CONTINENTAL AUTOMOTIVE SRL
Automotive
Combined Heat and Power (CHP)

CHP eliminates damaging production outages

A Combined Heat and Power (CHP) generator and absorption chillers from Centrica Business Solutions drives production machinery, ensures uninterrupted operation, provides heating and cooling and reduces carbon emissions by 14%.

Production resilience for manufacturing facility

With about 240.000 employees in 59 countries, German manufacturer, Continental, is one of the top five automotive suppliers worldwide. In Romania, it has a number of automotive research & development engineering and manufacturing centres, whose output includes electronics, tyres, transmission belts, air conditioning lines and air induction systems (rubber).

At Continental Automotive Romania, weekly power outages on the national power grid, outside of Continental's control, were stopping the production of high-quality automotive parts, wasting time, money and materials. Even a millisecond break in supply could bring down production lines for up to an hour and could result in some manufactured parts having to be scrapped, so it was essential that a way to mitigate that impact was implemented.

Continental needed to ensure production resilience with a sustainable solution that would deliver a reliable and continuous power supply. With electricity prices on the increase, it also wanted a solution that would reduce its reliance on national power supplies and enable it to compensate for the cost increase.

Uniterrupted power and efficiency gains

Centrica Business Solutions designed, implemented and provides ongoing maintenance via a 10-year Operation & Maintenance Agreement for a Combined Heat and Power (CHP) system which delivers electricity for the production machinery and generates heat. Connected to two absorption chillers, it also provides cold water.

Head of Plant Facility Management and Special Projects, Petru Demian explains: "We needed a supplier that would be proactive and was willing to help develop the solution. We also wanted a technical solution that would fit into the automotive scenario and we took into account cost and maintenance. Centrica Business Solutions met all these requirements."

If power fails, even for milliseconds, a unique switchgear system automatically flips to protective "island mode". This ensures that the supply to vital machines is seamlessly uninterrupted and production is not affected. When power is re-established, it automatically switches back to mains electricity.

14%
Reduction in carbon emissions

ZERO
OUTAGES
Eliminated production outages

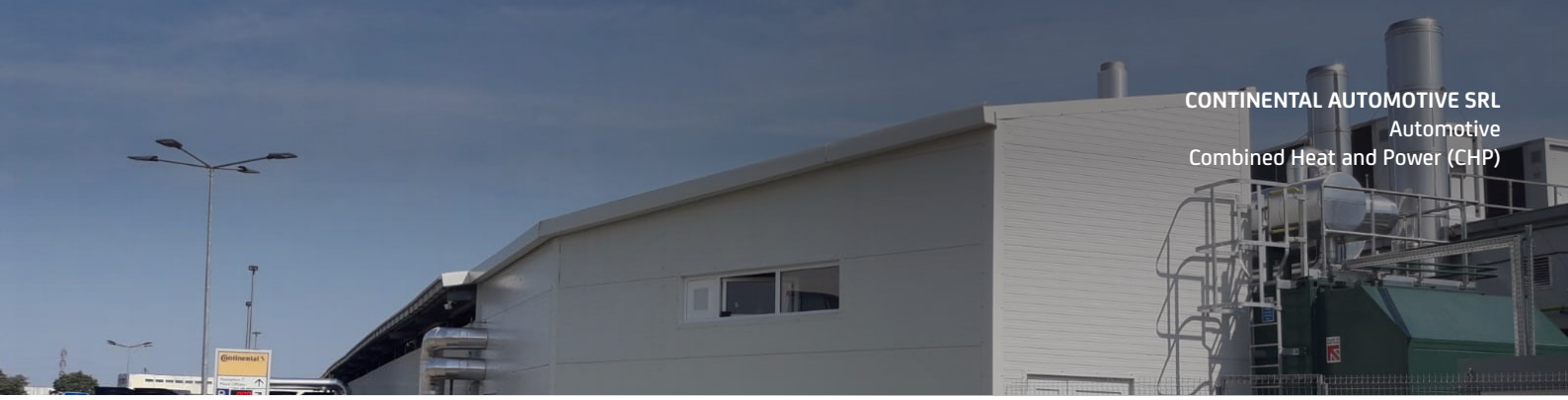
> "When we have a power outage, the system switches to protective "island mode" then back to normal mode. Everything is automatic. I get a report on power interruptions that have happened but, at the time of the outage, the switchover is completely transparent and that is exactly what is needed."

Dr. Petru Demian, Head of Plant Facility Management and Special Projects, Continental Automotive Romania

Why Centrica Business Solutions?

- Centrica Business Solutions' cogeneration systems allow energy costs to be reduced by up to 40% compared to traditional sources.
- A highly efficient technology, by using waste heat, CHP plants can reach efficiency ratings in excess of 80%.
- The trigeneration system from Centrica Business Solutions has eliminated any effect on production, saving both time, manpower and money.

centrica
Business Solutions



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Technical overview

This complex trigeneration solution features an E-1560 kWe CHP generator, designed and delivered by Centrica Business Solutions UK. The island mode switching equipment and two absorption chillers, four dry cooling units and one 1700kW plate heat exchanger, along with adequate pumps, electrical systems and control and command units, were designed by a designer team from Timişoara. All related construction work and implementation was done by local contractors approved by Continental Automotive while the permits and documentation required by Romanian authorities were handled by the Centrica Business Solutions Romania SRL team. Heat is generated as a by-product and, with the addition of absorption chillers, cold water can also be produced. Typical CHP fuel efficiency is 80 to 90% and energy cost savings can be up to 40%.

Eliminated outages and solidified resilience

Power outages have ceased to affect Continental's production lines. "On average there is one power outage a week. These can be just milliseconds, but they are still enough to stop vital equipment," says Mr. Demian. "They used to stop production and we would have to restart many programs on the machines. We also had to empty the line to check the product because we could not be sure if processes were finalised when the outage happened, and some would have to be scrapped. The result was that production could be down for 30 minutes to one hour." Now, there is no visible effect on production, saving both time, manpower and money.

The power generated to run vital machinery frees the factory from total reliance on national supplies, enabling it to compensate for increasing electricity charges while reducing carbon emissions by 14%.

Trigeneration provides heat for the factory in winter and in summer, when the temperature can reach 40°C, it is used in conjunction with the absorption chillers to provide cold water for air-conditioning and machine cooling. When the demand for chilled water is high all CHP heat is used in the production of cool water. Standby electric chillers stabilise the water to 5.5°C and in case temperatures rise to 6°C the CHP and auxiliaries take over again. Continental Automotive is now considering introducing more Centrica Business Solutions CHP generators.

> "We must have a stable system. With production it is important not to have any breakdown or interruption to the normal work process. Interruption means scrap, people lose time and there is a quality risk with unfinished processes, so it is very important that the machines function continuously. That is what the Centrica solution ensures."
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> **Dr. Petru Demian, Plant Facility Management & Special Projects, Continental Automotive Romania**

> "Our new holistic energy concept allows us to operate more environmentally friendly by reducing CO_2 emissions and by generating less waste. Additionally, it increases our efficiency and stabilizes our production as power outages no longer impact us. Another important step to maintain our top position as a highly performant but also sustainable automotive supplier in Romania."
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> **Dr. Ralf Luchs, Plant Manager, Continental Automotive Romania**