



Engineering Company for Fuel Cell
Hydrogen Technology and Electric Mobility



Company Presentation

EMCEL GmbH

Cologne | 2024

Energy transition, together, today.

- › An engineering company in Cologne since 2009
- › Approx. 25 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.

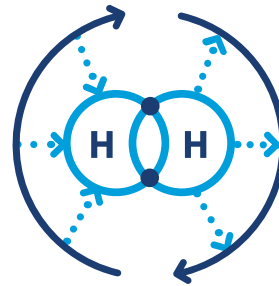


Electromobility and electrification of commercial vehicle fleets



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

Sector coupling and H2 infrastructure

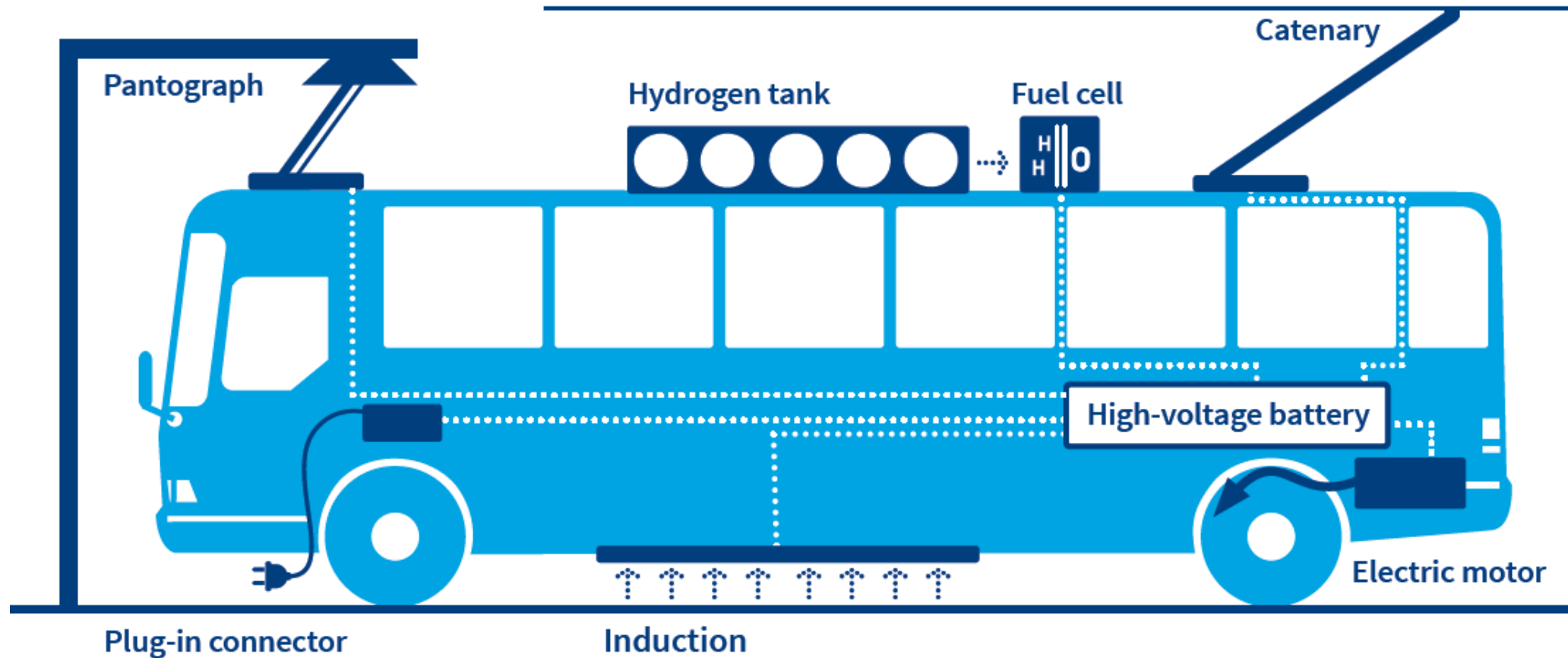


- › Strategies for the production, distribution and use of hydrogen
- › System and concept development
- › Authorisations and approvals





































