

Gastropower



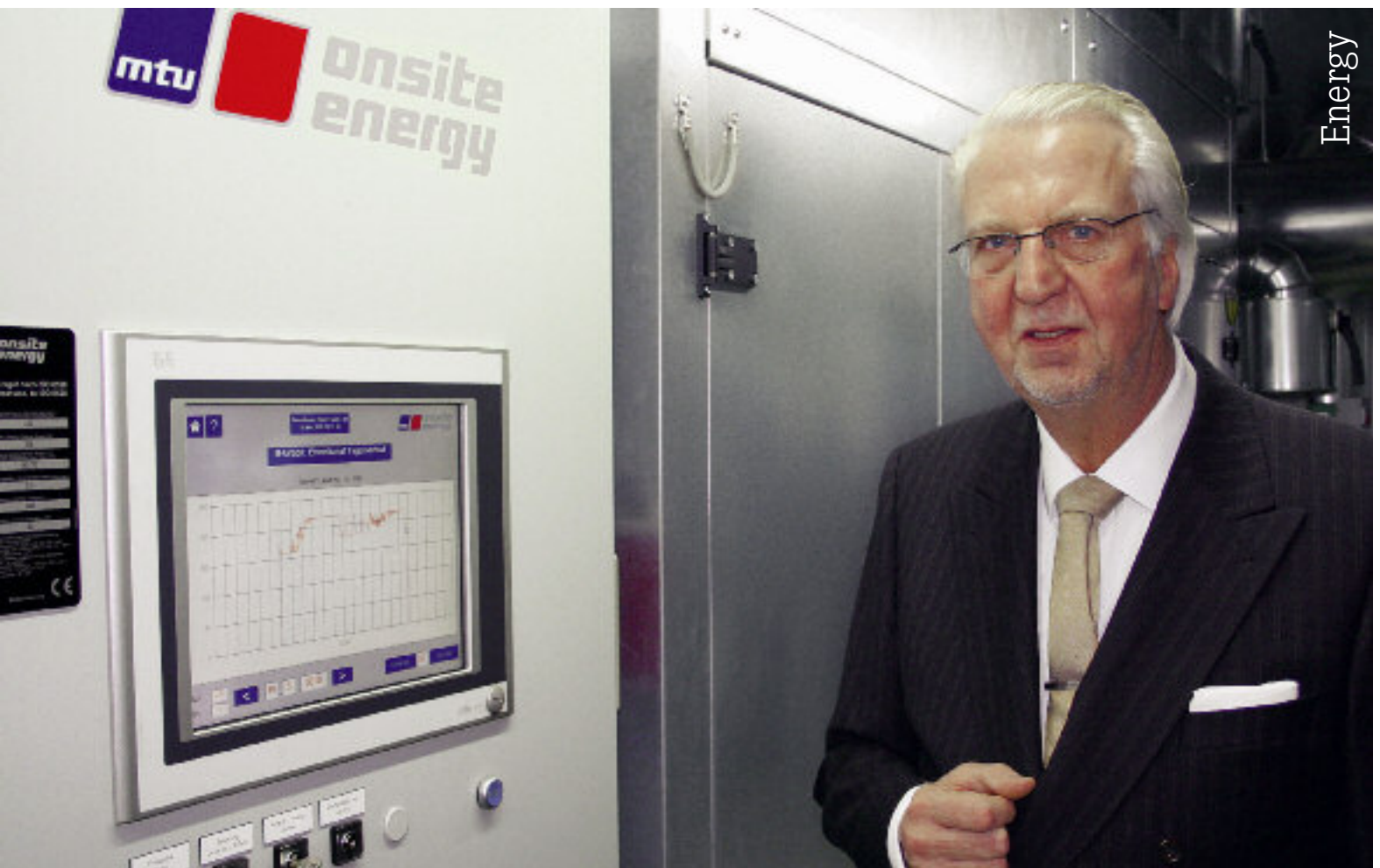
Ultra-quality hotel: the “Traube” in Tonbach is not just a luxury hotel and delectable gourmet restaurant, it is also a pioneer in the use of green energy. Since the beginning of this year it has had the use of a modular cogeneration plant that supplies the entire facility with heat and electricity.

What started over 220 years ago as a small inn in a hidden-away Black Forest valley is now one of the leading establishments in the German luxury hotel and restaurant trade. Today in the hands of ninth-generation patron, Heiner Finkbeiner, the five-star establishment’s “Schwarzwaldstube” restaurant is overseen by master chef Harald Wohlfahrt whose work has stood as the undisputed benchmark of German culinary excellence for over 30 years. He is the only chef in the country to have been given top rating by every restaurant guide since 1992.

Apart from the peacefulness, the magical setting, the comprehensive spa and health facilities and the circumspection of the hotel staff, it is the presence and permanence of the chef that the guests value above all. Instead of appearing on TV shows and in front of cameras, he prefers to be surrounded by saucepans, stoves and his cooking staff.

To supplement the gastronomical choices of the three hotel restaurants, guests can enjoy active pursuits such as guided hikes and a wide range of sports, or cultural events such as concerts, fashion shows, cooking courses or wine seminars. Relaxation and recuperation are offered by the hotel’s own recently enlarged health spa facility complete with swimming pool. But none of that is unusual in a five-star establishment. The latest attraction, on the other hand, is definitely rare and unexpected in a luxury hotel. Every Tuesday at five o’clock in the afternoon, there is a guided tour of the modular heat and power plant installed last year. “It is an extremely popular option,” beams Heiner Finkbeiner, who always takes the opportunity to show the guests around the energy center himself whenever he can.

