



Engineering Company for Fuel Cell, Hydrogen  
Technology and Electric Mobility

# EMCEL GmbH

## Company presentation

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Cologne | March 2018

Consulting



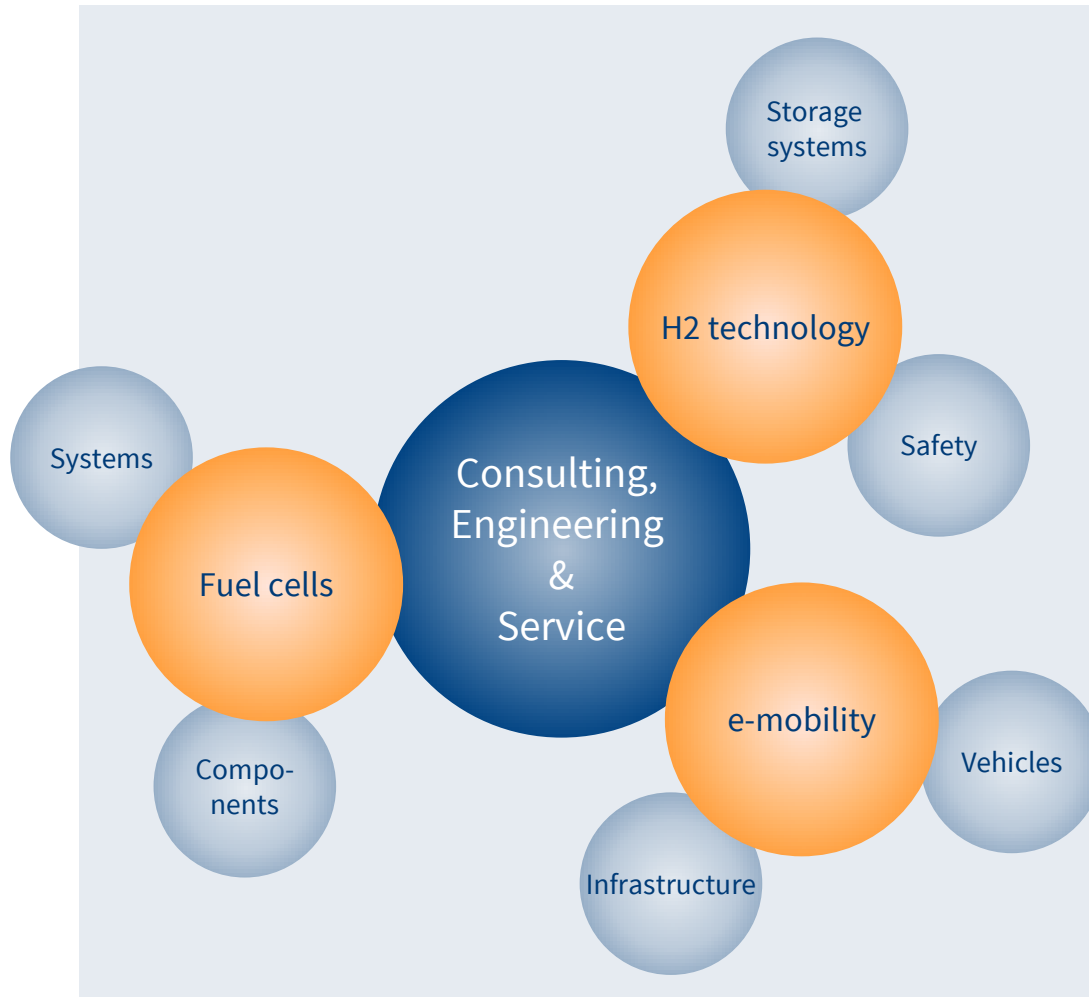
Engineering



Service



# Our range of services



EMCEL GmbH is an **engineering company** with a focus on:

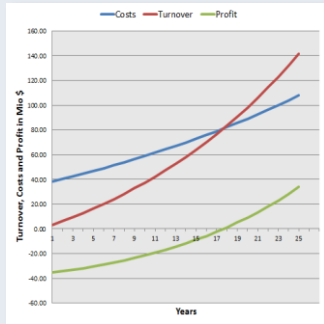
- › Fuel cells
- › Hydrogen technology
- › Electric mobility

## About us

- › Based in Cologne, Germany
- › Established in 2009

# What we do for our customers

## Consulting



- E-Bus, Fuel cell, Hydrogen,  
Power-to-Gas:
- › Initial consultation
  - › Feasibility studies

