



PRESS-INFORMATION

Looking to the future: A modern bioenergy location in a rural setting

The chimneys of the pulp mill tower over the industrial park in the Altmark region in the north of Saxony-Anhalt and can be seen from miles away. These chimneys are a symbol of modern industry. High-quality industrial products and green energy are now produced at the huge site. For this reason, the Altmark Industrial and Commercial Park has recently become one of the Saxony-Anhalt Centers of Excellence. Plenty of land is still available for businesses to relocate to the site.

The area has always looked to the future and focused on energy production. More than 50 years ago, the authorities in the German Democratic Republic decided to build the country's largest nuclear power plant in the Altmark. The conditions were ideal for the development with large areas of land available, the river Elbe and its industrial port, a rail connection and the nearby Hanseatic town of Stendal which is home to a potential workforce and has a busy cultural scene. The power plant was never brought into operation, but the area continued to develop and is now a promising industrial and commercial location.

Over the last 20 years, a special bioenergy site has grown up in the heart of Germany between Berlin, Hamburg, Wolfsburg and Hanover. Sven Schulze, the Minister of Economic Affairs of Saxony-Anhalt, recently awarded it the status of Center of Excellence. Development on the site is far from over and more than 220 hectares of land is available for new arrivals. This includes one of the largest contiguous commercial sites in central Germany covering an area of almost 60 hectares. The site is developed and offers opportunities that are hard to find elsewhere.

The pulp mill launched a new era

Shortly after the last cooling towers of the power plant had been demolished, construction work began on the chimneys of the Mercer International Group plant. In 2004, the Canadian company opened one of the most modern pulp mills in the world. Now the 600 employees at the plant produce up to 740,000 metric tons of pulp each year. In addition, the site is being developed to create a state-of-the-art biorefinery. At the industrial park in the Altmark, Mercer is already operating Germany's largest biomass power plant with an output of 148 megawatts and an extraction facility for turpentine and tall oil.

The arrival of Mercer launched a new era for the location, which is now being given an additional boost. "We have excellent conditions here for companies that are looking to the future," says Sven Schulze, the Minister for Economic Affairs. In addition to the land available, other important considerations at the site include the infrastructure and the soft factors. There are plans to build a second rail line into the industrial park, the port on the river Elbe is available for industrial use, a hydropower plant is in operation at the site and the nearest regional airport is located in Stendal. Most importantly, the Altmark region is an ideal location for modern companies. It has a strong renewable

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



energy sector and good links with the research community via the nearby university in Stendal.

Young people come to the Altmark because it has a well-developed fiber network and relatively low property prices, even though many of Germany's large cities are less than an hour away by intercity express train from Stendal. The area has launched a successful initiative to encourage young people to return and the trend for living on the land is in full swing. "This is a place for young people," says Sven Schulze and adds: "The high subsidy rates for businesses moving to Saxony-Anhalt are available here as they are throughout the region." The minister also highlighted the construction of the A14 federal freeway. In a few years, the north-south route through the Altmark will be completed.

All the 32 companies that have moved to the Altmark Industrial and Commercial Park now benefit from these factors. One of the first was AMS, a mechanical engineering company. Almost 30 years ago, a group of engineers came together to find a company in the buildings of the abandoned, unfinished nuclear power plant. Today it employs more than 150 people. AMS specializes in manufacturing huge cranes to meet individual customers' requirements. They can move loads weighing up to 40 metric tons and have booms that can be as much as 55 meters or, in the future, even 100 meters long. The manufacturing buildings have solar panels on the roofs to supply the company with energy.

An independent future with green energy

The future concept for the site is that the entire park will have its own largely independent energy supply. The focus is on a networking approach, which is why a pilot hydrogen plant is already in operation at the park. Companies can also erect a wind turbine on their sites to generate their own electricity. The aim is for the businesses in the industrial park to supply each other with green energy. In the future, the manufacturing processes for all the products in the park will be as climate neutral as possible, with the help of a circular economy. Any company that intends to base its production on green energy will find the ideal conditions in the Altmark.

