

## **SEDIGAS Position paper on ErP Directive & LOT 6**

### **- GEHP Technology**

The operation of a Gas Engine driven Heat Pump (GEHP) is close to electric Heat Pump (EHP). GEHP uses a natural gas or LPG-powered internal combustion engine to drive the compressor in a vapour-compression refrigeration cycle and it can be either an air/water or air/air system.

The main characteristic is that these machines operate in cooling mode delivering an additional residual heat flow highly valuable (in a similar manner as a cogeneration engine). In most of applications such a heat flow actively contributes to primary energy savings (fuel saved in boilers for domestic hot water production or any other heat application).

### **- GEHP European market**

The GEHP technology has been introduced in the European market since 2002 and now there are around 6.000 units installed in Europe.

Every year 600-700 units are imported in Europe, so these products have not a substantial market in Europe yet.

Therefore, it is a market in notable expansion in countries using primarily gas fuels. There is also strong interest from gas utilities. The main reason is to dispose a high efficiency and low CO<sub>2</sub> emissions technology with high potential to contribute to the global EU policy on sustainability, 20-20-20 objectives and related regulations.

The opportunity of this contribution is special in the Mediterranean countries with heating and cooling needs at the same time.

### **- GEHP European Standards CEN/TC299 WG3**

In CEN there are experts working in TC 299 / WG 3 "Gas fired sorption appliances, indirect fired sorption appliances, gas-fired endothermic engine gas pump and domestic gas-fired washing and drying appliances". The aim of the working group is to define standards and testing protocols for the gas-fired endothermic engine heat pumps (GEHP) in order to find the appropriate integration and harmonization of this technology with the directives 2009/28/EC, on the promotion of the use of energy from renewable sources and 2009/125/EU, establishing a framework for the setting of eco design requirements for energy-related products, and their corresponding mandates, as GEHP are include in their scopes.

At present, other technologies such as Absorption/Adsorption Heat pumps (GAHP) and Electrical Heat Pumps (EHP) are provided with standards: the prEN 12309-2 defines the testing conditions for GAHP, the EN 14511 and EN 14825 define testing protocols for EHP, but GEHP technology is not provided with such documents yet and requires specific standard.

Thus, there is a need for a specific standard for this technology.

In this standard they are going to clarify the best way to consider the specificity of this technology and marking equivalences or distances with the GAHP or EHP standards.

According with the previous considerations we would like to express the following REQUESTS:

### **- Requests for LOT6**

- a) Consider the specificity of this technology, in relation with EHP and GAHP more known in the European market, by following the prescriptions of the upcoming standards in preparation.
- b) NO<sub>x</sub> emission values -based on LOT 6 indications- to be measured on energy output for GEHP technology.

This is supported by the following reasons:

- It is pending the completion of CEN TC 299 – WG3 work in order to define a specific standard for the GEHP.
- Performance and emission values calculation methods as defined to date are not of right applicability for the GEHP technology:
  1. SEER calculation - based on LOT 6 indications to be harmonized with the prescriptions of standards in preparation.
  2. NOX emission values – based on LOT 6 indications – are measured on energy input. However, when considering GEHP technology, for a given thermal output (refrigeration energy delivered to the building), thermal energy input is lower than in the case of other technologies. In addition the regime of the engine during the real performance of GEHP is quite variable in comparison with cogeneration engines. This, again, distorts the NOx emissions level in our view. We understand that NOx emissions level should refer to values per unit of thermal output rather than per unit of thermal input.
- Consideration of the current small dimension of the market. Theoretically, products in the scope of the Mandate must have a substantial market in Europe (what is not the case for GEHP technology yet) and the spirit of the ErP Directive process is to ban gradually a small percentage of products.

By applying the proposed NOX emission values for GEHP products (240mg/kWh referred to thermal input), this technology risks to be banned in the future in the European market. However, this seems to be against the spirit of:

- Directive 2009/125/EC, establishing a framework for the setting of eco design requirements for energy-related products, Art. 15.5.
- Directive 2009/28/EC, on the promotion of the use of energy from renewable sources, particularly on the promotion of the use of heat pump technology.
- Directive 2012/27/EU, on energy efficiency.