H2 quality measurement and analytics



- › 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

BASICS		PLANNING	ACQUISITION	OPERATIONAL PREPARATIONS		OPERATION
 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			
<p>Customers:</p> <ul style="list-style-type: none"> Political authorities Awarding authorities Fleet operators Local public transport organisations Vehicle manufacturers Infrastructure manufacturers			 Engineering			
			 Optimisation of electric vehicles		 Construction support infrastructure	
			 Support in the design of H2 refuelling stations and charging infrastructure			
			 Assistance with the approval of H2 refuelling stations and charging infrastructure			
			 Preparation / review of technical documentation			
			 Service			
 Commissioning						
 Start-up support						
 Service and maintenance of fuel cell- and battery-powered vehicles						
 Staff training						

Customers:

 Political authorities

 Awarding authorities

 Fleet operators

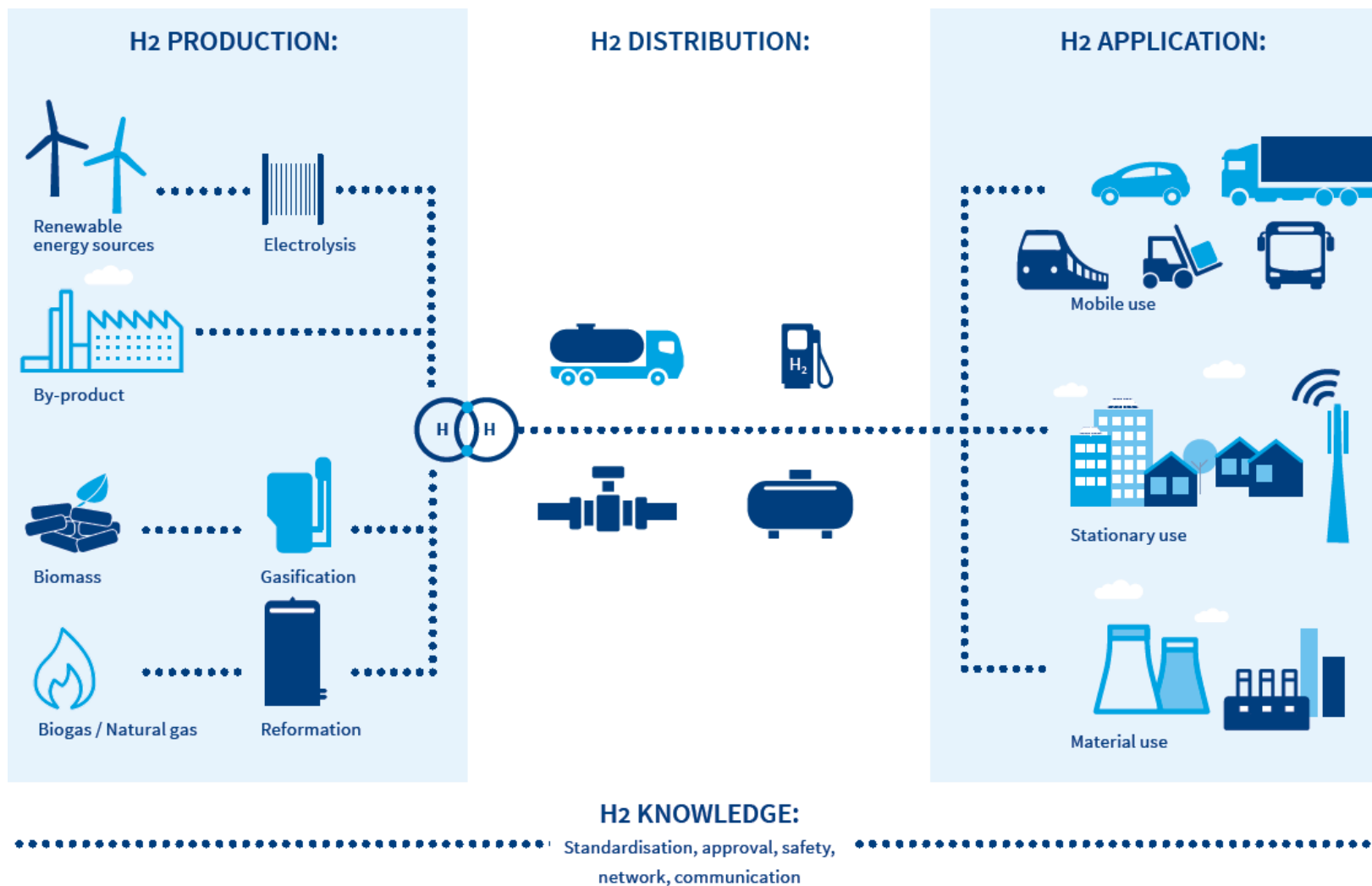
 Local public transport organisations

 Vehicle manufacturers
































 Infrastructure manufacturers

Time schedule






Sector coupling and H2 infrastructure



Sector coupling and H2 infrastructure

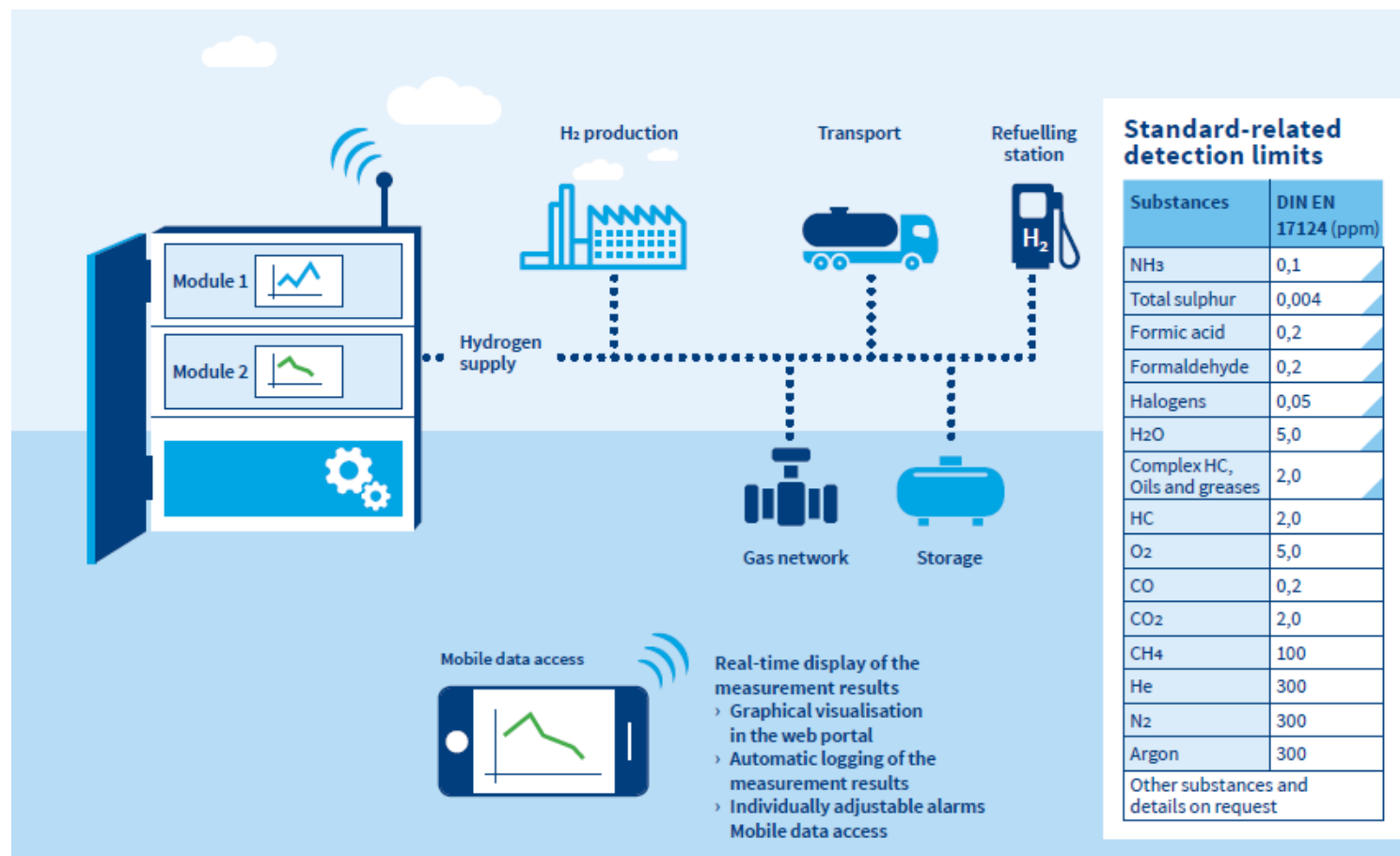
BASICS	PLANNING	ACQUISITION	OPERATIONAL PREPARATIONS	OPERATION
 Consulting				
 Technology consulting	 TCO / cost analysis	 Consulting on funding	 Staff training	 Accompanying research
 Why sector coupling?	 Market analysis	 Funding application	 Drafting of technical contributions	 Operational analysis
 Why power-to-gas?	 Product research / selection	 Drafting of specification sheets	 Creation of brochures	 Assistance with risk assessments
 Standards and committee work	 Business model development	 Offer evaluation	 Execution of energy consulting	
 Engineering				
 System design	 Site survey		 Production documents	 System optimisation
 Safety concepts / risk analysis / FMEA	 Assistance with the approval procedure and the procedure governed by the Federal Immission Control Act		 Plant documentation	 Plant optimisation
	 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	ACQUISITION	MEASUREMENT PREPARATIONS	MEASUREMENT OPERATION
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 devices and methods		
Engineering					
Development of measuring systems suitable for use outdoors (also for mobile use)					
Support in the development of measuring devices					
Customers:			Support in the coupling of hydrogen		
H2 manufacturers				Assistance with plant optimisation	
H2 suppliers					
Plant operators					
Component manufacturers					
Plant manufacturers					
Service					
Installation of measuring systems on site				H2 quality measurements	
				Online data provision	
Implementation of measurement campaigns according to DIN EN 17124 and further					

