

## **SESSION 1.7 - SUSTAINABLE MARINE TRANSPORTATION**

### **Invited speech - MODERN MARINE TRANSPORTATION SYSTEMS: SAFETY, SECURITY AND ENVIRONMENTAL ASPECTS**

The design of a "large lithium battery" for marine transportation can be conducted at various levels of complexity depending on the severity of the requirements, the standard regulations be followed and the level of safety to be achieved. This speech will provide a description of the "Protone" research and development project focused on optimizing rechargeable lithium batteries for marine applications.

The first part of the speech will provide a brief description of the Protone project (objective, participants, expected results, etc.). It will describe the general criteria adopted in the design of the lithium battery which will be installed, in the first half of 2019, on board of a demonstration vessel.

The second part will focus on a safety problem common to all "large lithium batteries", i.e. the possible propagation of the thermal runaway from a defective (or abused) cell to the surrounding cells and / or to the rest of the battery. This event must be considered potentially catastrophic, especially in the case of large batteries to be installed on board small boats.

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