulp and paper industries, and in sectors with a high use of chlorine, such as the petrochemicals, plastics or ceramics industries. “Our decades-long engineering expertise in developing solutions for chemical plants, together with the numerous references provided by existing plant designs, moved PPC to place their trust in us. In the development and presentation of the Basic Engineering tailored to this project, we were able to affirm our expertise and received the order for the complete conversion including all plant components,” says Stefan Hauser. CAC is provider of solutions and the point of contact for customers, for all matters relating to the conversion.

The company engineers were supported by the manufacturers of the membrane electrolyser, with whom CAC carried out the conversion project at PPC in Thann. The partners provided the bipolar electrolyser, while CAC took over the engineering work on the entire chlor-alkali electrolysis plant.

In past projects, CAC was able to gain experience in the new construction of complete electrolysis plants and ancillary facilities in cooperation with respective partners on each venture. Thus, the company is not only experienced in the modernisation of existing systems, but, thanks to it’s combined expertise, it can also develop and implement complete new plants. “The conversion project in Thann has as its objective the conversion of an existing mercury electrolysis process into the environment friendly and energy efficient membrane electrolysis technology. In this respect, the know-how gained by Chemieanlagenbau Chemnitz, especially in plant design, is of great benefit, as the integration of new electrolysis technology always has an impact on the upstream and downstream plant components, e.g. brine pre-treatment or various piping systems,” says Stefan Hauser.

The main focus of the conversion was the core of the plant, the electrolyser – through intensive collaboration with partners CAC was able to customise the electrolyser and thus provide perfect integration into the overall design of the plant. ▸

Chlor-alkali electrolysis

During chlor-alkali electrolysis, chlorine and hydrogen are produced from brine. As a first step, sodium chloride (NaCl) is dissolved in water (H_2O). The resulting brine consists of chloride and sodium ions.

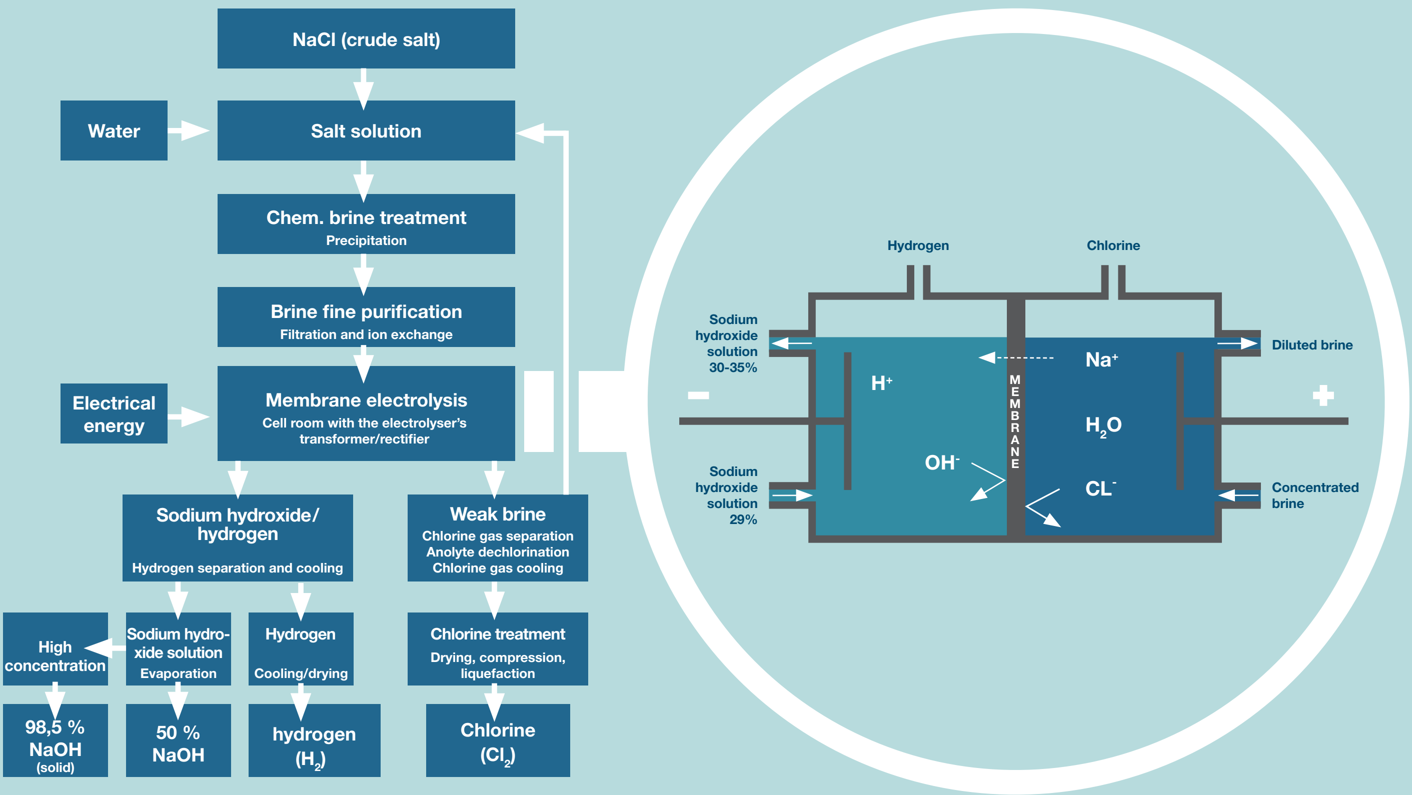
After the salt is dissolved, a current is generated between an anode and a cathode. The cathode is mounted in a sodium hydroxide solution. A plastic membrane is used to separate the two mixtures and substances contained therein from each other and thus avoid a chemical reaction. The ions in the salt water and sodium hydroxide are now attracted to the electrode with the opposite charge.

