

MARCH 2020 ISSUE

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NEWS FROM ENERGIEQUELLE



PHOTOVOLTAICS
SUCCESSFUL
COMEBACK

**RESEARCH PROJECT
IN LUSATIA**
HYDROGEN &
STORAGE POWER PLANT

REPOWERING
IN ESTERWEGEN

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*Dear readers,
dear friends
of Energiequelle,*

a turbulent 2019 is now behind us. Renewables are being held back by politics, the expansion of wind energy is at its lowest, and my long-term business partner Joachim Uecker has stepped down as a general manager.

Much to our delight, however, we built 16 wind energy plants with an output of 46.3 MW in Germany and France and achieved revenues of 93 million Euro. We are also well positioned for the future. Plans for the next two years comprise 35 wind energy plants with a total output of 120 MW. We will push ahead with project purchasing in the next few years. We will introduce you to our purchasers in this issue.

We also made a successful comeback to the photovoltaics sector. Various projects in Germany and France are awaiting implementation, as is our repowering project in Esterwegen, where we are replacing three plants with two E-138 plants.

In Lusatia, we are involved in the reference power plant in the Schwarze Pumpe Industrial Park. A new innovative type of power plant is to be created, which will temporarily store electricity from renewable energies in the form of hydrogen and make it available in line with demand in the electricity, transport and heating sectors.



We would also like to introduce a long-standing Energiequelle partner: re:cap investors ag. Managing Director Thomas Staudinger tells us how they invest in renewable energies and why they appreciate our collaboration.

Enjoy!

Michael Raschemann

Energiequelle Managing Director and Owner

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PHOTOVOLTAICS

FALLING PRICES GLOBALLY PROVIDE GOOD INVESTMENT OPPORTUNITIES

Energiequelle has successfully returned to the photovoltaics business. The first small free-field project is located in Dallgow-Döberitz in the Federal State of Brandenburg and is a 750 kWp plant expanding an existing park, including a transformer station. During the planning stage, the fire brigade access had to be re-approved and an exemption from the land-use plan specifications was required. However, after just 4 weeks of construction, the plant was commissioned in late 2019.

In 2020, another another 27 MW project will follow in Schönfeld which should be completed by the end of the year. We are also active in France. There are plans for 14.7 MWp in the central French town of Decize. The project was developed

by our cooperation partner era ingenierie before the approvals and tendering stages were undertaken by our subsidiary P&T Technologie. A special challenge in this project was the requirement that no more than 450 kg equivalent CO₂/kWc should be generated by manufacturing the module. This consideration of the CO₂ footprint is a particularity of the French PV market and minimizing this footprint allows developers to secure a better ranking in tenders. The initial operation is scheduled for July 2021.

In the last few years, Energiequelle has implemented 33 photovoltaic plants in Germany, Spain and Italy. This is equivalent to an output of approx. 67 MW. We currently manage 22 plants.

REPOWERING

The lifetime of the plants built 20 years ago is coming to an end – what now?

In the repowering process, older plants are replaced with state-of-the-art plants. This ensures sustainable and continuously optimal use of the land.

While wind energy plants were built with a maximum total height of 100 m 20 years ago, modern plants can now reach total heights of over 240 m. This progress, combined with significantly higher output means it is now possible to produce considerably more electricity with fewer plants on the same area. This makes sense both for economical and above all for ecological reasons.



CURRENT REPOWERING PROJECT IN ESTERWEGEN

A Energiequelle repowering project began in February in Esterwegen, a town in Lower Saxony. Three E-58 turbines completed in 2002 with a hub height of 70 metres and an output of 1 megawatt (MW) will be dismantled. Two new Enercon E-138 turbines with a hub height of 160 metres and an output of 4.2 MW will be established. The output of the farm will therefore be increased from 3 MW to 8.4 MW.

The project partner is UMaAG, which has been responsible for commercial management since 2002. Energiequelle is responsible for the technical management. This will remain the case. The initial operation is scheduled for late summer of this year.



2002



2020

Total height	99.5 m	230 m
Installed power	1 MW	4.2 MW
Rotor diameter	58 m	138 m
Rotor speed	24 rotations per min.	11 rotations per min.

PROJECT PURCHASING

We take over projects in any stage

The process of finding land, concluding lease agreements and tackling the first administrative obstacles is becoming increasingly challenging. Purchasing wind and solar projects, regardless of which stage they are in, has therefore become an important means to increase our active portfolio in order to continually plan and connect plants. In Germany, France and Finland, we currently have an acquired pipeline of over 350 MW.

An equal partnership

We believe that it is only possible to build a trust-based collaboration if you treat each other as equals and always maintain a fair and honest relationship. This is important for us with all our service providers and partners.