One example is Sofidel, an international business from Italy that has been producing paper for hygienic and domestic use at the industrial park since 2006. It benefits primarily from the nearby pulp mill which supplies the raw materials that it needs. Every year around 100,000 metric tons of toilet paper, kitchen rolls and tissues leave the factory, which employs 350 people. Sofidel is also aiming to improve its green credentials. It is in the process of replacing its plastic packaging with paper and is working on reducing its water and energy consumption.

Ten years ago, another modern company, Weltec Biopower, moved to the site. It has been producing biogas in its refinery since 2013 and every hour feeds around 700 cubic meters of biomethane into the gas network.

Visitors to the industrial and commercial park today can still see the signs of past developments. Not all of the buildings belonging to the nuclear power plant, which was once regarded as modern, have been demolished. Many of

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de

the industrial and office buildings are still in use, while others stand empty. In their midst are new plants constructed by highly efficient businesses. The industrial transformation of the site is already well underway. Any companies interested in finding out more about the location can contact the park operator Altmark Industrie Management GmbH or the Investment and Marketing Corporation Saxony-Anhalt.

Author: Björn Menzel

More information about the Altmark Industrial and Commercial Park

At a glance

- Total size 740 hectares
- Area available for new arrivals 220 hectares
- Manufacturing and office buildings available
- Currently 32 companies
- Around 1200 employees

Infrastructure

- Rail link, Elbe port, close to the future A14 freeway
- Hydropower plant, green energy
- Magdeburg/Stendal University of Applied Sciences

Contact

Altmark Industrie Management GmbH, Telephone +49 39321 50114,
<https://altmark-industriepark.de/>

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



PRESS-INFORMATION

Specialist in plastic recycling produces high-quality plastic from waste film

APK AG in Saxony-Anhalt has developed an innovative recycling technology that will retain plastic in the circular economy. The company is the first to produce pure recycled materials from plastic composites on an industrial scale and provide a fully commercialized product. Now it aims to expand its production capacity.

The company's investors are highly confident. During a recently completed financing round, APK AG, which is based in Merseburg, secured funding of 130 million euros. As part of the agreement, LyondellBasell and KIRKBI will become minority shareholders in APK. Other investors are also involved. The plan is to construct further Newcycling® plants to increase the company's production capacity. LyondellBasell is a world-leading chemical company, while KIRKBI A/S is the family-owned holding and investment company of the LEGO® brand. The capital will help the specialist plastic recycling company to continue to grow worldwide on the basis of its innovative Newcycling® process. "This was the biggest financing round in our company's history and will enable us to build two new large-scale plants each costing hundreds of millions of euros. The plan is for the plants to go online by 2025/2026," explains Susanne Küppers, a member of the board of APK AG.

The company is undergoing a period of highly dynamic growth. It was founded in 2008 in Merseburg in the Saale district and now employs 220 people. More skilled staff will be needed for the two new plants. "We would very much like to build one of the plants in Saxony-Anhalt. The location in eastern Germany's chemical triangle between Merseburg, Leuna and Schkopau has many advantages, including the skilled labor force," adds Dr. Robert Marx, member of the board of APK AG.

APK's production process is already on an industrial scale

APK forms part of an extremely dynamic market. The demand for recycled plastic has been growing for years. From the very beginning, the company's vision was to ensure that plastic recycled from waste was available as a raw material for the generations to come and to recycle it on an industrial scale. They have succeeded in doing this with their patented Newcycling® process. This allows different types of plastic waste to be separated in order to produce purer end products. For example, until now it has been difficult to separate polyethylene/polyamide film, a plastic mix that is often used in an industrial context, into individual substances. As a result, this type of film was usually sent for incineration. "Using our process, we can separate the polymers to produce the required plastic – in our case polyethylene for plastic film. We can also remove contamination, with the result being an extremely pure plastic. The second step in the process is to remove the solvent from the material, which gives us a high-purity granulate that can be processed to make packaging and for other high-quality applications," explains Maik Pusch, Director of Corporate Development at APK AG.

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de

This solvent-based physical process is the only one of its kind in the world, according to Pusch. He adds: "Our plant in Merseburg already produces granulate on an industrial scale. That is our most important advantage over our competitors who are still working in the laboratory or on a research scale."

