



## From hazelnuts to renewables

*Jürgen Korff*

The loss of its hazelnut crop during the 1986 Chernobyl nuclear disaster gave German chocolate manufacturer Alfred T. Ritter, an incentive to develop a renewable energy source: solar. Today, Ritter Energie- und Umwelttechnik (Ritter Gruppe) has been selling ecological heating systems for 25 years. CEO Jürgen Korff describes its philosophy in one word: ecoquent, a short form of 'ecologically consequent'. Mr Korff's aim is to bring solar heating technology to different markets by matching the right technology with the right application.



**In the spring of 1986 the nuclear disaster of Chernobyl made the world stay still.**

Roadblocks prevented the transportation of contaminated vegetables; in Germany everybody talked about Becquerel; complete lettuce fields were all covered with land; children were no longer allowed to play in the sandbox. Chernobyl was more than a terrible accident. It also showed us that our human and technical resources, as well as our knowledge failed. We, and especially many generations to come, will have to fight against the consequences for a very long time.

Nevertheless, something good happened after this terrible experience. Mr. Alfred T. Ritter, owner of the chocolate company Ritter Sport, was directly affected by the catastrophe; most of his hazelnut harvest in Turkey was contaminated. This happening was his final motivation to actively contribute to the reduction of fossil fuels by investing in a promising renewable energy source, solar energy. In 1989, he and Mr. Klaus Taafel, a visionary German engineer, founded a company whose aim was to integrate solar technology into the heating technology. Their vision was to make solar heating systems available for everybody. At that time, they were pioneers and started to create the appropriate market conditions. Nowadays, the

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### Why solar heat?

On the one hand, sun energy is the largest natural resource available and also the only one available for free. On the other hand, heat accounts for the largest share of the global energy consumption. In 2009, the IEA reported that global energy demand for heat represented 47 per cent of the final energy use, which is higher than the final energy use for electricity (17 per cent) and transport (27 per cent) together. About 80 per cent of this demand is met by fossil fuels (coal, gas, oil, nuclear energy). Solar thermal energy (solar energy for heat generation) can contribute significantly to the reduction of fossil fuels. In our business, solar thermal technologies turn solar energy into hot water which can be used at home, in any

type of building, and in the industry, thus reducing the use of conventional fossil fuels that are conventionally burned to meet that heat demand. By the end of 2012 the size of the solar thermal market worldwide has been estimated to be 383 million square meters of solar collector area (268.1 GWth). This corresponds to an annual collector yield of 225 TWh which is equivalent to savings of 24 million tons of oil or 73.7 million tons of CO<sub>2</sub>.<sup>1</sup>

For households, governments and companies energy requirements are enormous and represent a significant cost factor. Currently, solar thermal technologies can be used in different types of markets which range from domestic hot water, space heating for homes and buildings, industrial processes to air conditioning.

Further figures from the IEA show the potential that solar thermal has. In 2009, the industry accounted for 44 per cent of the global energy consumption for heat, homes and residential buildings for 42 per cent, commercial buildings for 9 per cent, and the agricultural and fishery sector for 5 per cent. It also estimates that 14 per cent of the energy consumption for generating domestic hot water and providing space heating in homes or buildings could be provided by solar thermal energy by 2050. The share of solar thermal energy used in industrial processes with temperatures below 120°C could reach 20 per cent, and solar heat could account for 17 per cent of the energy use for cooling by then. All in all, solar heating and cooling could avoid some 800 megatons (Mt) of CO<sub>2</sub> emissions per year by 2050.<sup>2</sup>



## Ecologically consequent by conviction

Ecology is close to our heart and technology is our passion. Together they determine the way we act since 25 years ago. We think and work in an ecologically consequent manner, ecoquent, and develop our products accordingly. This philosophy makes us unique and one of the most innovative companies in the heating sector.

Our mission is to use our technology and know-how to make the most efficient use of renewable energy, contribute to energy efficiency and to sustainable environmental protection. Acting in a people-friendly way and achieving business success are equally important to us.

Our core competence is solar thermal technology. We develop, manufacture, and sale highly efficient and innovative solar thermal systems that deliver hot

water for domestic, commercial and industrial use. We strive for the optimum utilization of solar energy and our goal is to offer customers the best value for money. Our systems enable independence from fossil fuels and from increasing energy costs. Together, our products and our customers, contribute to the reduction of CO<sub>2</sub> emissions.

The vision of our founders is still valid 25 years later. The pioneering work is done. Now it is important to reinforce the vision, to match our ambition with the reality, and to make the success measurable. We want to become the first CO<sub>2</sub> neutral company in the heating sector who achieve this exclusively on the basis of its business model. Besides the measures we continually implement for the reduction of the environmental footprint of our products such as increasing energy efficiency in the production, reducing the use of materials, and optimizing the

design of our products; we want to start a dialog with our customers in order to measure the CO<sub>2</sub> emissions that are prevented by the use of our products. This dialogue aims at increasing customer loyalty and the sense of community, but also the ecological consequence of our supply chain.

## The optimal mix for the future

By the end of 2012, there were about 67 million solar thermal systems in operation worldwide. Even though the residential sector is rapidly developing from a niche market to a mass market for the solar thermal industry, there are still many technology boundaries, as well as economic and non-economic barriers which hinder the widespread commercialization of solar thermal technologies. The largest solar thermal market is China (89% of the whole market in 2012), followed by Turkey. Germany is ranks third.



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Other key markets in Asia are India, Japan, South Korea and Taiwan. In Latin America the main drivers are Brazil and Mexico. The upward trend in Africa is led by South Africa.

A further market penetration can be certainly reached by developing market oriented products which match the climatic and economic conditions of different regions. However, a good mix of technological innovation, policy support and dissemination campaigns

will definitely be necessary to accelerate the deployment of solar thermal technologies globally. Challenges such as seawater desalination and water treatment represent a must for the solar thermal industry in the near future specially in developing countries where water scarcity is a huge problem.

We are a company made up of a highly committed team; we enjoy a technical edge and work intensively towards further improving the benefits of our

thermal systems. The results achieved so far are an incentive for us to strive towards even more innovation: for our customers and for the sake of the environment. Our latest innovation, the AQUA PLASMA collector saves 688 kilos of CO<sub>2</sub> per year when used for heating up water compared to a typical fossil fuel gas-condensing heating system in Germany. With an average collector life time of 20 years, this is equal to 13.8 tons of CO<sub>2</sub> savings ◀

### End Notes

1 IEA Solar Heating & Cooling Program, Solar Heat Worldwide, Edition 2013.

2 IEA, Solar Heating and Cooling Roadmap, 2012

### About the author

**Jürgen Korff**, is CEO of the Ritter Group. The family-owned German company sells ecological heating systems since 25 years ago. Mr. Korff aims at bringing solar heating technology to different markets by matching the right technology with the right application. Nowadays, the Ritter Group has 15 companies in 9 countries including the largest European markets, China and USA. Luxembourg as well as in different posts in Japan and Argentina.