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**Abu Dhabi Mar acquired the skaramanga shipyardThe Hellenic Shipyard
Skaramanga found its new owner in the face of the international corporation**

Abu Dhabi Mar, after the approval of the General Staff of National Defence and the Ministerial Committee responsible for the privatization issues. For many years the shipyard was ownership of the German company ThyssenKrupp Marine Systems, which in recent years was having financial difficulties. The transfer of 74.1% of the shares must be ratified by the National Assembly, so that by the end of September the contract to come into force. 24.9% will remain owned by ThyssenKrupp Marine Systems.

His great pleasure from the transfer of the shipyard expressed the Minister of National Defence Eleftherios Venizelos. After the announcement of the decision, he said that the contract with Abu Dhabi Mar has solved one issue that had been troubling the Greek government for a period of 10 years. The problem of which speaks the Minister Venizelos is related to the previous management of Skaramanga. It had a purchase for the construction of **four Navy submarines Type 214**, as well as for the repair of submarine Papanikolis. When placing the order the state paid to ThyssenKrupp Marine Systems two billion euros out of the total four billion euros agreed. Since the outbreak of the financial problems the company ThyssenKrupp Marine Systems becomes a debtor to the state, without submitting any one of four submarines Type 214. The "repaired" naval submarine "Papanikolis" appears to have a technical defect and when starting it dangerously begins to tilt to one side.

After the unfortunate cooperation with ThyssenKrupp Marine Systems the Ministry hopes that things will start going better with the new owners of Skaramanga. Venizelos said that currently an order has been placed for the construction of two submarines of type 214, as well as for the upgrading of two other old submarines Type 209. Abu Dhabi Mar has committed to meeting the orders, which will cost only an additional 175 thousand euros to the country except for the other two billion euros lost in ThyssenKrupp Marine Systems.

Eleftherios Venizelos said that the new contract will ensure the proper relations and the transparency in the financial transactions so that in the future an effective and beneficial

cooperation to be build. He assured that employees will retain their jobs and there will be no redundancies. One thousand two hundred shipyard workers will retain their jobs with the new employer - a condition included in the contract for transfer of ownership.

A little earlier before announcing the transfer of Skaramanga, in the beginning of this month it became clear that the European Commission has cleared under the EU Merger Regulation the alliance of Abu Dhabi Mar and ThyssenKrupp Marine Systems. After examining the proposal, the Commission issued a ruling that the transaction would not significantly impede effective competition in the European Economic Area and allowed the merger of the two companies. In the official statement is said that Abu Dhabi Mar has no presence in Germany, Greece and Sweden, where ThyssenKrupp Marine Systems already operates, so there is no risk of distortion of the market competition in these countries.

http://en.wikipedia.org/wiki/Fuel_cell

Boats

The world's first Fuel Cell Boat [HYDRA](#) used an AFC system with 6.5 kW net output.

[[edit](#)] Submarines

The [Type 212 submarines](#) of the German and Italian navies use fuel cells to remain submerged for weeks without the need to surface.





Propulsion Technology II: Clean Energy for Tomorrow's Ships

Clean Energy for Tomorrow's Ships

Propulsion Technology II:

With headings like “GL takes fuel cell initiative” and “Small beginnings for a propulsion revolution”, industry journals recently reported on an innovative step also of significance for shipping. The fuel cell, as the most attractive form of alternative propulsion for the future, is now more than just a vision. According to the estimation of Germanischer Lloyd, fuel cell units in the megawatt range will become available within the decade.

GL guidelines for the application of this technology on ships will be presented before the end of the year.

Reducing the Costs

The fuel cell (FC) technology has been used in the space industry since the 1950s. It was developed for a large range of applications: from automobiles in the kW power range to stationary power plants in the MW power range. Pilot projects currently in progress are expected to pave the way for a wide use of this technology at the end of the decade. Today the focus of development is concentrating on cost reduction to

bring the applications to market.

Germanischer Lloyd has been involved in projects related to alternative ship fuels, such as hydrogen, since the end of the eighties. These activities also included the concept for the fuel cell propulsion system of a large-scale hydrogen tanker. For the use of fuel cell systems on board ship, GL is currently developing guidelines which will enable the shipowners and yards to identify the safety requirements needed in their projects. A draft of these guidelines is due for presentation in the course of 2001.

Applications of fuel cells on board ships are not very common at present. As Dr. G. Würsig, a fuel cell expert at GL, says: "According to our experience, the technical concepts known from land-based installations and vehicles must be modified for ship applications."

Commercial Applications

The first real commercial application is the use of fuel cells in submarines, as developed by HDW for German Navy U-212 class submarines. In this field, GL has been working together with HDW and Siemens for a long time. In the year 2000, GL also certified the excursion vessel HYDRA as the first non-military boat with fuel cell propulsion. Other commercial applications in the shipping industry include the electric power supply of sailing boats, the power supply for the hotel load of passenger ships, and also the power supply of ferries and other vessels operating in environmentally sensitive areas.

Services Provided by GL

On the basis of the general technical standards and the GL Rules for the Classification and Construction of Ships, GL provides the following services:

- Functional principles of the various fuel cell systems
- Plan approval and classification of fuel cell systems and ship
- System safety assessment including fuel supply, reformer and FC system
- Component certification
- Expert evaluations
- Support during project definition and ship design with respect to special features of the fuel system and its handling, the reformer units and the FC technology.

Benefits for the User:

Environmentally friendly technology, the "exhaust

gas" being merely water

An increase in the ship's overall fuel efficiency,
also when used in combination with conventional
systems such as combustion engines

Possibility of exploiting the waste heat also produced
by FC systems.

Using reformers makes it possible to feed the FC
system with fuels other than hydrogen. First reformers
for diesel oil have already been tested. Five
different types of FC systems are available; these can
be distinguished according to high-, medium- and
low-temperature systems (see article "Keyword: Fuel
Cells" on page 12). Owing to this wide spectrum, the

most suitable technical solution should in each case be discussed in relation to the project at



Fuel cells on board: the excursion vessel "Hydra" conveys its passengers comfortably
and ecologically during trials in the city of Leipzig.

It was certified by GL in the year 2000 as the first civilian water vehicle using this new
technology.