Plastic recycling supports the Green Deal

APK is confident that it is making an important contribution to a sustainable environmental strategy in the context of the EU's Green Deal, which aims to achieve climate neutrality by 2050. Up to 2019, the recycling quota for waste from Germany's domestic recycling bins was only 36 percent. New packaging legislation introduced last year requires a significant increase in this figure. In the future, around two thirds of waste must be recycled to reduce the demand for new plastic made from crude oil. As Susanne Küppers explains: "That is our contribution to the Green Deal: keeping plastic in the cycle, making a significant cut in CO2 emissions, avoiding polluting our environment. Ultimately we can prevent high-quality plastic from being incinerated or ending up in landfill." APK AG in Merseburg is helping to increase sustainability.

Author: Michael Falgowski

APK AG
Jürgen Hoffmeister +49 3461 79457 1338
Email: presse@apk-ag.de



PRESS-INFORMATION

“ReModul”: The world’s first solar module made from 100 percent recycled silicon

For the first time, researchers at the Fraunhofer Center for Silicon Photovoltaics CSP in Halle (Saale) have successfully developed a process for recovering silicon for solar use from end-of-life PV modules. The project plays a key role in the energy transition and the circular economy.

At the site of the Fraunhofer Center for Silicon Photovoltaics CSP in Halle (Saale) in Saxony-Anhalt, a small solar module in a fenced area is generating electricity. You might think that there is nothing unusual in this, but it is in fact a special module being used for research purposes. The ReModul is the world’s first solar module made from 100 percent recycled silicon. The researchers at the institute have succeeded for the first time in developing a process for recovering silicon from end-of-life modules and retaining it in the material cycle.

From solar waste to a secondary raw material

The recovery of materials from photovoltaic modules at the end of their useful life is an important consideration for the energy transition and resource planning. “The majority of photovoltaic systems in Germany were installed during the first wave of expansion from 2009 to 2011. At the latest when the 20-year feed-in tariff scheme comes to an end in 2029, there is likely to be a first wave of disposal. This year, we are expecting 10,000 metric tons of end-of-life modules, which will have to be recycled under the provisions of the Circular Economy Act. Next year, the figure will be 50,000. By the end of the decade there will be several hundred thousand tons per year,” explains Professor Peter Dold, director of the Fraunhofer CSP. At the moment, only the aluminium, glass and copper from the PV modules are recycled. It has unfortunately not been possible to recycle the main component – the silicon solar cells – until now. The cells are currently shredded and then incinerated, together with the silver that is also used in the solar modules. The solar modules currently in use in Germany contain around 3000 metric tons of silver, according to Professor Dold.

Recovering silver and silicon

For around ten years, the researchers at the Fraunhofer CSP have been trialling new procedures for cleaning wafer and cell waste, separating materials and, in particular, returning the solar silicon to the material cycle. The center has special melting machines with induction heating systems that can heat and cool the materials rapidly. The researchers at the Fraunhofer CSP and the Fraunhofer Institute for Solar Energy Systems ISE in Freiburg, together with the largest German recycling company for PV modules, Reiling GmbH & Co. KG, have now succeeded in their ReModul project in recycling the silicon from end-of-life solar modules.

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



The process takes the by-products of established mechanical recycling processes and separates out and collects the fragments of silicon solar cells. A variety of sorting processes are used to separate the plastic and the silver from the end-of-life cells. The silver that is removed and melted has a purity of 99.6 percent. Finally, the glass and silicon are separated from one another using an electrostatic method. After a number of mechanical, physical, thermal and chemical steps, the silicon that is recovered can be melted, processed and subsequently made into wafers for new modules at the Fraunhofer CSP.

