Engineering Company for Fuell Cell Hydrogen Technology and Electric Mobility



Company Presentation

EMCEL GmbH

Cologne | 2021

About us



Energy transition, together, today!

- An engineering company in Cologne since 2009
- > Approx. 20 employees
- Many years of experience in practical development and service work

Since 2009, EMCEL has been actively supporting Germany's energy transition policy and developing ideas and concepts to ensure the success of sector coupling.



Our services



Electromobility and electrification of commercial vehicle fleets

Sector coupling and H2 infrastructure

H2 quality measurement and analytics



- Feasibility studies, transition and acquisition concepts
- > Workshop and depot retrofits
- > Staff training and maintenance



- Strategies for the production, distribution and use of hydrogen
- > System and concept development
- > Authorisations and approvals



- Online measurement of the H2 purity, also according to SAE J2719 / ISO 14687 / DIN EN 17124
- → Consulting on H2 analytics

Electromobility and electrification of commercial vehicle fleets





Electromobility and electrification of commercial vehicle fleets



BASICS	PLANNING	ACQUISTION	OPERATIONAL PREPARATIONS	OPERATION
② Consulting				
Initial consultation	Feasibility study	Consulting on funding	📕 Depot retrofit	Accompanying research
Technology consulting	Driving performance / circulation analysis	Funding application	📕 Workshop retrofit	📕 Operating data analysis
📕 Hydrogen / high-voltage safety	Fleet analysis	Drafting of specification sheets	📕 Staff training	
📕 Market analysis	Life cycle cost analyses (TCO) / guidance related to costs	Offer evaluation	Support in drawing up risk assessments	
		پا∥ه Engineering		
		Optimisation of electric vehicles	Zonstruction support infrast	ructure
Customers:		Support in the design of H2 refuelling stations and charging infrastructure		
Political authorities		Assistance with the approval of H2 refuelling stations and charging infrastructure		
		Preparation / review of technical documentation		
			🔀 Service	
Fleet operators Local public transport organisations 			Commissioning	
			Start-up support	
Vehicle manufacturers			Service and maintenance of fuel cell- and battery-powered vehicl	
Infrastructure manufacturers			Ztaff training	
		Time schedule	<u>.</u>	

Sector coupling and H2 infrastructure





Sector coupling and H2 infrastructure



BASICS	PLANNING	ACQUISTION	OPERATIONAL PREPARATIONS	OPERATION
② Consulting				
Technology consulting	📕 TCO / cost analysis	Consulting on funding	Accompanying research	Development of guidelines
Why sector coupling?	Market analysis	Funding application	Operational analysis	Drafting of technical contributions
Why power-to-gas?	Product research / selection	Drafting of specification sheets	Assistance with risk assessments	Creation of brochures
Standards and committee work	📕 Business model development	Offer evaluation		Execution of energy consulting

Engineering

📕 System design	Site survey		System optimisation	Production documents
Safety concepts / risk analysis / FMEA	Assistance with the approval procedure and the procedure governed by the Federal Immission Control Act		Plant optimisation	Plant documentation
	Technical support during the tender process			Operational documentation

Customers:

Political authorities

Plant operators Component manufacturers

Associations

Plant manufacturers

Time schedule

H2 quality measurement and analytics





H2 quality measurement and analytics



BASICS	PLANNING	ACQUISTION	MEASUREMENT PREPARATIONS	MEASUREMENT OPERATION
② Consulting				
💋 Initial consultation	Development of systematic measurement campaigns		Selection of suitable measuring sites for measuring quality	
What does H2 quality mean?	Risk assessment on the effects of impurities			
Standards and committee work	Definition of impurities to be measured			
Introduction to the methods of quality measurement		Market analysis of measuring device	ces and methods	



Our competencies



Comprehensive Many years of experience We work for well-known know-how and long-standing customers companies and organisations CITARO WITH Fuel Cell Bus 6 HAFENCIT Mechanical engineering, renewable Corporate groups and SMEs Non-proprietary > > > Automotive industry energies > > Electrical and automotive engineering >

Economics >

Political and commissioning authorities >



Germany, European Union and on an international level

References – electromobility





E-coach electric bus consulting in Hessen

Customer: LandesEnergieAgentur Hessen GmbH

EMCEL is an implementation partner of LandesEnergieAgentur Hessen (Hessen state energy agency) and offers public transport stakeholders an insight into e-public transport in the form of an initial consultation.





Customer: Entsorgung Herne AöR

EMCEL is supporting the customer with the introduction of fuel cell-powered waste collection vehicles, including a depot retrofit for work on fuel cell-powered vehicles.



Use of battery-powered electric buses in public transport

Customer: traffiQ GmbH

EMCEL worked with the customer to develop an overall strategy for the long-term transition from diesel to electric buses.

References – sector coupling and H2 infrastructure





H2R initiative - detailed concept for the development of a hydrogen region

Customer: Stadt Köln municipal authority in Cologne and others

EMCEL developed a detailed concept. The objective of the detailed concept is the further development of existing structures as well as the planning of new sector coupling elements.



Master plan for an "H2 city" in Guiyang, China

Customer: Government of Guizhou province In cooperation with HEE Technologies, EMCEL conducted a feasibility study concerning the development of a hydrogen industrial cluster.



Expert report on hydrogen production and markets for Schleswig-Holstein

Customer: Ministry for Energy Transition, Agriculture, the Environment, Nature and Digitisation in Schleswig Holstein

EMCEL conducted cross-sector analyses (transport, industry and thermal energy) to determine the potential for using hydrogen.

References – H2 quality measurement and analytics





Online measurement at hydrogen refuelling stations

Customer: H2 Mobility Deutschland GmbH & Co. KG

EMCEL performed a continuous measurement service at various hydrogen refuelling stations operated by H2 Mobility.



Development and operation of an online measuring device

Customer: Automotive industry (development of automotive fuel cells)

EMCEL developed a measuring device for a hydrogen refuelling station for the continuous measurement of impurities in hydrogen.



Development of a mobile online measuring device

Funding programme: ZIM

EMCEL developed a mobile measuring device for the measurement of impurities in hydrogen. The measuring device can be used in the vehicle whilst in operation.