

venti35
zero emission ships

The Future is Now

Electrification of
**Diesel-powered
Passenger ships**
for inland waters




BAUMÜLLER



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170 years of experience in the world of navigation.

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System partner for Drive and Automation solutions.

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1 Your Motivation

Electrification allows us to blaze a trail into the future thanks to modern technologies and the search for customized solutions.

- Modern, efficient public transportation on the lake.
- Elimination of Co2 emissions.
- A new concept of sustainable and conscious travel.
- The preservation of the environmental heritage that surrounds you.
- Attention to future generations by creating opportunities and solutions.
- The development of green tourism as a concrete means of supporting local economies.



Retrofitting
MNE Ceresio - 1931



“Adding (a component or accessory) to something that did not have it when manufactured”.

We write history with innovation and technology

SNL Società Navigazione del Lago di Lugano

'SNL has sailed the waters of Lake Lugano for 170 years, and its fleet, is constantly aware of protecting and conserving the lake's ecosystem'.

FOUNDATION - 1848

HQ Lugano - Switzerland

ACTIVITIES Lago di Lugano and Lago Maggiore – Swiss basin

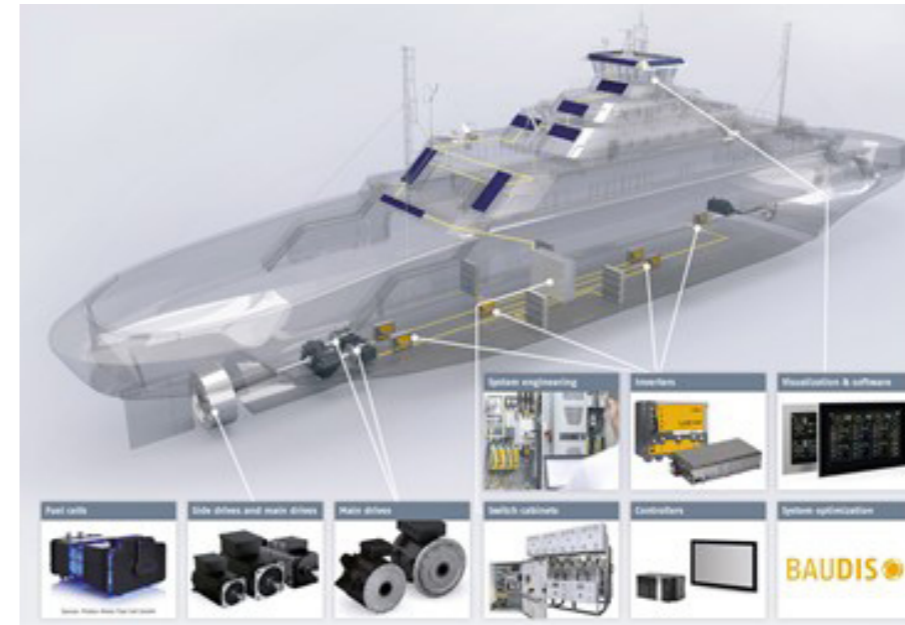
FLEET of 13 ships

MNE CERESIO: First fully electric boat with a capacity exceeding 200 passengers in Switzerland

MISSION

By 2035 we envisage the conversion of all vessels in the fleet from fossil fuel propulsion to electric.





Creating a better future driven by innovative technology

Baumüller

Baumüller is a leading manufacturer of electrical drive and automation systems. Baumüller offers solutions for all main and auxiliary drives in ships and, in addition to decades of experience in shipbuilding, also offers a wide range of services.

FOUNDATION 1930

EMPLOYEES 2,000+

LOCATIONS 40+

HEADQUARTER Nuremberg, Germany

MORE THAN 80 ships and boats successfully electrified

MISSION

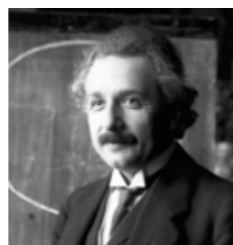
Efficient propulsion systems for ships, boats and vessels with the task of reducing the CO2 footprint and creating a clean future.

4

Venti35 Project

“ It is in crisis that invention, discovery and large strategies are born.

Who ever overcomes crisis, outdoes himself without being overcome.



-Albert Einstein.
Theoretical physicist

The challenge of the future is an important leap for

SNL who are aware of the imminent arrival of electrification and the future of green

mobility, which will enable their objectives in reaching a space of sustainable

mobility. The Venti35 project will highlight a significant role on the lakes across

Switzerland in the fight against climate change.

The objective is to refit the current fleet within a specific timeframe,

which will also include many boats of historical importance.

The current production of Co2 is 2.60 kg for every

litre consumed and there is approximately 780 tonnes of Co2

on Lake Ceresio and 1,340 tonnes including Verbanò. *source TCS

Reducing these emissions is a common objective shared at federal

level, with a target of ZERO emissions by 2050. The data shows us that now

is the time to act. This is why the “20-35 project” reflects and amplifies the

philosophy of action by SNL.