The process must be financially viable

“Of course, this is just a pilot project. We need to analyse what the whole process costs because financial viability is the decisive factor. It’s possible to do almost anything in the laboratory, but ensuring that the complex process is ultimately cost-effective is the really big challenge,” says Professor Dold. “Our task and our vision is to develop this process so that it can be industrialized. We need to ensure that it is easy to scale up and manageable.” An important consideration for him is that Germany, with its limited natural resources, currently has to import nearly all its raw materials, in particular silicon and silver. “We must make sure that we retain these materials in the material cycle and that they don’t go into an incinerator.” In 2022, the global PV industry used 700,000 metric tons of silicon. By 2024 at the latest, this figure will have risen to one million tons. “I’m optimistic that we in Germany are prepared for the future volume of end-of-life PV modules. Using the methods that we have developed, we can be certain that we won’t be overwhelmed by a mountain of PV waste.”

Author: Michael Falgowski

Further information:

Fraunhofer Center for Silicon Photovoltaics CSP
Otto-Eißfeldt-Straße 12
06120 Halle (Saale)
www.csp.fraunhofer.de

Christina Lotz (head of communication)
Tel. +49 761 4588 5820 227



PRESS-INFORMATION

Independent online marketplace for waste is digitalizing the circular economy

Lubey GmbH from Halle (Saale) has developed a digital platform that brings together waste vendors and recycling companies. Its online auction ensures that contracts are awarded in compliance with the legislation. As a result, waste fractions can be recycled much more efficiently. This digital solution reduces the environmental impact of waste and brings benefits for all the parties involved in the form of increased revenue.

In 2018, Lubey GmbH from Halle (Saale) set itself the goal of revolutionizing the entire circular economy for waste and secondary raw materials. "Revolutionizing the market is a tough challenge," says Lubey's managing director Ulrich Peinhardt. "The disposal of waste and secondary raw materials often involves complex offline marketing processes that include a lot of administrative work. Digitalizing these activities represents a move in the right direction." The software developer from Saxony-Anhalt has turned his vision of an independent and transparent online marketplace for waste into reality. "We are an independent service provider without any external influences or links to waste disposal companies."

Standardized process unravels the tangle of legislation

On the Lubey Trade portal, public sector organizations in particular offer waste flows such as paper and waste wood, but also steel and textiles. "We have developed a standardized process for awarding waste contracts. The descriptions of the services are brief and clear. It's simply a question of ticking boxes. Creating the tender online takes only a few minutes. In conventional processes, the body awarding the contract often has to use an engineering consultancy and this can take up to six months," explains Peinhardt. At the heart of Lubey's digitalized tender system is the sealed bid auction that follows the submission of the first bid. The waste disposal companies taking part can always see where they stand and, if necessary, can improve their position by submitting a new bid. Every federal German state has its own tendering legislation, and the system draws up a legally valid contract automatically. At the end of the process, the waste disposal organization can be sure not only of having legally binding, transparent contracts, but also of the exact conditions for collecting and delivering the waste.

Transparency and an equal footing in Saxony-Anhalt and throughout Germany

"The digital tendering process means that the contracting bodies have much less work to do. In addition, the larger number of bidders in the auction ensures them a realistic market price. Managing the process via the portal gives them access to a wider range of bids and greater transparency. This is also true for the waste disposal companies. They can take part in tenders all over Germany on an equal footing and also restrict themselves to individual regions. Depending on their specialist field, the companies are informed about all the appropriate tenders," explains Peinhardt.

“Our initial skepticism about whether the totally digital approach and the online auction would work in practice disappeared as soon as our tender was published. We saved a huge amount of time during the preparation and issuing of the tender and, of course, also saw a positive result,” says Jens Adam, managing director of KELL GmbH. The municipal waste disposal business in the Leipziger Land district of Saxony used Lubey Trade to digitalize the complex processes involved in a tender for waste wood disposal. The simple and intuitive concept developed by Lubey and the marketing support provided by the company's employees meant that more than twice as many bidders took part as in the previous tender process. During the online auction, eleven bidders submitted more than 60 bids.

Lubey has been expanding its digital offering on an ongoing basis over the years. Companies can now manage their entire waste disposal process online using the Lubey Connect solution. As Peinhardt explains, for many companies the problems really start once they have marketed their waste: “They have to organize, monitor and bill the waste disposal activities, which involve several service providers. In the case of larger companies with several sites this involves a huge amount of work.” The software automates all the documentation and billing processes and allows the collection of waste to be triggered. ESG and sustainability reports can be produced simply by clicking on a button.