This produces chlorine at the anode, which rises and can be drawn off. The positive-charged sodium protons migrate to the negative-charged cathode. This is where hydrogen results. The plastic membrane prevents the hydrogen from combining with the chlorine gas. This membrane only allows the sodium ions through, so it is only semi-permeable on one side. The hydroxide ions, however, cannot pass through the membrane. The sodium ions that migrate through the membrane can increase the concentration of sodium hydroxide at the cathode by an average of 1 to 5 percent. When the sodium ions transfer from the anode to the cathode side, the brine is diluted and contains a higher proportion of pure water.

The products, sodium hydroxide solution or potassium hydroxide solution as in the case of the project for PPC Thann, and hydrogen are produced at the cathode and chlorine at the anode. In modern electrolysers, the anode and cathode chamber are separated by ion-selective membranes.

From crude salt and water, three important substances for the chemical industry develop in this process. An outstanding advantage of chlor-alkali electrolysis is the high degree of purity of the chlorine and hydrogen gases produced. In addition to water, only salt is required as a starting material. This is available in several forms, such as sea salt, rock salt and evaporated salt.

The diagram below shows the course of the electrolysis process. Initially, the sodium chloride – everyday cooking salt – is liquefied with water. Precipitation frees the chlorine, sodium and hydroxide ions of impurities and passing an electrical current separates them into sodium hydroxide, hydrogen and chlorine gas.



Chlor-alkali electrolysis diagram

Cell room of a chlor-alkali electrolysis plant

Pragmatic and future-proof

Numerous advantages are associated with the modern electrolyser: in particular, lower operating costs. Compared to other chlorine production technologies, membrane electrolysis is significantly more energy efficient and produces a final product of high purity. With this upgrading, the operator, PPC, pre-empted a new law that will come into force in a few years: Environmentally harmful mercury electrolysis must have disappeared from the market and from factories by 2020. "We carried out significant modernisation the electrolysis plant and thus contributed to PPC's competitiveness and sustainability," continues Stefan Hauser. "Everything is done in a pragmatic way, with as little disruption as possible to the client's operations."

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Ancillary plant for electrolysis process

Long-term success

The individual stages of the “7Fields” natural gas storage project in Upper Austria and Salzburg regions were completed phase by phase. How did the cooperation between the operator and CAC contribute to the success?

