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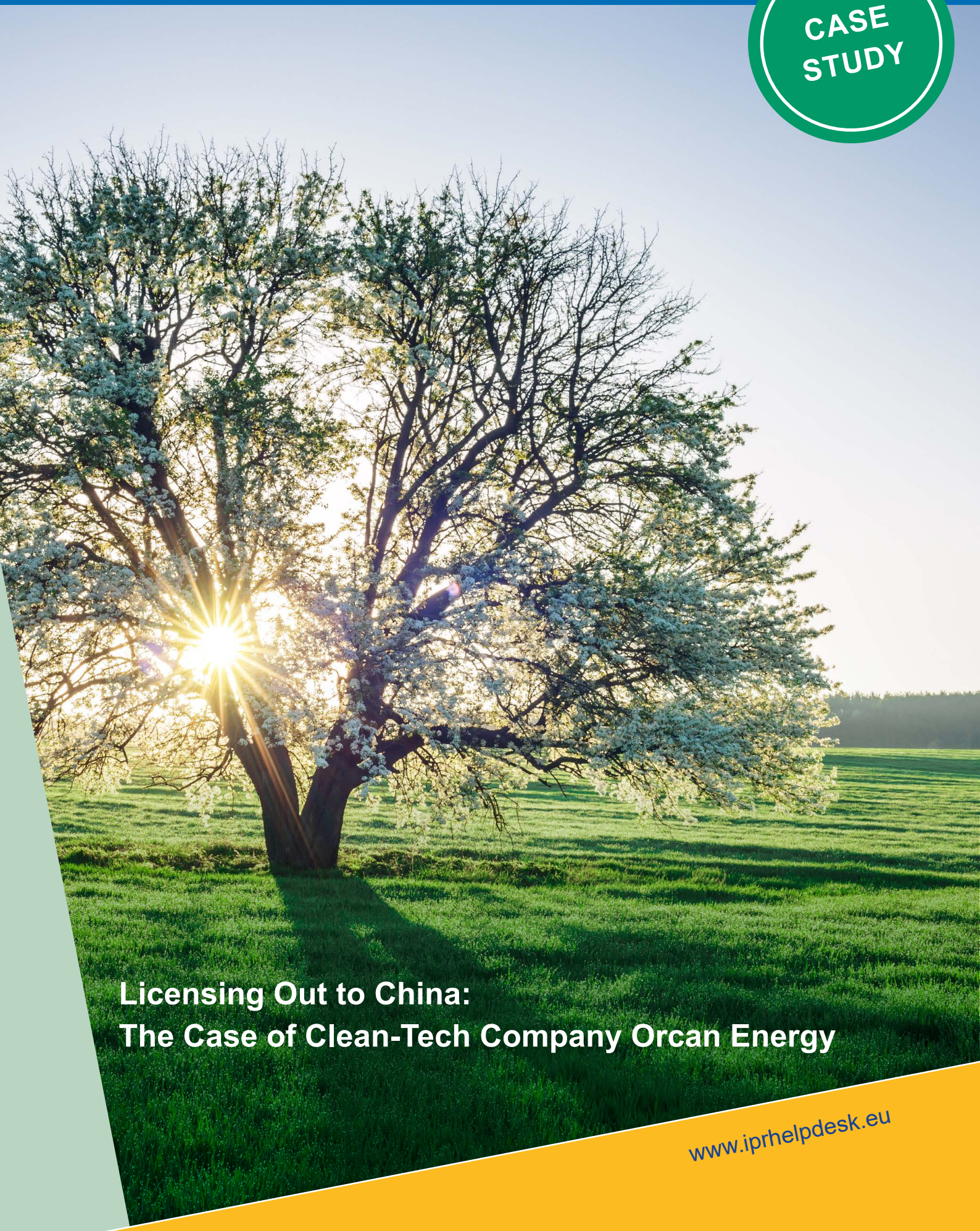
CASE STUDY



Licensing Out to China: The Case of Clean-Tech Company Orcan Energy

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It has been three years since the Paris Agreement of the United Nations has taken effect with the aim of substantially reducing the risks and effects of human-caused global warming. Yet, our environment is still paying the price for our collective overconsumption of energy and natural resources such as fossil fuels. In times of school children protesting on the streets worldwide, novel concepts of how to use these finite resources are needed.

With electricity generation being one of the main sources of greenhouse gas emissions, the German SME Orcan Energy AG has entered the stage with a far-reaching vision: to make existing energy supply more efficient and sustainable, both in Europe and around the world. The present case study outlines how a licensing deal helped the company to scale up its technology and establish a market presence in China.

Orcan Energy AG

The clean-tech company was established in 2008 as a spin-off from the Technical University of Munich and employs about 65 people. The idea is to convert waste heat into CO_2-free and cost-effective electrical power for industry, marine, automotive, and power generation.

www.orcan-energy.com

Background

Having the idea: waste as a large unused source of energy

The company name Orcan refers to an existing technology called ORC (Organic Rankine Cycle). It is comparable to a conventional steam power plant: an energy source brings a working fluid into a boiler for evaporation. This vapour powers a turbine which produces electrical energy. The vapour is then condensed to the original fluid and is pumped back to the beginning of the cycle. The difference between the ORC and a conventional steam power plant is the usage of an organic liquid instead of water (hence the term "organic" in ORC), which allows for the operation at lower temperatures of the waste heat (and therefore lower power).