Carbon footprint and efficiency are included in the assessment of bids

Lubey has digitalized the waste management process and also made it leaner, more cost-effective and more sustainable: “The bidder who offers the best price for disposing of the waste is the one who recycles the materials most efficiently. Any firm that simply takes the waste to the disposal site will make a higher charge. This means that our mechanisms make sure that the waste is recycled as part of the circular economy.” Sustainability also involves the carbon footprint, which Lubey can identify throughout the entire disposal process, depending on the customer's requirements. “We calculate the route taken by trucks to the waste disposal facility and take their CO2 emissions into account, along with the efficiency of the facility, during the assessment of the bid,” says Peinhardt.

Author: Michael Falgowski

More Information:

Lubey GmbH
Talamtstraße 6
06108 Halle (Saale)
Tel.: 0345 977 24 96 0
Email: office@lubey.ag
Press: Miriam Weber, Head of Customer Support
06108 Halle (Saale)
Tel. +49 345 977 24968
Email mw@lubey.ag

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



PRESS-INFORMATION

From can to can in 60 days

The largest and most technologically advanced aluminum recycling plant in the world can be found at the Novelis site in Nachterstedt in the lower Harz region.

When Marc Mathiot, manager of the Novelis aluminum recycling plant in the town of Nachterstedt in Saxony-Anhalt, is outside on the works site, it is hard to distinguish him from his employees, because he too has to wear protective clothing. Health and safety is given top priority at the site where up to 400,000 metric tons of scrap aluminum is recycled each year into new high-quality metal. The facility allows for the low-carbon recovery of the valuable material, which is then used primarily to make drink cans and lightweight components for the automotive industry.

“Almost every drink can in Europe ends up here for recycling,” says Marc Mathiot and points to the stacks of big colorful bales of crushed aluminum cans. The circular recycling process at the Novelis site in Nachterstedt helps to ensure that aluminum cans are the most recycled type of drink packaging in the world. “In Germany,” explains Mathiot, “more than 99 percent of all drink cans are recycled.” This success story began 20 years ago when the deposit on drink cans was introduced in 2003.

Novelis operates highly sophisticated rolling and recycling plants throughout the world and has so far invested around 300 million US dollars in aluminum recycling at the Nachterstedt site. “The recycling plant in Saxony-Anhalt is currently the largest and most technologically advanced of all of our facilities in North and South America, Asia and Europe,” says Mathiot.

Every year, Novelis in Nachterstedt processes up to 400,000 metric tons of different types of scrap aluminum. On ultra-modern production lines, the metal is shredded, sorted, cleaned using a thermal process, smelted, and cast into sheet ingots around ten meters long and weighing 25 metric tons. The recycling process, which produces high-quality aluminum from scrap, takes only seven hours. “The process can be repeated an unlimited number of times. Every year, the recycling plant saves around 3.7 million tons of carbon emissions compared with the production of primary aluminum,” explains Marc Mathiot. He mentions the closed loop systems along the entire value chain that retain every gram of aluminum in the cycle. This means that it is possible to make one new can repeatedly from each used can, with no loss of quality. This process takes around 60 days.

Lightweight material for the vehicles of the future

The Novelis site in Saxony-Anhalt also supplies aluminum to important customers in the automotive industry. “The mobility solutions of the future need lightweight materials,” explains plant manager Marc Mathiot. Aluminum is the ideal candidate, for example for vehicle bodywork or for battery housings in electric cars. “Novelis aluminum can be found in more than 225 different vehicle models made by leading global manufacturers. To ensure that none of the valuable material goes missing within these supply chains, we have developed closed-loop logistics systems together with our

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



customers,” says Mathiot. He describes the complex rail transport system used by Novelis in Europe.

“Seven trains currently leave the Novelis plant in Nachterstedt every week to supply end customers in the automotive and drink can industries in the UK with aluminum.” In this circular economy, the aluminum waste from customers’ production processes is returned to the scrap recycling plants. Moving over to rail transport has resulted in a 60 percent reduction in CO2 emissions.