The “7Fields” project is based on the construction of seven natural gas storage facilities in Austria. Following a successful partnership to construct a natural gas storage facility in Haidach (Austria), Rohöl-Aufsuchungs AG (RAG) again chose CAC as its partner for this project. The first gas storage facilities were commissioned in Nussdorf and Zagling in mid 2011.

Largest pore storage facility in Central Europe

“7Fields” makes up one of the largest porous rock gas storage systems in Central Europe. E.ON Gas Storage (EGS) and Rohöl-Aufsuchungs Aktiengesellschaft (RAG) invested 300 million Euros in this project, which exploits several spent gas fields. Immediately after the commissioning of the gas storage facilities in Nussdorf and Zagling, plans began for two more plants in Austria, at Oberkling and Pfaffstätt. In cooperation with RAG, work progressed “step by step and according to plan,” reports Stephan Canzler, Senior Product Manager of Underground Storage Facilities at CAC.

“Especially in the case of such a long-term and complex task, it is important to maintain an overview while, at the same time, paying attention to all the vital details. This is our job – clients don‘t need to worry about it”. Services range from project management, basic, authority and detail engineering through to procurement on behalf of the customer, right up to construction and installation supervision and, finally, commissioning.

Engineering expertise

CAC takes responsibility for all stages of the project right up to installation supervision and commissioning, thereby supporting customers with the implementation of such projects in a timely and high quality manner. Essentially, every project begins with the development of basic engineering and preparation of the most technically and

Pore storage facility in Nussdorf

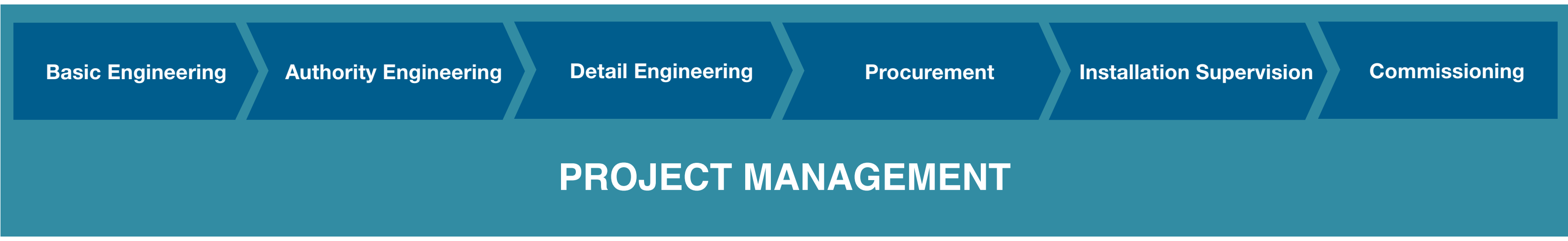
economically beneficial concept. The process design concept, key process steps and their interconnection are established taking into account the local and other plant specific conditions. Based on these, CAC creates the documentation needed for the authority engineering required to obtain approval for the construction of the plant.

The detail engineering stage consists of the detailed design and the precise description of all necessary components. At the same time, procedures for the implementation of the project are established. An essential part of the detail engineering for each project are the creation of customised solutions, such as the layout of equipment and plant components as well as a detailed piping plans. CAC makes use of the latest efficient planning tools to ensure an integrated project handling of all disciplinary engineering tasks. Once the plant has been planned in every detail, the procurement of the components takes place. CAC supports its clients in the purchasing process subject to the terms of their agreement, either by carrying out all procurement itself or by offering the client advice on quality and prices offered by suppliers. When components are ordered and delivered, CAC also supervises their installation. After commissioning, once all plant components have been tested and confirmed to be fully functioning, CAC hands the completed plant over to the customer.

First plants

The first construction phase of "7Fields" in Nussdorf and Zagling were completed in 2011. The second-phase plants in Oberkling and Pfaffstätt were handed over to the customer on 30th March 2014. "7Fields" is directly connected to major international pipeline networks and, thanks to its large capacity, increases energy supply security in Germany and Austria, says Canzler. The current expansion means that "7Fields" can store a total of 1.85 billion cubic metres of gas. As explained on page 5, porous storage means that the gas is pumped into an existing geological cavity in sandstone for later withdrawal. Following two years' construction time for each stage, the first stage of expansion created a gas storage capacity of 1.2 billion cubic metres, while around another 650 million cubic metres were created in the second stage.