A mecca for gourmets and an eldorado for friends of the environment: the Hotel Traube Tonbach in Germany’s Black Forest.



“With this installation our aim is to produce our energy more cheaply while conserving the Earth’s natural resources at the same time.” Hotel owner and recipient of the Bundesverdienstkreuz for services to the hotel trade, Heiner Finkbeiner is convinced of the credentials of his cogeneration plant.

High energy demand all year round

With a view to the rising energy prices, in 2008 the Finkbeiner family started to look for a more economical and, at the same time, more environmentally friendly alternative for supplying the hotel complex with electricity and heat. “With the new installation our aim is to produce our energy more cheaply while conserving the Earth’s natural resources at the same time. We have learned from the rampant forest dieback in the Black Forest and recognized the great responsibility we have,” was the hotelier’s explanation of the thinking behind the investment. The community of Baiersbronn, to which Tonbach belongs, supported the ambitious project with a particular view to reducing the local emission levels.

The consultations between management, the Finkbeiner family proprietors and the technical consultants Liepelt of Baiersbronn came to the conclusion that a gas-fueled modular CHP plant would provide the desired outcomes for the 25,000-square-meter hotel facility. The swimming pool and health spa require large quantities of hot water even in the summer. That allows for good utilization of the heat output. There were also two other requirements that had to be met: the CHP module was to be very quiet in operation, so that the guests were totally unaware of any engine noise. And it was to be installed in a new basement room without disrupting normal hotel service in the autumn of 2009.

After the consulting engineers had drawn up the concept, plans, drawings and the specifications document, the hotel owners decided to purchase two engine-based combined heat and power modules made by MTU Onsite Energy. Together they generate 434 kilowatts of electrical energy and 670 kilowatts of heat with a flow temperature of 90 degrees and a return temperature of 70 degrees. The twin-module solution enables demand-based control and redundant backup. So servicing can be carried out without shutting down the entire energy plant, for instance. The two modules were manufactured, delivered and erected by MTU Onsite Energy GmbH.



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Three quarters of heat requirements covered

The extensive building work began in August 2009. A separate access to the excavation site for the new basement that was suitable for an HGV had to be built. "The logistical and organizational challenges were enormous," recounts Jan Kappler, general manager of the Hotel Traube in Tonbach, "because all of the work was done while the hotel was open for business." Despite the time limits imposed for the sake of the hotel guests – building work took place from 10 a.m. to midday and from 2 p.m. to 5 p.m. – the construction work was finished inside three months. From November to December 2009, the technicians devoted their time to fine-tuning the system. It has now been in continuous service since the start of 2010. And it is expected to produce 2.2 million kilowatt-hours of electricity and roughly 3.4 million kilowatt-hours of thermal energy a year. That equates to around half of the hotel's electricity requirements and covers about 73 percent of its annual heat demand. The two 12-cylinder CHP units achieve an overall efficiency rate of almost 92% and are designed for six years operation before the first major overhaul falls due. To keep them working perfectly during this period, MTU Onsite Energy carries out regular service and maintenance work.

Silent power and heat

As the installation is housed in a specially built underground generator room in the immediate vicinity of the hotel suites, the two modules are each enclosed in noise and vibration-insulating capsules. Inside the generator room with the doors closed, the noise levels when the modules are operating is roughly 65 decibels. That is about the same as a normal conversation. In addition, extensive exhaust silencing systems ensure that outside the soundproofed room only the whisper of 30 decibels can be heard. On the balconies of the adjoining hotel suites, the guests are entirely unaware that three meters below them electricity and heat are being generated – all they hear is the wind in the trees and the sound of the birds.

- 1 Harald Wohlfahrt, head chef at the Schwarzwaldstube restaurant in the Hotel Traube Tonbach, has earned the highest acclaim from every restaurant guide for nearly 20 years.
- 2-4 Creative and artistic: Harald Wohlfahrt's dishes are among the best in Europe.



- 5 Appetite for energy: the hotel's health spa demands heat all year round...
- 6 ...from the modular heat and power plant supplied by MTU Onsite Energy.

870 tonnes less carbon dioxide

The hotel owners calculate that will save them 200,000 euro a year and reduce their annual carbon dioxide output by about 870 tonnes. Set against the investment cost of roughly 700,000 euro, that means that Heiner Finkbeiner and Jan Kappler can expect the plant to pay for itself in about three and a half years.

CHP plant of the month

Not exactly a stranger to awards, the luxury establishment has now earned itself yet another. But rather than stars for hotel or culinary standards, the richly heritaged house has been honored for an achievement outside of its usual sphere: the magazine *Energie&Management* named the hotel's new energy system "CHP Plant of the Month" in July 2010.

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At a glance

Location: Hotel Traube Tonbach, Baiersbronn | **Operator:** Hotel Traube Tonbach | **Concept and installation:** Liepelt Ingenieurbüro für Haustechnik, Baiersbronn | **Special features:** supply of electricity and heat to hotel/restaurant complex including extensive health spa facility with swimming pool; high-tech exhaust silencer system | **Plant:** two Type GC 232 N5 CHP modules each producing 217 kW electrical output and 335 kW thermal output supplied by MTU Onsite Energy, Augsburg | **Efficiency:** expected annual saving by the hotel: approx. 200,000 euro; amortization period 3.5 years | **Environmental credentials:** CO₂ reduction 870 t/a at 5,000 hours of duty per year, specific CO₂ emission from CHP electricity generation 202 g/kWh (GuD benchmark 365 g/kWh electrical)