The Saxony-Anhalt aluminum alliance relies on good conditions

“Aluminum recycling uses around 95 percent less energy and produces 94 percent less CO2 than primary production and therefore represents an important step toward climate neutrality,” says Marc Mathiot. He adds that innovative products made from aluminum are contributing to the energy and mobility transition. “We need the right political framework in particular, together with internationally competitive energy prices.” Against this background, a joint declaration was signed in Nachterstedt in 2022 by the Industrieverband Aluminium Deutschland e.V. (the German aluminum industry association), the IG Metall and IG Bergbau, Chemie, Energie trade unions, the Ministry for Science, Energy, Climate Protection and Environment and the Ministry for Economic Affairs, Tourism, Agriculture and Forestry of Saxony-Anhalt. The aluminum alliance of Saxony-Anhalt has now been joined by the Befesa Aluminium Germany recycling plant in Bernburg and the HMT Höfer recycling facility in Hettstedt, the Trimet smelting and recycling plant in Harzgerode, the aluminum powder and granulate manufacturer Nimex NE-Metall in Helbra and the packaging manufacturer Slim Aluminium in Merseburg.

All of these companies are important players in the aluminum recycling sector and the circular economy. The aluminum industry is a key sector of the economy in Saxony-Anhalt and also a major employer. Novelis in Nachterstedt is the largest company with 1100 employees. It provides valuable apprenticeships for young people across a range of jobs, together with dual educational and vocational training courses and trainee programs. “We have good contacts with the scientific and research communities,” says Mathiot and mentions Otto von Guericke University Magdeburg, which has expertise in the field of materials science, among other things, together with the Technical University of Clausthal and the Freiberg University of Mining and Technology.

Author: Kathrain Graubaum

More information:

Anke Höbelmann, Communication and Government Affairs Novelis Europe
Tel.: +49 551 304928, Anke.Hoebelmann@novelis.adityabirla.com
www.novelis.com

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



PRESS-INFORMATION

Sunny prospects for a recycling start-up

It is now only a question of time. In two years, the first solar modules produced in the early 1990s will come to the end of their technical service life. After a period of 20 to 30 years, the panels that date back to the boom in the German solar industry will need to be replaced on a large scale. A young company from Saxony-Anhalt is preparing for this and has developed a solution that not only cuts the amount of electrical waste being produced but also reduces the environmental impact.

In the building on the Health and IT-Campus (HIT) in Magdeburg, the future has already begun. This is where the first plant set up by the company Solar Materials is in operation. It is still in the pilot phase and large quantities of solar modules are not yet arriving at the company's door. But the emphasis here is on the word "still." Because important moves have already been made to ensure that this will soon change. Fridolin Franke, Jan Bargel and Dr. Jan-Philipp Mai have developed a technology that allows solar panels to be almost fully recycled. The special feature of their process is that it allows the silicon and valuable silver to be recovered, alongside the high-quality solar glass and aluminum. Silicon and silver are raw materials that are often simply wasted. "This makes the recycling process financially viable," says the man behind the idea and the co-founder of the company Dr. Jan-Philipp Mai. The overall results also make it clear that the solution is both cost-effective and environmentally friendly. If the recycled raw materials are reused, around 80 percent less energy is needed than for primary production.

How does this new technology developed by Magdeburg-based entrepreneurs function? "We use a thermomechanical process," explains Mai. "It bears no relation to simply shredding and sorting the materials. We use heat to break down the layer of plastic film that bonds the components together. Once this has been dissolved, the glass cover can be removed, and we can access the printed silver conductors on the solar cells and the cells themselves." He explains that these can be returned directly to industrial processes. Even the plastic and wiring can be reused. This means that very little of the materials used originally to make the solar panels is left at the end of the process.

Solar modules can be almost fully recycled

The start-up from Saxony-Anhalt is providing solutions during an era characterized by rising global raw material prices and the awareness that climate action is urgently needed. The European Union's Green Deal, introduced in 2019, is a program designed to reduce greenhouse gas emissions and protect the environment, where the concept of the circular economy plays a leading role. It is hard to imagine a technology that is more "circular" than that developed by Solar Materials. The large quantities of solar panels that will in the future be dismantled at the plant in the capital of Saxony-Anhalt will be used almost exclusively as raw materials in industrial processes. The three founders of the company have complete confidence in their plan and are pushing ahead at full steam.

