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The 27th INTERNATIONAL
ELECTRIC VEHICLE
SYMPOSIUM & EXHIBITION.

Barcelona, Spain
17th-20th November 2013

An overview of hybrid, electric, and solar boats market in France



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Presented by

Bernard GUELLARD - President of The French Electric Boats Association

Xavier de MONTGROS - Director ODC Marine

Philippe PALLU DE LA BARRIERE - CEO ALT.EN SA,

Guy WOLFENSBERGER - Director GROVE BOATS SA

Philippe D'OLIVEIRA –Sales & Technical Manager SODETREL



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The French Association for Electric Boats

Created in 1994 - Currently 55 members.

AFBE : multiple objectives

- Promote the conception, construction and use of electric boats.
- Achieve clean transportation and enhance the development of sustainable mobility
- Preserve the ecosystem and ensure clean fluvial yachting
- Innovate to develop an eco-boating

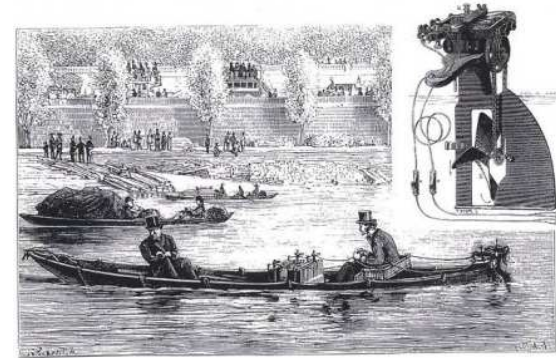
AFBE : concrete actions

- Innovate to develop eco-boating, information events, studies.
- Unify and federate the players in this sector
- Act as representative spokesman with governmental authorities.

www.bateau-electrique.com

Electric boats : a long story !

EUREKA - the first electric boat
built in 1881 by the French chemist
engineer Gustave Trouve !
Normandie ,Queen Mary 2, submarines
are electric powered !



Several market segments identified.
More than 4500 E-boats operating in France

- Spare-time activity business.
- Attractive solution for public transportation
- Beginning of E-boat service applications

Up to now technology is available !
Environmental and economical assets of electricity as
a fuel



An electric boat definition

An electric boat is defined as a boat without emission for at least 50% of his travel time

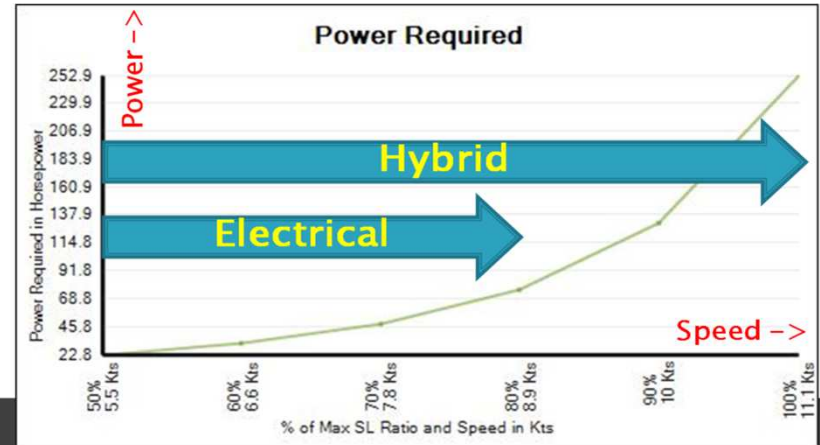
- **Electricity must be identified as the main source of energy to propel the boat (battery, solar panel, hybrid)**
- **Precise definition of the daily uses & needs**
- **Energy production and storage**
- **Diesel electric – Battery pack – Solar panels – Full cells**



Electrical or Hybrid

- ODC Marine has optimized Boats for maritime or closed waters
- Boats are in operations in Sete, Brest, Marseille, Evian, Paris or Corsica
- In robust but light recyclable aluminum,
- With 2500 cycles and safe Lithium Batteries.

Boat speed and power consumption



Electrical:

Simple and no emission 6 hours autonomy.



Hybrid:

High speed, long distance.
Clean where important

ODC Marine - Innovative shipyard has built 40 vessels so far

2009: First time WW lithium batteries propulsion for passengers transport. 50 passengers 11m

2011: Fast electrical catamaran. 54 Passengers 15m

2012: First hybrid passenger boat. 100 Passengers 18m

ODC Marine Offers a range from 12 to 200 passengers Electrical or Hybrid.

Welcome to
www.ODCMarine.com



Zero Emission Water Shuttles



- **An experience of 15 years**
- **Ten boats operating in Paris, Marseille, La Rochelle, Les Sables, Cognac**
- **Two millions passengers / years**
- **Totalize sixty years of daily exploitation**



We use the highest technologies :

- *Hydrodynamic efficiency*
- *Light weight structures*
- *High efficient and lightest energy-propulsion system*
- *Whole Supervision System and Remote Control*

In order to provide:

- *Autonomy: up to 16 hours / day*
- *Reliability : up to 4000 hours / years*
- *Silent: less than 50 dbs inside passengers' cabin*
- *Cost effectiveness*



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www.alternativesenergies.com

Grove Boats - Presentation

"Powered by the Sun"

Swiss engineering company developing solar powered boats for professional use with a proven track record: over 40 units, some in operation for more than 15 years



Grove Boats – Products and services

1. Aquabus: passenger transport 10-100 pax
2. Solar Sea Cleaner: debris cleaner
3. Electric motors: own developments and 3rd party distribution

We also provide consulting services and develop new products for professional boat operators, for the tourism and collective transport industry.

Visit us on www.grove-boats.com



Conclusions

The market needs some actions:

Norme ISO CEI TC16315 - Small craft – Electrical propulsion system

Incentives actions at local, national and EU levels

A wide networking to exchange data

The environmental quality of Eboats is a major asset, upon condition that the expected levels of performance, cost, comfort and safety are reached.

Thanks for your attention

You are welcome to meet us at our stand