So in project purchasing, whether we are taking over or co-operating with you, you can be sure that we will continue the project as you intended or bring it to a successful conclusion in cooperation with you.

Financial strength

Thanks to solid management, we have created a strong financial position in the last few years. CrefoZert has also awarded us an excellent credit rating. This financial strength allows us to respond to appropriate offers quickly and flexibly.



Three employees are currently working on project acquisition



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SUCCESSFUL GRID CONNECTIONS IN THE GANZLIN SOLAR PARK

SUBSTATION

Rated output of the transformer:	80 MVA
High voltage:	115 kV
Low voltage:	31.5 kV

- Connection to the 110 kV overhead line via two 110 kV, 630 mm² cables
- Installation of a higher-level control system for the generation plants connected to the substation

CABLE SYSTEM

Operating voltage:	31.5 kV
Cable cross section:	800 mm ²
Number of MS cable systems:	2
Length:	25.4 km
Communications cable:	Fibre optic cable
Particularity:	Rail crossing & river crossing

TRANSMISSION STATION

- Construction of two blocks in one station
- Park controller for adherence to connection requirements specified by grid operator WEMAG AG

Commissioning: April 2020

Substation, cable route and transition station from a single source

We have been planning the Ganzlin Solar Park grid connection on behalf of Clenergy Global Projects GmbH since 2018. In addition to the cable system, this also includes the associated substation and transition station.

A special feature of the Ganzlin project was our willingness to secure the cable route for Clenergy and conclude the corresponding license agreements with the owners.

We are therefore managing the project in full until commissioning:

- ✓ Conclusion of license agreements with the owners
- ✓ Securing easements
- ✓ Planning application
- ✓ Official approvals
- ✓ Construction management

ENERGIEQUELLE IS GROWING

Two more locations for our management

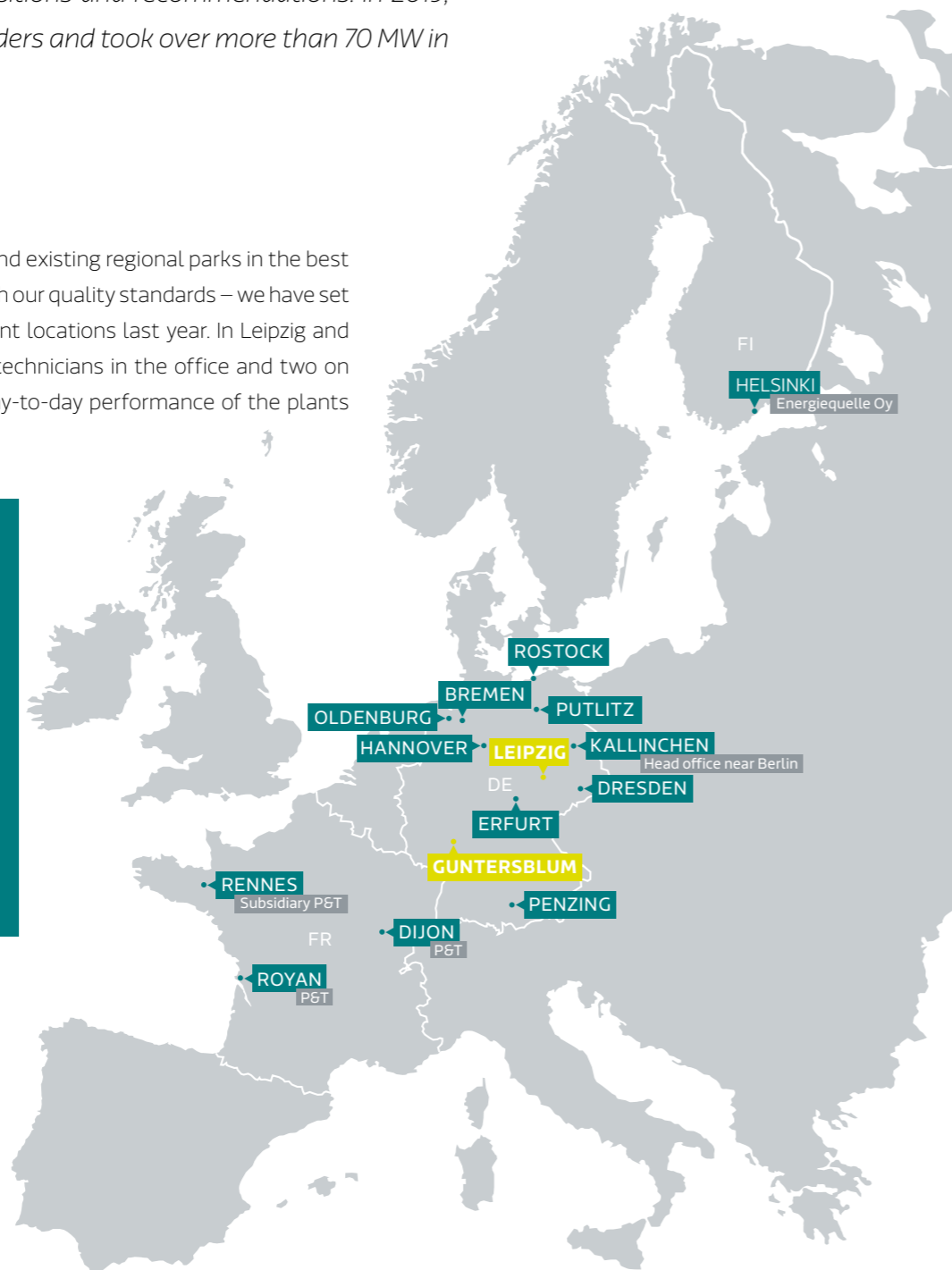
Our operational management portfolio is growing continuously. In the regions of Rheinhausen, Saxony-Anhalt and Thuringia especially, many "external" projects have come under our management in recent years through acquisitions and recommendations. In 2019, we participated in various tenders and took over more than 70 MW in operational management.