Three years ago, the two graduates and the man behind the idea Dr. Jan-Philipp Mai met at the Technical University of Braunschweig. All three of

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



them were fascinated to find out what could be achieved with the right technology. And all three of them had identified the problem that many people still do not realize is even an issue. In the near future, stacks of old solar panels will start to build up in Germany, in the rest of Europe and in many other parts of the world. The founders of Solar Materials collected data, developed processes and made comparisons. Alongside his unbridled enthusiasm for the start-up project, Dr. Jan-Philipp Mai has also contributed his experience from other businesses, which focused primarily on silicon. Solar Materials is based on the results of several years of development.

Noticeable drive in Saxony-Anhalt

The three men began looking for investors in the area of Lower Saxony where they lived. But they found them in Saxony-Anhalt instead. In mid-2021, bmp Ventures AG invested in the business. bmp manages the venture capital funds of Saxony-Anhalt and supports innovative companies with long-term, above-average growth potential. But this was not the only reason why the entrepreneurs are now committed to Saxony-Anhalt. "There was a much greater drive here than we had found elsewhere and the region is much more dynamic," recalls Dr. Mai. Saxony-Anhalt also offered easy accessibility and an ideal business landscape. As Dr. Mai explains: "In the near future, an important factor for us will be returning the raw materials to industrial production sites using an efficient logistics system." Among other things, Saxony-Anhalt has an established glass industry. This is a key consideration for the recycling start-up, because glass makes up 65 to 70 percent of the materials in the modules. "We fit in well here," says Mai, thinking also of the history of the solar industry, which had strong links with Saxony-Anhalt and could have them again in the future.

Solar industry on the way up

The team at Solar Materials can feel the excitement in the air here. For example, the Swiss manufacturer of solar modules, Meyer Burger, no longer intends to sell machines for producing solar cells to China, but instead to manufacture modules itself. It has recently begun operations in a production building in the former Solar Valley area of Thalheim in Saxony-Anhalt. The industry is currently experiencing an upturn and the prospects for solar companies are sunny. The energy crisis has given a major boost to the sector. In addition, the German government plans to phase out the use of coal. By 2030, 80 percent of the electricity generated in Germany is to come from renewable sources. By comparison, in 2021 renewable energies were responsible for just over 40 percent of the electricity produced, with solar energy making up around ten percent. If Germany is to achieve its climate targets, photovoltaic systems need to be expanded alongside wind power.

First fully automated line to come into operation this year

The entrepreneurs have been given a further boost by these developments and they have recently secured follow-up funding. Alongside the additional support from bmp, they have also acquired two further European investors. The money is being used to build the first fully automated recycling line on the HIT campus, which will come into operation this year. At the same time, the company, which has its roots in the world of research, has to be

Investment and Marketing
Corporation Saxony-Anhalt
Am Alten Theater 6
39104 Magdeburg

Press:
Frauke Flenker-Manthey
phone +49 391 568 99 71
flenker-manthey@img-sachsen-anhalt.de

Sabine Kraus
phone +49 391 568 99 20
sabine.kraus@img-sachsen-anhalt.de



transformed into a certified recycling business. The new line in Magdeburg will be able to recycle around 150,000 modules per year in the future. A new and larger plant will subsequently process around three times that number. Eventually, the three men plan to look for an additional site. "We will almost definitely stay in Saxony-Anhalt as we continue to grow," says Dr. Jan-Philipp Mai.

Creating a database

Alongside establishing the start-up, the three founders worked with the Fraunhofer Center for Silicon Photovoltaics CSP in Halle (Saale) to set up a module and material database. "As we start to receive modules during the next few years, we need to know how best to process them," explains Dr. Jan-Philipp Mai. Solar panels have changed over the years and there are different types which will have different kinds of damage. "We are making preparations now so that we can work efficiently in the future," he says. The plans for recycling solar modules are already in place and they are based firmly in Saxony-Anhalt.

Author: Manuela Bock

Further information:

<https://solar-materials.com>