The "7Fields" storage facilities are located at a depth of 1,300-2,300 metres and cover an area of about 15 square kilometres. The porous sandstone is covered by a gastight layer of clay and rock. Up to 840,000 cubic metres of natural gas can be stored per hour and up ▸



Project management at CAC includes up to six steps

Natural gas storage facility Zagling

to 960,000 cubic meters withdrawn. The volume of gas stored in "7Fields" is about 25 percent of Austria's annual consumption. Gas compression was the main focus, especially in the first phase, with the first ICL magnetic-bearing gas compressor type being used commercially for natural gas storage operations.

The development of natural gas storages is essential, as natural gas will be an increasingly important energy source in the future, used to bridge the energy gap when wind and solar energy have been further expanded and thus production capacity will be dependent on the weather conditions.

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View of the probe header in Nussdorf

Full speed ahead into the future

CAC develops promising STF method (synthetic gas to fuel), enabling high-octane gasoline to be obtained from synthesis gas.

Exactly how the automotive industry will develop in the future, nobody can tell for sure. However, two things are certain: Alternative propulsion systems and fuels will play a greater role, although combustion engines will continue to dominate in the short to medium term. The question of alternative fuels and propulsion sometimes has a political dimension. There is no doubt that the discussion about alternative energy sources to replace ever more expensive crude oil continues. An important milestone in this direction was achieved by the invention of a method to exploit the by-products of oil production. Jörg Engelmann, CEO of CAC, explains: “We are looking for ideas, focussing on finding solutions for the future. If through our expertise we can identify new paths and get around obstacles, we will get there in the end”.

CAC and Bergakademie Freiberg Technical University worked together to create a pilot plant to obtain high-quality gasoline from unused petroleum gases that are otherwise burned off when oil is stored.

Directly derived synthesis gas

With the new technology, the gas is directly turned into transportable and useable petrol right at the wellhead. It also reduces CO_2 emissions, of which 100 to 150 million tonnes per year are currently generated worldwide by the combustion of this gas. In fact, the exploitation of crude oil associated gas in this manner could supply Germany’s energy needs for a full year. A positive side-effect is thus environment protection.

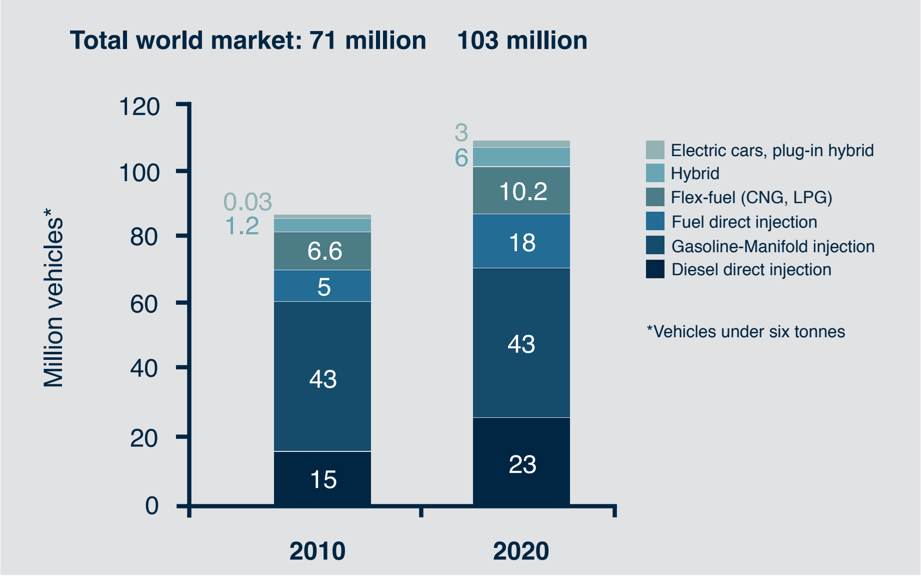
Unused resources

In 2010, world annual production of natural gas including associated gas was around 4 trillion cubic metres. In addition to 483 billion cubic metres per year re-injected to maintain oil well pressure for production, a further 120 billion cubic metres per year are wasted, as the petroleum oil is either burned off, with resulting CO_2 emissions, or directly blown off.

