PRESS RELEASE

A solution for the energy transition! – world's first power-to-gas plant in a residential complex opened in Augsburg

The world's first decentralised power-to-gas plant in an existing residential complex, with carbon cycle and an unmatched efficiency of more than 87%, has been opened by the Mayor of Augsburg, Dr Kurt Gribl. The plant, which has no equal, proves that this is currently the only economically and socially acceptable way to reduce the climate killer carbon dioxide by around 67% by the year 2030, as proposed by the Federal Government's new climate protection law. Only using CHP plants, etc. is not enough.

Stadtwerke Augsburg (swa), Wohnbaugruppe Augsburg (WBG) and the Rostock company EXYTRON have jointly implemented a lighthouse project. A photovoltaic system has been installed on the roof of a recently (according to KfW 100) renovated block of flats from 1974, with almost 5,400 square meters of living space. The green electricity is first consumed directly by the tenants, and surplus electricity is used to produce hydrogen with an electrolyser. This is immediately converted into synthetic, renewable natural gas, with carbon dioxide, and can easily be stored in tanks on site. When required, heat and power is generated for the tenants from this natural gas, using a normal combined heat and power plant and condensing boilers. By storing the renewable energy current the SmartEnergyTechnology overcomes one of the great challenges of Energy transition.

Closed-loop circuit - what makes it so efficient
The waste heat from the electrolysis and methanation is also used to heat the house. The CO_2 released from the combustion in the combined heat and power plant and the condensing boilers is constantly reused as a recyclable material to produce synthetic natural gas from hydrogen. The SmartEnergyTechnology/ ZeroEmissionTechnology of EXYTRON GmbH can reduce emissions of carbon dioxide, nitrogen oxide and airborne particles by up to 100 per cent and, for the first time, prevent a methane slip completely.

Efficiency of more than 87%
The result of preferential direct use of electricity from the PV system and an intelligent, anticipatory energy management system to control the production, storage and consumption of electricity and heat in the building, is an unprecedented degree of efficiency of more than 87 per cent of the self-generated energy. This highly efficient effect cycle, patented by EXYTRON, significantly reduces the CO_2 footprint of the

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old, renovated building block to below a passive house standard plus that has never before been reached by existing buildings.

For this the SmartEnergyTechnology was awarded the German Gas Industry Innovation Prize 2018 in the category of "Efficient Energy Concepts", as well as the Smarter-World-Award of the WEKA publishing house as "Product of the Year 2018" in the category "Smart Energy". "From our point of view power-to-gas is the only technology that currently has the capacity to store excess power from the volatile production of photovoltaic and wind power plants, efficiently and on a large scale," says Klaus Schirmer, EXYTRON Sales Manager. He continues: "The decentralised use of power-to-gas technology with methanation guarantees economic application through a sufficient efficiency of heat and power. An emission-free energy supply can greatly advance the urgently needed decarbonisation by recirculating and reusing the carbon dioxide in the circuit."

Simple to install and stable energy costs for tenants
Another not insignificant advantage of EXYTRON's power-to-gas plant: no great cost or effort is required to install it in existing residential buildings. In addition, rents and energy costs remain stable for the tenants of the 70 homes in Augsburg, despite the energetic renovation and the new, sustainable energy supply. This particular, socially acceptable conversion of older housing to climate-friendly energy supply systems is why the Federal Environmental Agency is providing support for the project with the research program TRAFIS.

Other current activities
At the same time as the Augsburg project, EXYTRON is carrying out a number of other projects in Germany and abroad, which implement this decentralised power-to-gas technology commercially in existing buildings, new buildings, listed buildings etc. More information about the projects at: https://exytron.online/en/

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EXYTRON GmbH

EXYTRON GmbH has developed a revolutionary approach to the use and storage of electricity from renewable energies: the EXYTRON SmartEnergyTechnology/ZeroEmissionTechnology. This innovative and worldwide patented power-to-gas plant/power-to-X plant makes an economic, autonomous and decentralised energy supply, without the emission of pollutants such as CO_2, nitrogen oxides or airborne particles, possible for the first time. https://exytron.online/en/

SmartEnergyTechnology

The SmartEnergyTechnology operates with a particularly efficient circulatory system: the waste heat from electrolysis and methanation is used as heat. The CO_2 released during the combustion in the CHP plant is collected and constantly reused as a recyclable material to produce synthetic natural gas from hydrogen. In addition, no nitrogen oxides and no airborne particles are produced during the combustion of synthetic natural gas. There is **no emission of CO_2**, nitrogen oxides or other substances that are harmful to the environment, in the entire system. This means the **climate protection standards envisaged for 2030 or 2050** can be achieved **today**. More information here.

The world's first decentralised power-to-gas plant in an existing building has opened. from left to right: Alfred Müllner (Managing director swa), Dr Mark Dominik Hoppe (Managing director WBG), Dr Kurt Gribl (Lord Mayor of Augsburg), Dr Albrecht Meier (Project manager EXYTRON GmbH) ©EXYTRON

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EXYTRON's power-to-gas plant in the basement of the building Marconistraße / Augsburg. ©EXYTRON

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