## Engineering



- › Safety / approval
- › System development
- › H2 supply

## Service



- Maintenance of  
fuel cell and battery  
buses

# General references

## Comprehensive expertise

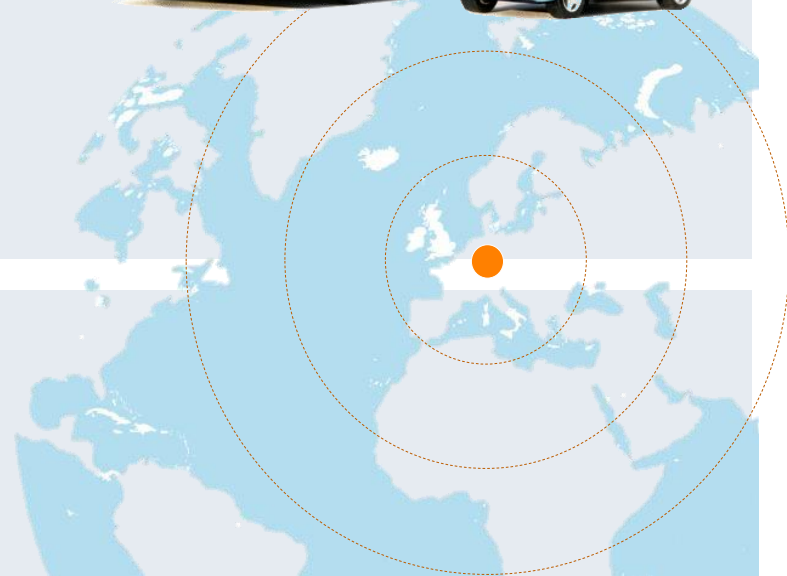
- › From practical development work to service in everyday life

## Many years of experience in

- › SMEs and groups
- › Automotive industry
- › Politics

## We work for well-known companies and organizations in

- › Germany, EU and internationally



# Our references: Consulting, Engineering



## Advice on the air conditioning of e-vehicles

Customer: Automotive group

The entire heat balance of e-vehicles had to be redesigned due to the considerably lower amount of waste heat generated in the vehicles. Together with the customer, EMCEL worked out the details of the interrelationships and proposed solutions.



## Advice on the CE certification of FC systems

Customer: Fuel cell system manufacturer

CE certification is a key element in terms of product liability. EMCEL offered the customer suggestions for product design, operational management and the necessary documentation.



## Advice on standards and laws for fuel cell vehicles

Customer: Automotive group

Currently, there is a wealth of new documentation in terms of standards and laws for FC applications. EMCEL summarized these texts for the customer and prepared them for the assembly group of hydrogen storage systems and fuel cell systems in a user-friendly way.

# Our references: Consulting, Engineering



## Development of a FC UPS infrastructure

**Customer:** Telecommunications technology service provider

FC systems present a clean and reliable alternative in uninterruptible power supply. EMCEL supported the use of a FC UPS infrastructure for a wide range of applications through the development of logistics and safety concepts.



## Development of a tool for selecting fuel cell products

**Customer:** Technology service provider

Fuel cells can be used in many applications for power supply. EMCEL developed a tool with which it is possible to select tailor-made FC solutions (including tank systems) from the market and match them to the customer's requirements.



## Simulation & specification of stand-alone energy systems

**Customer:** Construction company

The client requested a renewable energy supply for a luxurious holiday home in Spain with no access to the local power grid. EMCEL specified and simulated the system from a solar system, battery, electrolysis, hydrogen tank and fuel cell.

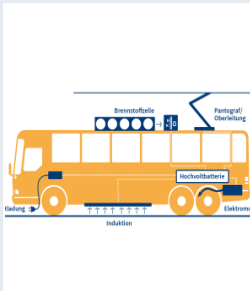
# Our references: Consulting, Engineering



## Feasibility studies: Introduction of battery buses

**Customer:** Local short-distance traffic organization

A major German city aimed to use battery buses and enter the electric public transportation network. EMCEL carried out the feasibility study. The focus was on selecting suitable pilot lines, choosing suitable vehicles and infrastructure as well as the complete cost analysis (TCO).



## Initial consultation: Entry into the electric public transportation network

**Customer:** State's economic development agency

The state offered 30 cities and municipalities a 5-day introductory consultation on the topic of the electric public transportation network in a state-wide promotion to enter into e-bus mobility. EMCEL is an implementation partner of the state for this program.

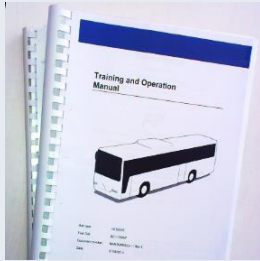


## Making a grant application

**Customer:** Bus company

We provided support to a bus company from the private sector with the application for subsidies for industrial research. EMCEL described the eligible objects of research, presented the technical and economic aspects, and prepared the grant documents.

# Our references: Service & Maintenance



## Training personnel for FC vehicles

**Customer:** Bus manufacturer

To be able to perform work on fuel cells and high-voltage systems, the technical staff had to be specially trained. EMCEL organized application-oriented training sessions and undertook the instruction of the customer's employees.



## Workshop conversion

**Customer:** Bus company

Workshop equipment must fulfill certain standards of safety for working on fuel cell buses. For a public bus company, EMCEL carried out a stock analysis and proposed the necessary retrofitting measures.



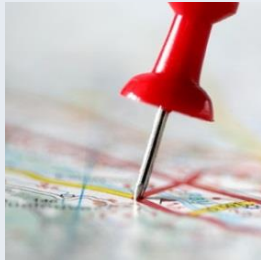
## Maintenance and repair of various fuel cell and battery buses

**Customer:** Manufacturer and regional transport operators

In the context of the CUTE, HyFLEET:CUTE, CHIC and other projects, EMCEL provided support to several partners with the introduction of different electric buses. In addition to technical support, the public transportation network operators have been and still are receiving support with operational optimization.



# Thank you for your attention



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... so that you get further with electric mobility!