5

On course for Change

“The environment is our most precious resource”

The journey to electrification enables our goals in activating the journey leading to a sustainable future whilst offering a long-term strategy for the environment in which we operate.

Objectives:

- **Zero e-missions = Reduction of CO2 emissions** by replacing fossil fuelled vessels with electric vehicles
- **Reduction of noise pollution**
- **Reduction of water pollution**

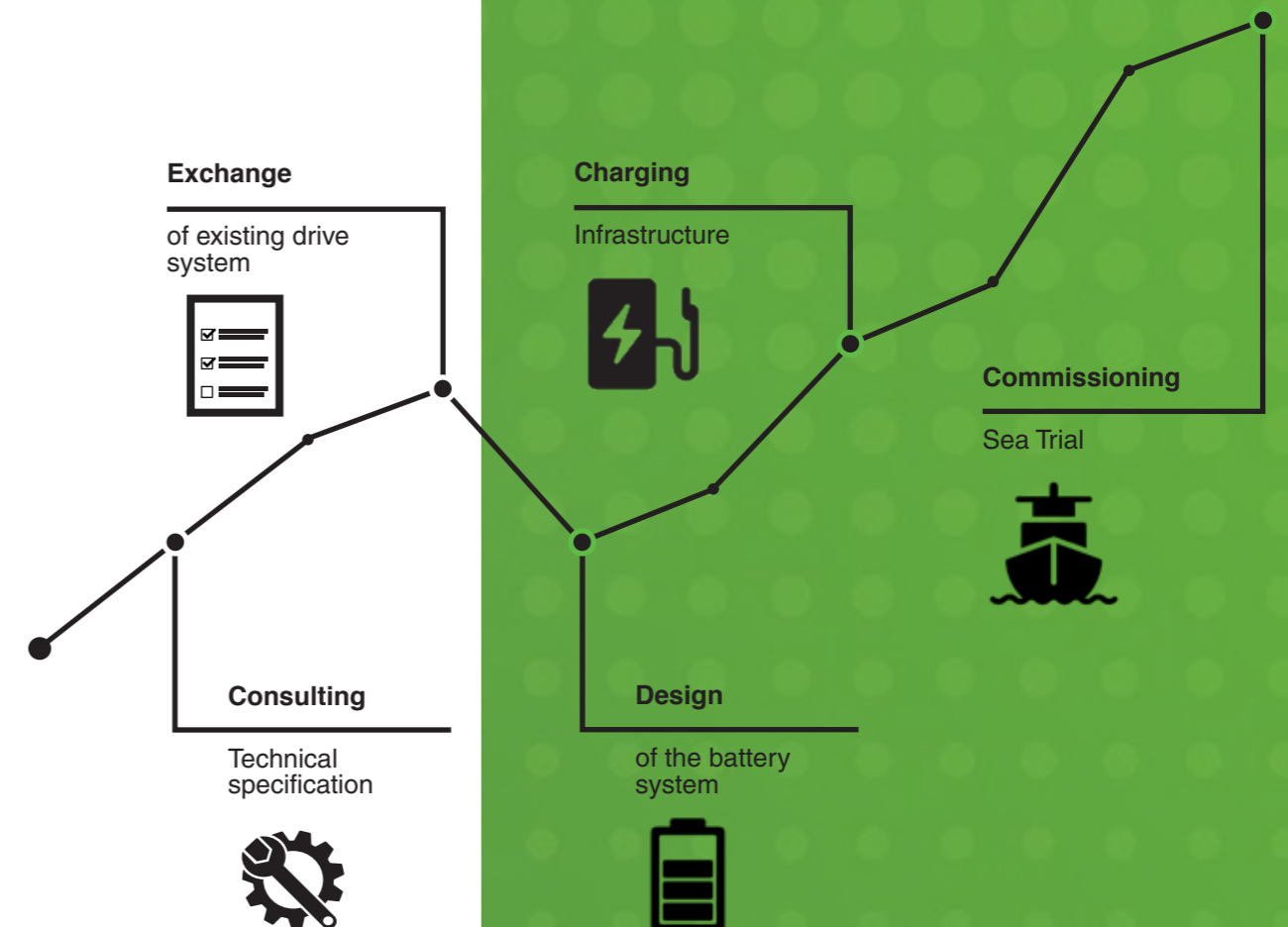
SNL solutions

- **Naval Engineering Solutions**
- **Technical Consulting**
- **Streamlined ordering and available faster than a new order**
- **Predictable transformation of the drive system**
- **Financial Consulting**
- **Creation of sustainable projects**

Baumüller meets your needs

- **Consultancy / Technical specification**
- **Exchange of existing drive systems**
- **Battery redesign**
- **Charging infrastructure**
- **Commissioning / Sea Trial**

5 key steps



Technologically sustainable

Together we have developed a sustainable technology that allows us to preserve our past and at the same time sail us into the future.