Leipzig and Guntersblum

In order to manage the new plants and existing regional parks in the best possible way – and in accordance with our quality standards – we have set up two new operational management locations last year. In Leipzig and Guntersblum (south of Mainz), two technicians in the office and two on the field will be looking after the day-to-day performance of the plants entrusted to us.

The regional proximity to the plants we manage and good contact with local service providers are very important to us. This means we can offer shorter response times and be available on site at any time. This is what we consider good customer service.

We currently manage plants with an output of almost 1,400 MW.



FULL SERVICE FOR THE FURTHER OPERATION OF YOUR PLANTS

Further operation after 20 years

After 20 years of operation, some wind energy plants can be approved for 15 to 20 years of further operation. In these cases, the structural safety components have sufficient wear stock. External expert evaluations including analytical calculations and an inspection of the plant on site are performed for this purpose. Notwithstanding, these plants must then be more closely assessed in the future, in fact the entire plant including the rotor blades must be inspected every two years.

With regards to modified maintenance concepts and changing remuneration and insurance requirements, we are currently reassessing our operational management contracts.

We are currently negotiating with various providers regarding electricity marketing after the EEC subsidy expires on 01/01/2021. We will be in touch with our operators as soon as we have sustainable results to make recommendations on the best possible economic scenario for further operations.

30 plants already retrofitted for further operation

In the last few months, over 30 plants from the Energiequelle management portfolio have been "retrofitted" for further operation. The following steps had to be taken for this purpose:

- ✓ Checking possible repowering options
- ✓ Checking duration of lease agreements
- ✓ Checking plants in terms of planning permission
- ✓ Provision of structural safety evidence
- ✓ Revision of maintenance concepts after the 20th year of operation
- ✓ Adjustment of insurance coverage

Where the necessary decisions on the possibility of repowering, further operation or dismantling have been made for our managed plants, we will actively and promptly contact the operators.

Reliability and cooperation.



