

GENERAL ENERGY SYSTEMS



TNO innovation
for life

Recently, individual energy systems found in ships and structures are being combined to ensure higher efficiency, less use of resources and to limit emissions. Systems become increasingly complex, constantly updating concepts as, and when, they are developed. Designers have to achieve the optimal balance between investment cost, reliability, maintenance, fuel consumption, noise level and emissions. TNO has developed a tool that will help industry to design the optimal power system using any conceivable component. This tool is known as GES (General Energy Systems).

AN ESSENTIAL TOOL FOR DESIGNERS AND MANUFACTURERS

Initially based on a unique library that was compiled to design the energy and propulsion systems of the Royal Netherlands Navy All-Electric Ship, GES has been extended in recent years. It now includes model components of many other TNO projects, enabling designers to integrate any system component into their design and to compare the performance of alternative preliminary designs. GES may be used by the maritime industry, offshore, car manufacturers and any industry looking for a way to integrate their energy systems for more energy efficiency: optimising investment and life cycle costs, and limiting emissions. In short, GES allows designers to build, modify and fully optimise any power system on the basis of the current technology. The graphic interface of GES allows easy clustering, copying, positioning and the removal of

components, in order to facilitate the build of extremely large energy systems which describe the operational profile of, for example, ships, vehicles or any other power trains.

The main advantage of GES is that it saves time, man hours and cost. GES provides an immediate, intuitive insight into all relevant factors involved. GES is all about open architecture, its libraries are constantly being updated as new concepts are developed and it allows manufacturers to incorporate their own system components. It is an essential tool for future design.

WHAT TNO CAN DO FOR YOU

At TNO – an independent research organisation – over 4,000 experts work daily to support thousands of customers worldwide in domains ranging from Defence and Public Safety to Automotive, from IT to Human Factors. Based on deep knowledge and expertise built up in decades of projects for Navies and offshore companies worldwide, TNO helps the maritime industry to develop and apply innovative products, use sustainable resources and optimise processes and production chains.

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