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From: Dr Gerd-Michael Wuersig (GMW)
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Throughout my professional career I had the opportunity to contribute to a number of projects with relevance for shipping. Some projects are named here for reference. More details may be given on request.

As GMW-Consultancy was formed in June 2019 the references below are related to projects which I had the pleasure to contribute on behalf of my employees at the time.

Reference list of selected projects until 2019 with relevant contribution of Dr. Gerd-Michael Wuersig (GMW)

1 PERFECT Ship

Development of a basic design including business case of a new propulsion concept for ships with high power. (comp. youtube; search for "PERFECt Ship LNG DNV GL")

GMW: project idea and set up (together with a. Barrett). Project responsible at DNV GL, overall project coordination. 2014 to 2017

2 Assessment of selected alternative fuels and technologies

DNV GL white paper on alternative fuels. Latest version June 2019.

GMW: Lead editor, main author, coordinator for development of the company position. 2017/2019

3 LNG Ready Service and LNG Ready class sign

The LNG ready Class sign was introduced in 2014 and based on a proposal which has been developed by a colleague who acted as Business Director Container ships at DNV and me as Business Director LNG fuelled ships. It was the first class sign of this type. All major classes followed with own LNG Ready class signs.

The LNG ready service was developed by DNV advisory service. I contributed to the development and marketing. The core is the proposal of technical concepts and the preparation of LNG as fuel business cases. The LNG Ready service was organised as a world wide service with coordination by advisory service in Hoevik and was well received by DNV clients.

The first example for both services was the newbuiding series of 15000 and 18000 TEU container ships by UASC (today HAPAG Lloyd). UASC received the first ship in 2014.

4 IGC-Code review

The International Gas Carrier - Code (IGC-Code) is the mandatory IMO instrument for liquefied gas carriers. Requested by IMO the Society of Gas Tankers and Terminal Operators (SIGTTO) facilitated the revision of the IGC-Code. The IGC-Code was revised between 2008 and 2010 by 9 expert groups. The new code was approved in 2013 by IMO MSC-92 and went into force in July 2016.

On behalf of Germanischer Lloyd I had the pleasure to actively contribute to group no. 5. headed by James Gaughan on behalf of ABS and 6. headed by Peter Justesen on behalf of Lauritzen Kosan.

Group 5 was related "Cargo Containment" (Chap. 4.), "…pressure vessels, piping.." (Chap. 5.), "Materials…" (Chap. 6), "…atmosphere control" (Chap. 9). Group 6 was related to ""Vent systems for cargo containment" (Chap. 8) and "Filling limits for cargo tanks" (Chap. 15).

5 IGF-Code development

The IGF-Code is the mandatory IMO instrument for the use of low flashpoint fuels in shipping. The origin went back to a proposal from Norway in 2004 for a Code to cover LNG as ship fuel. The work resulted in 2009 to an interim guideline for NATURAL GAS-FUELLED ENGINE INSTALLATIONS IN SHIPS (IMO MSC.285(86). This development was followed by the development of the IGF-Code (IMO MSC.391 (95)). The IGF-Code was adopted by IMO MSC in June 2015 and went into force in January 2017. From the beginning the delegations from Norway and Germany took a major role in the development of these regulations. As a consultant to the German administration I had the pleasure to contribute to the development and to coordinate the German mirror group from 2004 until end of 2013.

6 GasPax

Development of basic design for LNG fuelled cruise ships and RoPax ferries. The design is the base for today's Meyer Yard LNG cruise ship designs (Helios Class and others).

My contribution to the project was related to the definition, project management of Germanischer Lloyd part within my group at Germanischer Lloyd and active own technical contributions.

7 e4ships lighthouse project and development projects Pa-X-ell, SchiBZ, RiverCell

These projects are the biggest R&D contribution to the development of Fuel cell Systems for seagoing ships worldwide. The projects resulted in demonstration of fuel cell technology (e.g. on MS Marielle). They are continued with the aim to introduce the technology into shipping. I had the pleasure to contribute from the very early beginning personally and together with my process technology group in Germanischer Lloyd (GL) to the development of fuel cell systems for shipping. I also was the chairman of the steering group and project status council of the e4ships lighthouse from 2009/2019.

8 Conversion of MS „Bit Viking" to LNG as fuel

Conversion of a product tanker to LNG as fuel. First LNG fuelled ship with class GL (2010/2011).

My contribution was related to project acquisition, project management and responsibility for the project coordination at GL.

9 SIGTTO, SGMF, DECHEMA, ISO

Participation in working groups and representation of GL, DNV, DNV GL since the 1990ies until June 2019 for my employees and since then as independent consultant.

10 ZEMSHIP

Development, building and operation of a compressed hydrogen fuelled, fuel cell driven tourist boat for the lake Alster. The boat successfully operated on the in Hamburg between 2008 and 2013.

The certification and approval of the boat and the fuel cell system was done by GL. I was responsible for the project at GL (2005/2009)

11 FCSHIPS

EU network project for the evaluation of the potential of fuel cell systems for marine applications.

GMW: active contribution to project definition, responsible for GL part of the project, heading of work package on safety. 2002/2004

12 Development of GL guidelines for fuel cell systems for ships

First class guideline for fuel cell systems on board of ships (2003). GMW: project coordination, editor.

13 Projects for seaborne liquid hydrogen transport

Different projects including the project for the doctoral work. GMW: 1989/1996;

Comp. overview: Dr. G. Würsig; Seaborn Liquefied Hydrogen Transport Research and Development 1986/today; Congress: DKV-Jahrestagung, 20th November 1998, Würzburg, Germany

14 Introduction of FMEA concept at GL

Introduction and practical application of the Failure Mode and Effect Analysis method in GL.

The process technology group headed by GMW introduced the FMEA systematics for safety analysis in fuel cell projects and the GASPAX project. Today the systematic is DNV GL company standard.

GMW: decision on method, preparation of method for GL, introduction and application in different projects including a project for submarines with fuel cell power supply.