Power-to-X for Applications

The VDMA platform for Hydrogen and other P2X technologies
German Engineering Federation (VDMA)

Where ever you are, We are there for you

More than 3348 Members (228 from outside Germany) which stands for:
- 1.1 million Employees
- € 205 Billion production
- 79% Export rate (approx.)
- ~ 10% expenditure on research and development

Largest Industrial Association in Europe

Founded in 1892
more than 125-year-old history

38 Specialized Sectors
Headquarted in Frankfurt

Offices/Subsidiaries in:
- India
- China
- Brazil
- CIS
- Japan
- Belgium
- Austria
- Poland
VDMA India – Roadmap/History

The ONLY association of its kind focusing on the Mechanical Engineering Industry

Head Office
Kolkata

Managing Director
Mr Rajesh Nath

Regional Offices
Mumbai
Bangalore
Delhi

Member Companies
Around 600

Active in various Specialized Sectors
Mr. Rajesh Nath-Felicitated with „Cross of the Order of Merit“ – Highest Civilian honour by German Government

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Power-to-X for Applications
140+ members from the complete value chain
Tasks & targets of the working group

» Provide a platform for the heterogeneous community
» Provide the traditional services of a trade association
» Cooperate with the important players in other German and European associations
Key topics
Networking

» We are a strong network of all relevant stakeholders (mechanical engineering, automotive industry, oil and energy industry, etc.)

» We map the entire value chain
  – Power (e.g. wind energy)
  – to X (process engineering)
  – for A (applications, e.g. in vehicles, mobile machinery or marine engines)

» We offer a platform for the exchange of information regarding
  – Research projects, R&D
  – Legislative initiatives and legal frameworks
  – Potential partners
Key topics
Lobbying

» We advocate for P2X in politics and media
» We represent the voice of the industry actors in this field, impartial and without representing vested interests
» We lobby for concrete proposals in order to achieve market opportunities for eFuels (e.g. by means of acknowledging eFuels in the CO₂-emission regulation for passenger cars and heavy duty)
Key topics
Enabling technical exchange

» To address technical questions, VDMA Power-to-X for Applications has set up a technical committee

» This group deals specifically with various technical issues of member companies, such as safety or infrastructure aspects (including gas quality) in laws or standards

» We cooperate with important stakeholders, e.g. regulatory bodies
Key topics
International markets

» Federal Ministry for Economic Cooperation & Development started a process in autumn 2019 in order to build a demo project for a large scale P2X plant in Morocco
  – MoU to be signed in 2020 | VDMA / members are considered the most relevant project partners | P2X plant to be built within the next few years with German technology

» Federal Ministry of Education and Research is analyzing the potential of West African countries with regard to P2X plant locations
  – VDMA / its members are asked to support this initiative

» Information on business trips to MENA region or delegates from these countries

» Contacts to relevant stakeholders in Europe / worldwide
Public relations
We are active via multiple channels to provide information
Public relations

#P2X4A: A new yearly international conference, starting in 2021

» #P2X4A: From production to application is the new yearly international conference on P2X

» To take place October 12-13, 2021

» High-level event: As a real industry summit, the conference gathers all the key players for two days every year. 300+ attendees expected

» The target groups: B-level management, experts from Germany, Europe and possible partner regions. In particular, the transport and traffic sector | energy sector | metal, glass, mineral oil, chemical & cement industries and maritime industry | machinery and plant builders and operators | banks and investors | associations | politicians, administration, cities, and municipalities

» https://www.p2xconference.com/
Power-to-X: Production and products

Renewable Energy Sources → H₂-Production → H₂ -Production → Ammonia synthesis → Methanation → Fischer-Tropsch process → Refining and Upgrading → Diesel, Gasoline, Kerosene, Ethylene, Propylene, Methanol, Methanol synthesis → Hydrogen, Ammonia, Methane

source: VDMA AG P2X4A | Rajesh Nath & Peter Müller-Baum
• The costs of green hydrogen made from solar or onshore wind power is set to fall dramatically from its 2021 levels.

• By 2050 in many countries, it should undercut $1/kg.
Renewable hydrogen production costs could decline to USD 1.4 to 2.3 per kilogram (kg) by 2030.

New renewable and gray hydrogen supply could hit cost parity in the best regions by 2028.
BNEF (2020) – Hydrogen Economy Outlook

- Consideration of costs for use of hydrogen for different applications, including transport and storage
- To be read as follows: When hydrogen at 1$/kg in 2050, the use of hydrogen for steel productions needs a CO₂-Price of 50$/tCO₂ to be competitive

Figure 7: Marginal abatement cost curve from using $1/kg hydrogen for emission reductions, by sector in 2050

VDMA Power-to-X for Applications

We are looking forward receiving your comments.

https://p2x4a.vdma.org/
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