



Innovative hybrid buses

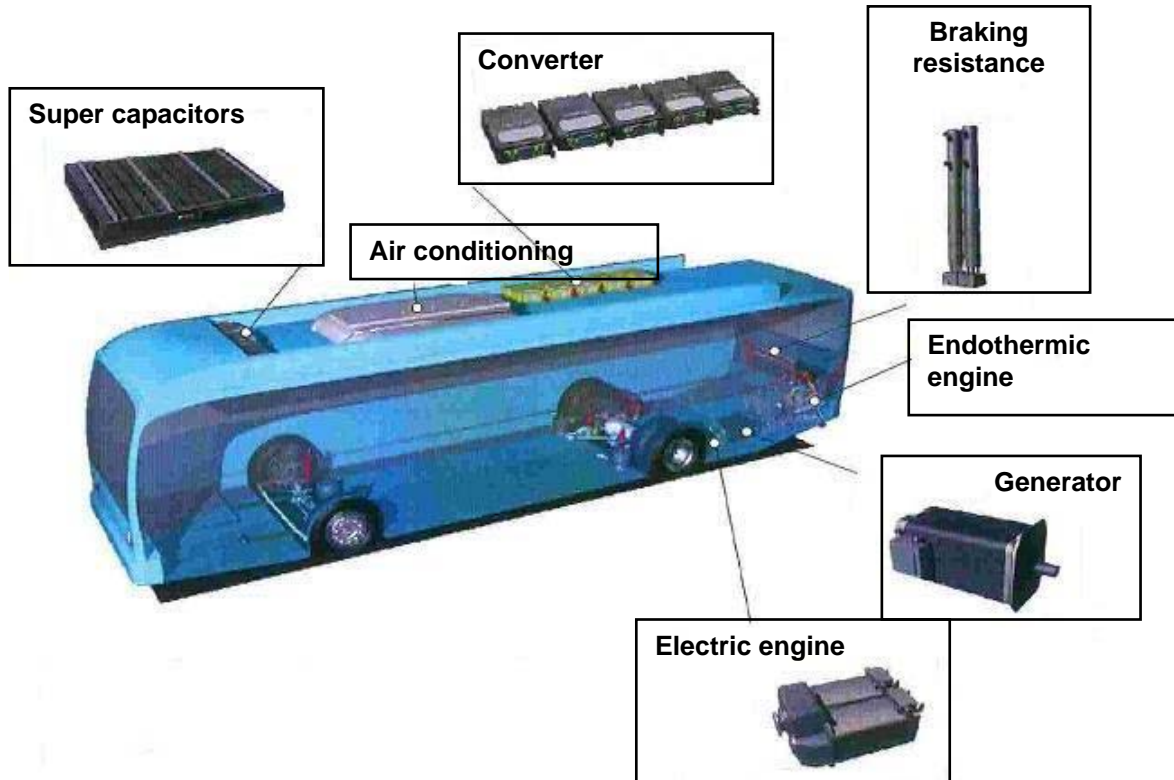
The MIMOSA activity started with a feasibility study on the state of the art and perspectives of low emission buses in order to identify the best economical/technical solution for innovative clean vehicles development in Bologna scenario. The results indicated buses with hybrid engines as the best solution and they were the input for the technical specification for a call for tender for the supply of hybrid vehicles with innovative characteristics.



The selected buses are equipped with innovative super capacitors that replace conventional electric batteries. Compared to traditional hybrid vehicles, they offer a considerable reduction in fuel consumption through lower exhausted gas emissions. Maintenance costs are also reduced, as they do not need the deployment of battery charging stations at the bus depots, nor the periodical substitution of the conventional costly batteries, known to wear out quickly.

The two Van Hool vehicles are equipped with an electric generator powered by an endothermic diesel engine. The generated energy is stored by the super capacitors and released by the electric drive engine during the acceleration phases, to support the endothermic diesel engine, thus reducing fuel consumption and improving the performance.

During the braking and decelerating phases the energy produced by the generator is driven to the super capacitors to be stored. In other words, the super capacitors work like a type of super condenser, which can very rapidly store and give back energy in great quantities.



Layout of components on the bus

The hybrid buses procured by TPER can take 24 seated passengers and 56 standing. It also has a reserved area for one wheelchair and a buggy, and a manually folding access platform for disabled passengers (located at the central door).

From April 2012 the 2 hybrid buses are operating in Bologna urban area: from Monday to Friday they cover varied urban lines to test the performances on different routes.

The service data collected and the feedback from drivers are very positive:

- the vehicles demonstrated reliability during the service
- fuel consumption are good: about 2,5 km/l with the air conditioning system working (both for drivers and passengers compartments)
- the vehicles have a noiseless engine appreciated from drivers and passengers