

Accelerating Energy Transition



# Green Technology for Historical Buildings

Reduce your  
carbon footprint  
with microturbine





## Energy technology for cultural heritage

The energy transition has led to a growing number of environmentally friendly innovations for buildings. Historic buildings also have the potential for improving the energy efficiency. The problem is that many modern energy technologies are not desirable or even not allowed. Regulations prescribe that the original style and appearance of a historic building must be preserved. For example, during renovation, the application of wall insulation, solar panels, double glazing or floor heating is not allowed, or they are subject to strict restrictions. In many cases a heat pump cannot be used due to the impact that low-temperature systems have on the structure of a building.

## Plug & Play green power plant

EnerTwin is a small-scale heat and power plant combined in one sustainable device. The core of the system is a microturbine that drives a generator. This has great advantages in terms of reliability and lifetime. Low maintenance costs, high efficiency and a significant CO<sub>2</sub> emission reduction are characteristics of the EnerTwin. Because the microturbine operates at a high rpm, the system does not cause any noise disturbance or harmful vibrations in the building like you would encounter with other CHP-systems.

EnerTwin comes fitted on wheels and its installation does not require any structural work: it is delivered plug and play and installation is just as easy as any condensing boiler.

## Very suitable for green gas and biomethane

EnerTwin is suitable for a large number of clean fuels such as green gas, biomethane and also gas mixes with up to 23% hydrogen. If these fuels are not available, it can also run on natural gas. 100% hydrogen, biogas, (bio) LPG, CNG and LNG are also optional. By using renewable fuels, you will generate 100% green electricity. Moreover, this leads to additional CO<sub>2</sub> emission reduction. Green gas is - just like green electricity - easily available from most energy suppliers.



**Biomethane  
Green Gas  
Hydrogen**

## Improve your EPC

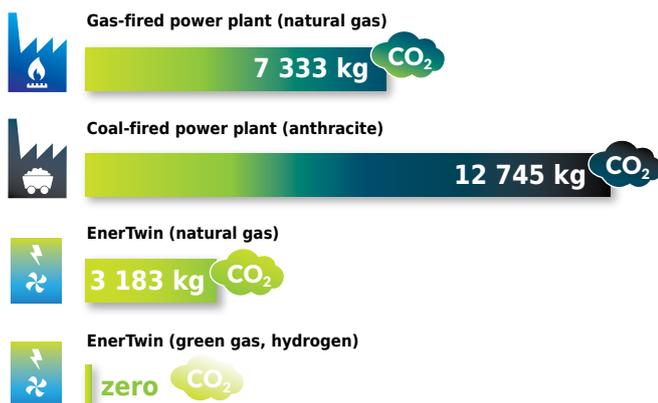
Use of EnerTwin in a building leads to a better EPC rating (Energy Performance Certificate). This is especially important for companies located in historic buildings: improving the EPC shows that (corporate) social responsibility is taken seriously.

EPC is calculated using simulation software. Details may differ per country. The enclosed calculations show examples in the Netherlands, where the EPC ratings of two historic buildings are improved up to two levels by using the EnerTwin.

## CO<sub>2</sub> emission reduction for monuments

It is interesting to become significantly more sustainable with only minor interventions and limited investments. A simple calculation shows that EnerTwin can significantly reduce CO<sub>2</sub> emissions. In contrast to a centralized power plant, there are hardly any heat and transport losses because electricity is locally generated.

CO<sub>2</sub> emissions (when generating 16 000 kWh of electricity):



When generating this same amount of electricity in 5000 running hours, an EnerTwin can reduce CO<sub>2</sub> emissions by more than 9.5 tons compared to a coal-fired power plant! These reductions are even further improved when using green gas or biomethane.

## Examples of EPC rating calculation\*

Examples of calculations of the EPC, where an EnerTwin is installed and the EPC rating is improved by 1 or 2 levels:

### present situation office

*balanced ventilation without heat recovery, non-condensing boiler, compression cooling, construction year before 1965*

### scenario microturbine

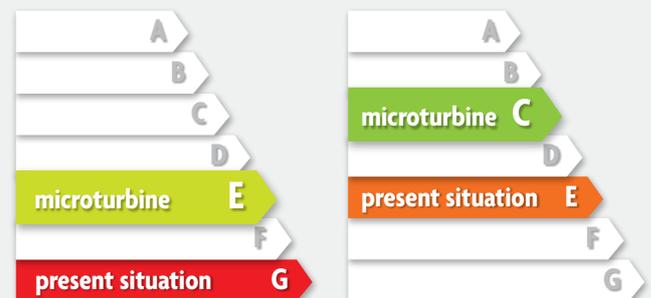
*base load heating by EnerTwin, non-condensing boiler for peak loads, construction year before 1965*

### Space 500 m<sup>2</sup>

From EL 2,01 (G) to 1,59 (E)

### Space 2500 m<sup>2</sup>

From EL 1,57 (E) to 1,29 (C)



\* Example of calculation where EPA-U software by Dutch company VABI is used. VABI is specialised in calculation software for construction and installation sector.



## Service and warranty

EnerTwin was developed by Micro Turbine Technology (MTT) in collaboration with various research institutes, industrial suppliers, companies from energy and installation sector. This collaboration resulted in a reliable product that meets all modern requirements for decentralized generation of heat and electricity. EnerTwin comes with a standard 2-year warranty, extendable to 4 years when under a full-service contract. In addition to product delivery, MTT also provides training for installation and maintenance to installers. In cooperation with certified installers, we also offer various maintenance concepts, including second-line support and 24/7 remote monitoring.



Available at

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