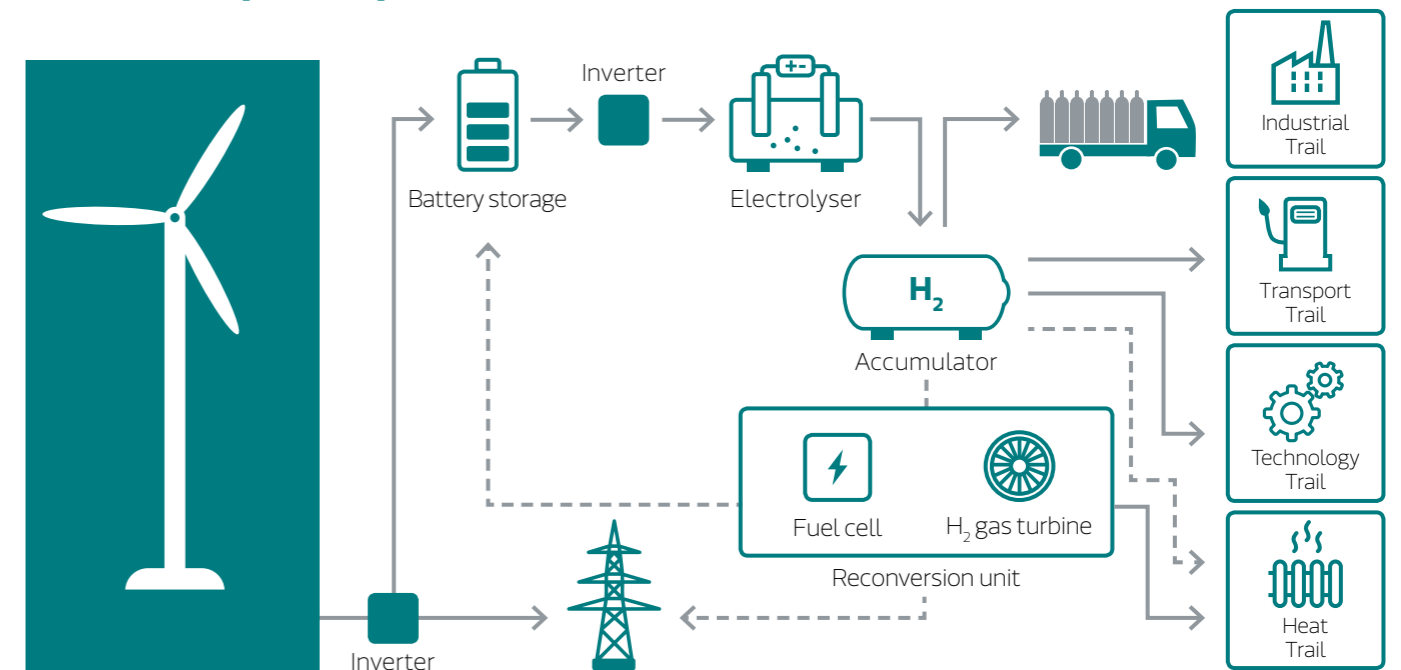
LUSATIA Reference power plant

Energiequelle's Business Development department develops and does research on innovative energy supply Solutions. Together with partners, we recently submitted one of the 20 winning entries to the in the "Real Laboratories of Energy Transition" ideas competition organized by the Federal Ministry of Economics and Energy. Based on this winning submission, a hydrogen-based storage power plant is to be built in the Schwarze Pumpe Industrial Park and will thus become part of the Lusatia Reference Power Plant.

Representatives of business, science and regional politics signed the agreement for the hydrogen-based reference power plant, thus making groundbreaking progress toward Energy Transition in Germany



THE PROJECT Reference power plant Lusatia



Development of hydrogen technologies

In order to achieve added value in the long term, sample solutions will gradually be implemented in practice for the use of key technologies. The aim is ultimately to develop and implement a modern power plant using renewable energy and therefore the provision of "green hydrogen", as well as its reconversion.

Its task is to provide all the system services required for the reliable and stable operation of the electrical power supply system at all times and to the full extent, but also to operate the energy storage with hydrogen. Hydrogen will be automatically stored and withdrawn so that both a power surplus from renewable energy systems and a temporary power deficiency can be overcome.

In addition to the storage and recovery of electricity, the Lusatia reference power plant will also be used for sector coupling. This comprises the regional marketing of CO₂-reduced heat energy through the district heating network as well as the direct sale of hydrogen as fuel for transport and as a raw material for industry.

Project partners

The initiator of this project is the Schwarze Pumpe industrial park along with its partners, the mayors of the town of Spremberg (Mrs Christine Heritier) and of the municipality of Spreetal (Mr Manfred Heine). In addition to Energiequelle GmbH, the University of Rostock with the Steinbeis Transfer Centre for Applied Research in Energy Technology led by Professor Weber, the Brandenburg Centre for Energy Technology, Lausitzer Energie AG and Enertrag AG also played a key role in the development of the concept.

Further steps until 2030

The planning stage for the reference power plant will be complete by 2022, the power plant will be built between 2023 and 2024 and the aim is to put the plant into operation in 2025. Various tests will then be carried out to verify its market viability and to adapt the technology until 2030; the output will gradually be scaled up to 100 megawatts. The total investment amount for the Lusatia reference power plant project is approximately 100 million Euro.

INTERVIEW

re:cap global investors ag

Long-standing partner of Energiequelle

re:cap global investors ag is an international independent M&A consultant and asset manager for renewable energies. With a specialised team of primarily solar and wind energy experts, the company supports its institutional investors with the selection, evaluation and long-term management of renewable energies projects. As an asset manager, re:cap regularly examines projects for process optimisations, as well as to improve availabilities and returns. We spoke with Thomas Staudinger, the Managing Director responsible for the Asset Management division.