The project development of new technologies that offer sustainability.

- **Reduction of operating costs**
- **Creation of a centre of technological competence in sustainable lake mobility**
- **Creation of new professional skills**

The technology and expertise developed offer a contribution to supporting and collaborating with other shipping companies who, following our example, will be able to achieve crucial targets in various sectors:

- **Eduction of commuter traffic = Shifting mobility**
Encouraging drivers (private vehicles) to use water (public transport)
- **Support for electrification of private boats = A provision of charging stations on jetties for private boats**
- **Attracting environmentally aware and eco-friendly tourism**

With the innovation of new technologies by Baumüller, the specific engine parts guarantee a higher efficiency and energy savings.

Baumüller / SNL



With our know-how, we plan, construct and design fully wired control cabinets.

OUR experience & knowledge

Working together to achieve more

- **The first retrofitting incorporating fully electric propulsion**
- Lake Lugano is the first Swiss lake with a zero-emission boat entirely designed and built in Ticino
- Switzerland's first electric **rapid recharge** motorboat
- Switzerland's first **ZERO EMISSIONS** motorboat
- The first motorboat available for **daily passenger transport**.

Retrofit Process: Best Practice ‚MN Ceresio 1931‘

- Conversion from diesel to fully electric
- Tailored Process
- Retrofit directly at the seaport - no need to transport to an external shipyard
- Retrofit process with a modular system
- Faster solution by combining existing system modules
- Proven drive concepts

MNE Ceresio

THE FIRST “RADICALLY” TRANSFORMED SHIP BY TOTAL RETROFITTING FROM DIESEL PROPULSION TO A FULLY ELECTRIC MOTOR

- High-torque twin electric motor with 175 kW of rated power
- One electric motor by Baumüller type DST2-260
- 170 kW for a maximum speed of over 24 km/h
- 800 volt DC distribution system and two dedicated inverters
- 6 totally independent lithium ion batteries-strings of 18 modules each installed on board
- Electric motor is supplied by HV battery
- 3 dedicated watertight compartments
- Battery capacity is 840 kWh, divided in 6 strings
- Fast charging capability with up to **1.344 kW within 20 minutes**

Caratteristiche	MN Ceresio 1931	MNE Ceresio 1931 - Retrofitting
Overall length	31.35 m	Unchanged
Overall width	6.28 m	Unchanged
Side height	1.80 m	Unchanged
Capacity	240 passengers	Unchanged
Displacement at full load	80 ton	Unchanged, possible reduction
Maximum speed	22.4 Km/h at 1'800 rpm	24.6 Km/h
Motor	1 Detroit diesel motor of 162 KW	1 electric motor of 180 KW plus 840 KWh of batteries (~6.5 ton)
Propeller	Fixed pitch propeller	New propeller
Generator	1 diesel generator of 11 KW	Multiple battery rooms
Year of construction	1930	Unchanged

The MNE Ceresio today guarantees a standard of high quality

- Passenger capacity as before
- Displacement weight equal
- Improvement of driving characteristics
- Improvement of dynamic vessels
- Equipped with advanced control technology



The future is now

The future aboard must be technological and sustainable.

We have mapped out the course for the future; today we can turn our experience into results.

Navigation in Switzerland plays an important role for tourism and excursion traffic. About 150 boats operated by federally licensed shipping companies transport 13 million passengers per year on Swiss lakes and bordering waters on Swiss lakes as well as bordering waters and border waters.

After launching the project on the Canton Ticino lakes, the next objective is to promote and support other lakes and shipping companies to re-engineer their boats and integrate their fleet with new zero-emission boats and build the necessary recharging infrastructure to implement a decarbonisation of the lakes.

“With the electrified Ceresio, the goal of a greener lake by 2035 is getting closer and closer. For us, the responsibility we bear to future generations of guaranteeing sustainable and state-of-the-art waterborne transport is a basic priority. We are fully committed to finding groundbreaking and innovative solutions, and we are gratified to be able to count on the support of the Baumüller Group.”



Agostino Ferrazzini
SNL President

“After the retrofitting process is completed, the MNE Ceresio copes with day-to-day ferry operations using only electrical drive technology. This makes exhaust fumes and the noise levels common to diesel ferries a thing of the past. Our long-standing experience in charging infrastructures and the electrification of marine propulsion systems is a very good match for the sustainable and forward-looking transport concept pursued by SNL.”



Andreas Baumüller
CEO of Baumüller Group



A man in a dark polo shirt and jeans walks towards the camera on a boat deck. He is carrying a white tote bag with a logo and a lanyard with a badge. The deck features modern, light-colored upholstered seating with wooden frames. Large windows on the left side offer a view of the water and buildings. The ceiling has recessed lighting and a green light fixture is visible in the background.

The Future is Now

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