Removal of the associated gas by pipeline from remote deposit fields is not economically feasible. This offers on-site conversion into a liquid product, like synthetic fuels or chemical feedstock. This is equally interesting for countries with large amounts of natural gas but little or no oil. These large amounts of unused associated gas could in future be converted into high-quality petrol.

STF process in detail

“The conversion of petroleum gases into gasoline is called ‚syngas-to-fuel‘ – STF for short.



Source: Robert Bosch GmbH

In the future the proportion of internal combustion engines will remain at over 80 percent

Ready-to-use gasoline efficiency
comparable to premium petrol

View of the pilot plant in Freiberg

The STF process is a world technological first and is patented," says Dr. Mario Kuschel, Senior Process Engineer at CAC. The process is based on a novel combination of various process parameters.

What makes this process so unique is the heat transfer application design, in addition to the use of a specially developed catalyst. The synthetic gas, which contains CO and hydrogen, is first passed through a methanol synthesis process for which the newly developed isothermal reactor is used. The methanol is then removed in a separation step and treated in a subsequent gasoline synthesis process in which the methanol is converted to high octane, so very high quality, gasoline. This gasoline contains exactly the same level of octane as premium gasoline found at service stations.

High-octane gasoline produced in this way is of Euro V classification standards and, in contrast to other methods, can be used without further post-processing – except for stabilisation of the gasoline fraction in a distillation column, no further post-processing steps are required. Non-reacted methanol and light hydrocarbons are separated in a subsequent separation step and recycled to the process.

Water vapour as energy carrier

In the newly developed reactors, heat produced by the exothermic reactions is utilised to produce steam, which is then used as energy carrier for the process. These isothermal reactors together with the newly developed catalysts guarantee a high level of efficiency and effectiveness.

In addition to associated gas, gasoline can also be produced from biomass or sometimes from coal. This exploitation of associated gases prevents its senseless burning and allows for a sustained reduction in CO_2 emissions. In addition, methanol contained in the water produced as a by-product of the synthesis can be reused in the process after treatment. This new method thus makes a positive contribution to environmental protection. The prospects are promising: associated gases which inevitably occur during oil production can be used similar to the oil to produce petrol and contribute to mitigating the impending problem of dwindling oil reserves in the future. In theory, the technology will thus contribute to a sustainable energy supply in the long term.

Pilot plant in Freiberg

To prove its practicality, CAC commissioned a pilot plant in partnership with Bergakademie Freiberg Technical University.

In addition to the production of gasoline from synthesis gas, it should demonstrate that the process works and is very effective. The fact that unreacted materials, such as excess methanol or light hydrocarbons, are recycled and can be reused in the process contributes among other things to the high degree of efficiency.

In June 2010, the plant produced the first batch of petrol from synthesis gas in a two-stage process with an established volume of 700 standard cubic metres of gas per hour. From this, partners CAC and Bergakademie TU were able to obtain 120 litres of fuel per hour. Currently, gasoline continues to be produced at the pilot plant in Freiberg – with increasingly purer final product. Dr. Mario Kuschel emphasises: “This process does surely not resolve the concerns about car use and fuels of the future. But it can make a valuable contribution, making driving affordable and environmentally sound in the future.”