Orcan's idea was to simplify the ORC: conventional ORCs are specifically commissioned large installations with a very high engineering workload. To improve the impact of the technology by making it more affordable and easier to use, the company wanted to develop standardised products using standardised industrial components[1].

Orcan was successful in developing such a first standard product, called the efficiency PACK "eP 20.30" (20-30 kW), which can be applied at waste heat sources such as biogas plants or ship turbines. The company continued to follow this path and now offers various products based on the technology platform in the power range from 3 to 400 kW electrical output.

[1]For more information on the technology and the challenges associated with the approach, including the patented solution, please see the reference at the end of the case study.

Challenge

Getting started: obstacles and hurdles on the way

Orcan successfully mastered some challenges associated with this development, resulting in a large patent portfolio. One of these technical challenges was the topic of cavitation, which can occur under specific operating conditions potentially causing serious damage to the components or even a complete stop of operation.
For selling their products in Europe, Orcan needed a rather large sales force, since efficiency PACKs are standalone products placed next to long-lasting applications using waste heat (e.g. biogas plants). So, every potential source of waste heat had to be contacted and convinced individually, resulting in a large effort for selling one single Orcan product.

Big international markets outside Europe proved to be another challenge: it was very difficult for Orcan to cover these markets with its own sales force. Given its vast size and incredible growth numbers, China was considered a market of particular interest (especially since China is using a lot of generators running on diesel or natural gas for electricity production). But at the same time, the Chinese market is very challenging due to cultural differences and the required track record for a foreign company.

Previous Actions

Choosing a path: licensing out to China

Debating pros and cons, Orcan had two options:

1. To give up on China as a potential market
2. To find a “good local partner” for addressing the Chinese market. This partner must have a strong presence on the local market and a common understanding of the technology and of doing business.

Developing a market presence on its own was not an option for Orcan as it would have significantly prolonged the time to market (neglecting other issues such as how to build up a market presence without any track record).

So, finding such a suitable partner turned out to be quite challenging and time-consuming. Orcan participated in an official delegation trip of the German government to China, which allowed them to make first contacts to several possible partners. During the next phase of several visits to and from China, they teamed up with a dedicated third-party consultant for German-Chinese business.

This important phase of understanding each other and the technology on the one hand and of general trust building on the other hand was a very important step and took about three years (from the first contact between the two potential partners to signing the licence agreement).This is quite a long time span, but also very well invested since Orcan used it wisely to scale up their technology and build products with a larger power range (due to the larger size of installations in China versus Europe).

Outcome & Next Steps

The right choice: Orcan's way to success

Some European companies hesitate to cooperate with a local partner, since they are afraid that they would have to disclose all their technology and know-how and thereby risk losing their technological advantage.

In order not to give away all the technical know-how, Orcan decided to team up with a Chinese partner and form a joint venture granting a licence for the technology and know-how, while- at least for the beginning – keeping the core technology to themselves. The licence is an exclusive licence for Asia and Africa covering manufacturing, marketing, sales and maintenance.

In practice, the core technology components are manufactured in Germany and then shipped to the site of the joint venture, where all other components (e.g. pipes and tubing, hydraulics, control units) are added and the ORC is fully assembled. Important tests such as leak tests and factory acceptance tests are also done at the site of the joint venture. The final and tested ORC is then shipped to the site of the customer, where it is installed by the Chinese partner. An important aspect of the cooperation is that the Chinese partner knows best about their specific demands, such as feeding energy into the local electricity grid.

In addition to the above-mentioned measures of keeping control, the licence given by Orcan is only valid for China and the other Asian countries and also Africa, since the Chinese partner already had a strong presence in these countries. Thus, Orcan retains the right of doing business on its own in all other parts of the world.

Another important aspect of the licence agreement is the fact that Orcan retains the right of doing business in China and Asia in case a third party wants to integrate Orcan's product into their own product (e.g. a diesel generator) and sell it as a combined product. A first success for this licence deal was a tender for a large installation of 70 gas engines for electricity production (90 MWel) in Myanmar. The tender was won due to the fact that the overall efficiency of the generators was a hard criterion and only the combination of the gas turbines of the Chinese partner and the ORC of Orcan's product were able to achieve these high goals.

Thus, Orcan managed to achieve two important outcomes in comparable short time: establishing a market presence in China (and the whole of Asia and Africa) and scaling up its technology and business model from the individual sale of small efficiency PACKS (20–30 kW) to a single, but very large installation of 70 units (with the new large 100kW efficiency PACK).

Lessons Learned

Have you ticked these boxes?

So how can SMEs looking for growth opportunities benefit from the case of Orcan? Make sure to tick these boxes:

- Define your approach to the high-growth Asian markets, especially China, carefully.
- Time to market is highly significant, so a do-it-all-on-your-own strategy, most of the time, is not an option. Therefore: Find a partner with the required market access and track record.
- Finding a partner is a challenging task which requires time and careful planning: Make sure you have saved enough resources for that.
- Licensing is a great way to address foreign and difficult markets, such as Asia by teaming up with a partner with strong local presence. Make sure to tailor your licensing agreement to the specific needs of your partnership, e.g. define exactly what rights are being granted and what you wish to retain (both in terms of technology and geography).
- Be well prepared for negotiations with the potential partner on the license agreement, but also for quick decisions.

References:

Orcan Energy - Recycling waste heat to cool down the planet, ISBN 978-3-89605-188-2, EPO SME case studies. Author: Christian Hackl, editors: Thomas Bereuter, Yann Ménière, Ilja Rudyk, EPO 2017, Munich, Germany.

Available for free download at epo.org/sme

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