MR STAUDINGER, HOW EXACTLY DO THINGS WORK AT RE:CAP - WHO ARE YOUR CLIENTS AND WHAT IS YOUR BUSINESS MODEL?

We mainly advise institutional investors in Germany and neighbouring countries in the selection and management of renewable energies projects, primarily in the wind onshore and photovoltaics asset classes. We hold the acquired project companies on behalf of these investors in fund structures aligned with their requirements. As such, one of our specialities is the execution of the corresponding M&A processes. We also offer asset management services for the funds and third-party clients with regard to the long-term commercial support for the project companies. We have outsourced the technical operations management to appropriate service providers (including Energiequelle). However, we also monitor the availabilities of generation plants using appropriate monitoring software.

HOW LONG HAVE YOU BEEN ON THE MARKET AND HOW MANY EMPLOYEES DO YOU HAVE?

re:cap was founded in 2010 and acquired its first project in Q1/2011 (a solar park in Bavaria). To date, over 60 project companies have been acquired in five European countries. In total, re:cap manages a regeneration capacity of more than 800 MW in wind and solar plants. Based in Zug, Switzerland, we currently have 20 employees working in the above areas. We are confident that we will exceed the threshold of one GW in regeneration capacity this year.

HOW LONG HAVE YOU KNOWN ENERGIEQUELLE GMBH AND HOW MANY PROJECTS HAVE YOU SUCCESSFULLY COMPLETED TOGETHER?

Our business relationship with Energiequelle began in 2013 with the acquisition of the photovoltaics plant in Niedergörsdorf. Since that time, there have been more and more projects and services. For example, there are the wind parks in Feldheim (DE) and Zagelsdorf (DE) and recently Gardelegen (DE) as well as in Callac (FR) and Melgven (FR). Energiequelle also provides the technical operations management for wind parks and substations, which were not originally designed by Energiequelle. For example, there are substations in Güstrow, Luckau and Wörlitz as well as our wind park in Handewitt. As concerns technical optimisations, we have already used the expertise of Energiequelle in grid technology and upgraded a large compensation system at UW Wörlitz for a solar park with output of 56 MWp in 2017.

Since we have already implemented projects in France with EQ, the implementation of two transactions in another country is also coming up. In Finland, two wind parks with a joint output of approx. 50 MW will be built which we will acquire on behalf of an institutional investor.

WHAT IT IS LIKE COLLABORATING WITH RE:CAP, WHAT VALUES CHARACTERISE YOUR RELATIONSHIPS WITH CLIENTS AND PARTNERS?

In the past year especially, we as a company have examined our values closely, which we want to live up to both internally and externally towards our investors and service providers. Within this context, we established the following values, amongst others, which I also consider to be a focus in our long-standing collaboration with Energiequelle:

- Open and honest communication
- Sustainable action
- Agility
- Taking pleasure in success

We value our collaborations with small and medium-sized enterprises and we are always working to find results that are acceptable to both sides through short decision-making paths and pragmatic approaches.

WHAT DO YOU VALUE IN YOUR COLLABORATION WITH ENERGIEQUELLE?

In essence, it is always the people who determine the quality and intensity of a collaboration between companies on both sides. In our many years of collaboration, we have established relationships of trust on many levels. We rely on recommendations in the field of TBF, as well as other technical issues, and as such indirectly also benefit from the extensive experience of Energiequelle with all kinds of wind energy plant types in recent years. Vice versa, Energiequelle can rely on us in that issues that have been resolved in other transactions will be handled similarly, which can ultimately result in the accelerated implementation of such transactions.

WHAT HAVE YOU ALWAYS WANTED TO TELL ENERGIEQUELLE?

Keep it up! We believe that further diversification in other European countries is the right path in view of current challenges in the onshore wind market at home, and consider Energiequelle to be well positioned to achieve this. We would be delighted to see more PV projects implemented soon, for which we would happily be the client again.

In any case, we hope the annual volleyball tournament popular amongst our colleagues will continue. After all, it is at such occasions that relationships of trust can be formed and reinforced in a special way and environment.



E-Mobility at Energiequelle

*Our e-fleet is growing,
as sustainability is also
important to us in our
internal processes.*

Our fleet already comprises eight hybrid or fully electric company vehicles to comply with our emissions-free mobility target. By the end of 2020, our fleet will have around 30 hybrid or fully electric vehicles, and at least 10 hybrid or fully electric vehicles will be added every year. At our main sites in Kallinchen and Bremen, we have built one fast-charging station (50 kW DC) and several AC charging stations (22 kW AC) at each site. At our headquarters in Kallinchen, an intelligent charging station concept is also being developed in order to allow efficient charging for large numbers of vehicles in the future.

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