Dr. Mario Kuschel
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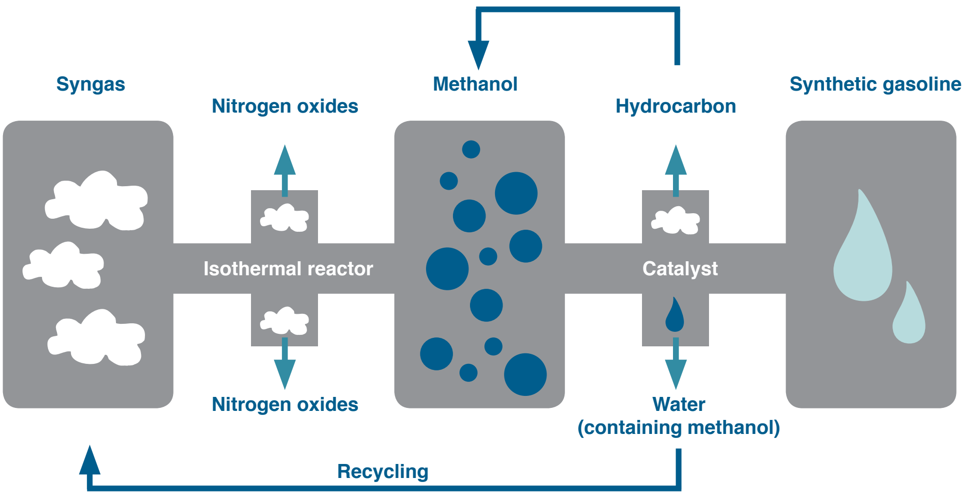
View inside the pilot plant



STF SYNGAS TO FUEL

Well positioned together

The company supports Erzgebirge Aue FC (2nd division) and Chemnitzer FC (3rd division).

Already during its time as VEB Germania in the 50s, the company sports association Germania – BSG Germania for short – was founded. This laid the foundations for the company‘s commitment to sports. The current managing director of Chemieanlagenbau Chemnitz, Joachim Engelmann and his son Jörg, built on this tradition as evidenced by various sponsoring activities.

Sponsorship Activities in Saxony

Joachim Engelmann has a particular attachment to the Erzgebirge Aue football club, now established in the second division, because he was born in Aue. Jörg Engelmann has always been a great fan of third division team Chemnitzer FC.

CAC is now involved as a sponsor in both professional associations and thus continues the footballing history of the company. In their spare time, both managing directors can still be found at the pitch today, both as fans or players. Ever since their childhood they have both loved to watch and play football.

Dates

Achema, Fair Frankfurt/Main

15th – 19th June, 2015
Hall 9.1
Stand: B26

CAC is in

German Standard Editions and the VDMA present German success stories.

As a renowned German company in the field of plant engineering, CAC also makes “Made in Germany” technology visible and accessible.

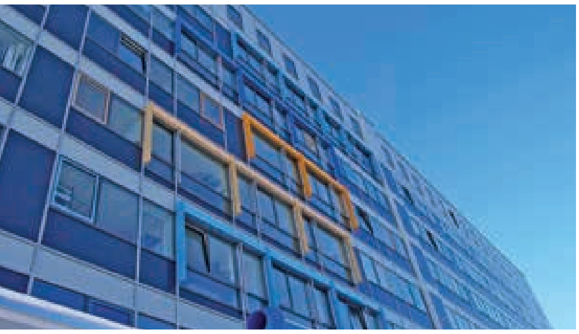
High-ranking guests and in-depth content

The CAC 50th Anniversary was an opportunity to exchange ideas and to celebrate.

50 years of the plant engineering company in Chemnitz have been shaped above all by change: The company's name and the social system have changed since its foundation. One constant is Joachim Engelmann. Starting out as a mechanical engineer, he now runs the business of the company together with his son. Both took the opportunity to thank managing directors and board members of client companies, as well as other partners from government and industry, for their cooperation over the past decades. Among the 200 guests at the event were the Russian and Kazakh Ambassadors.

"Of course this event was also about celebrating. But it was also important for us to offer the guests some meaningful content. So many competent professionals and decision-makers do not gather in one place every day," says Joachim Engelmann. This is why the company organised a specialist conference on chlor-alkali electrolysis, planned around the anniversary celebrations.

Experts from different companies and institutes lectured about issues such as requirements for conversion projects from the perspective of the system designer, current technology development in electrolysers and the development of the chlor-alkali industry in Russia. They also replied to questions about the development of new technologies. Joachim Engelmann summarises: "The positive feedback about the anniversary celebrations confirms to us that the day-to-day team work pays dividends – successful joint activities in the present are the guarantee of sustained commitment in the future".



ALWAYS AN IDEA AHEAD

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