Customers:

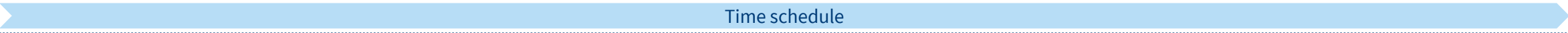
H2 manufacturers

H2 suppliers

Plant operators

Component manufacturers

Plant manufacturers



Comprehensive know-how



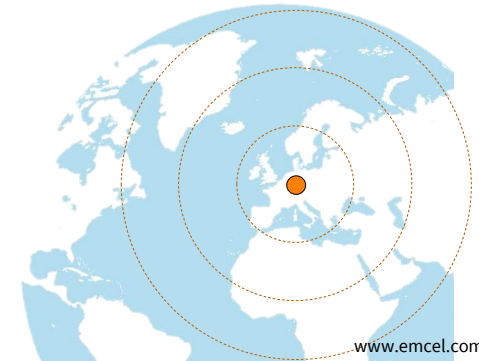
- › Mechanical engineering, renewable energies
- › Electrical and automotive engineering
- › Economics

Many years of experience and long-standing customers



- › Corporate groups and SMEs
- › Automotive industry
- › Political and commissioning authorities

We work for well-known companies and organisations



- › Non-proprietary
- › Germany, European Union and on an international level



E-coach electric bus consulting in Hesse

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.



Depot retrofit for fuel cell-powered waste disposal vehicles

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.



Wasserstoffstudie mit Roadmap für Rheinland-Pfalz

Hydrogen study with roadmap for Rheinland-Pfalz

Customer: Ministry for Environment,
Energy and Mobility Rheinland-Pfalz

EMCEL developed a hydrogen strategy
until 2050 with implementation steps to
build a sustainable hydrogen economy.



H2 filling station Meckenheim

Customer: Regionalverkehr Köln GmbH

Planning and design of a hydrogen filling
station incl. advisory support during the
installation phase for up to 50 FC buses.



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.

References – H2 quality measurement and analytics



Online measurement at hydrogen refuelling stations

Customer: H2-Mobility Deutschland GmbH

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.



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