

RENEWABLE HYDROGEN AT GFA

COMPETENCIES FOR SUSTAINABLE GROWTH



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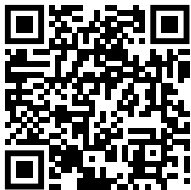
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*Scan QR code to visit GFA's
Renewable Hydrogen website*

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Based in Hamburg, Germany, GFA Consulting Group GmbH (GFA) is one of the leading European consulting firms in international development cooperation.

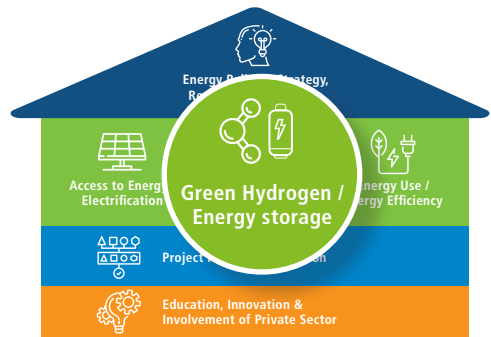
With 400 employees at headquarters and more than 1000 employees deployed in projects worldwide, GFA actively seeks to improve the lives of people worldwide by promoting sustainable development and making a significant contribution to the Sustainable Development Goals of the United Nations.

To advance this vision of a just world, GFA provides services in 17 strategic business areas that are reflected in a decentralized structure of globally operating technical departments and units.

The Energy Department is at core of the development and implementation of

energy projects world-wide along the energy value chain – from sustainable production to consumption.

Embedded in this multi-layered ecosystem, the crosscutting topics of Renewable Hydrogen, often referred to as Green Hydrogen (GH_2), and energy storage benefit from the synergies that arise from this integrated knowledge and approach.



COMPREHENSIVE GH_2 /PTX EXPERTISE

GH_2 and its derivatives, Power-to-X (PtX), have emerged as a key element in the global energy transition.

GH_2 and PtX offer a promising pathway to decarbonize hard-to-abate industries such as steel, cement, aviation, shipping, and heavy-duty transport, while also addressing the intermittency and storage challenges of renewable energy sources (RES). The European Union recognizes the im-

portance of hydrogen for global decarbonization and has set ambitious targets to produce 10 million tons of renewable hydrogen by 2030, with the same amount in imports by that year.¹

In Germany, the Federal Government adopted a National Hydrogen Strategy in 2020 (NWS) and reserved 2 billion from a 9 billion EUR investment plan for fostering strategic international partnerships.²

¹ https://energy.ec.europa.eu/topics/energy-systems-integration/hydrogen_en

² https://www.bmwi.de/Redaktion/EN/Publikationen/Energie/the-national-hydrogen-strategy.pdf?__blob=publicationFile&v=6

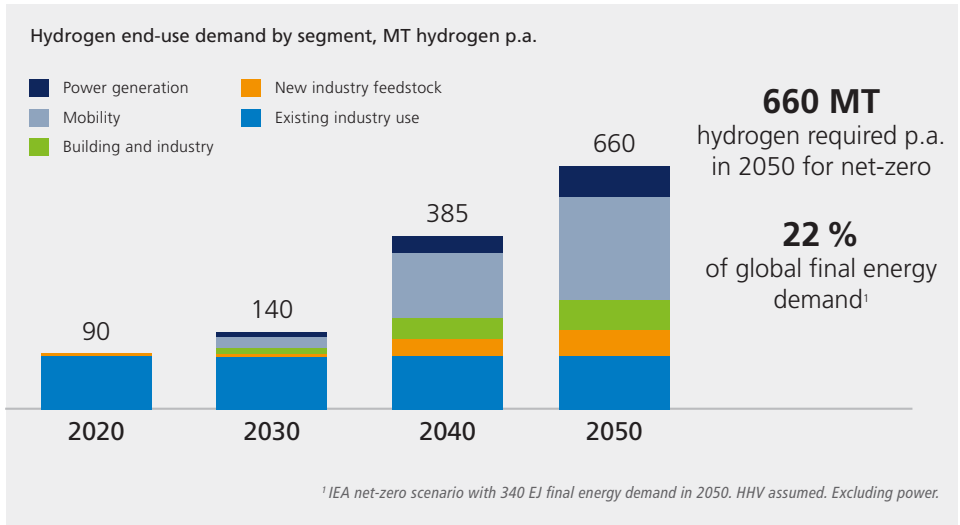


Exhibit 3 – Global hydrogen demand by segment until 2050, (source: Hydrogen Council 2021)

Countries in the global south, in particular, can benefit from their favorable geographic profiles for GH₂/PtX production as they predominantly have optimal RES and low production costs. By taking advantage of this, they can not only meet their own national climate targets but also create export potential that positively contributes to economic and social development. This provides an excellent opportunity for sustainable growth and cross-border cooperation.

Drawing on our extensive and in-depth sector expertise, we have assisted the governments of Algeria, Jordan, Tunisia, Morocco, Viet Nam, Nigeria, Senegal, and South Africa, among others, to create and enable regulatory, legal, and policy environments for the GH₂/PtX market ramp-up.

Since mid-2019, GFA has been at the forefront of global GH₂/PtX development, and has realized international technical and financial cooperation projects for international development banks and development agencies such as the German Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

OUR SERVICE PORTFOLIO



Adjustment of relevant policy and regulations on GH₂/PtX and development of GH₂ strategies and roadmaps



Assessments of GH₂ market and creation of an enabling framework for GH₂/PtX market development



Provision of technical and economic advice on scalability of GH₂/PtX applications, including value chain analyses



Environmental and Social Impact Assessments for GH₂/PtX projects



Development of financing solutions for GH₂/PtX projects



Leading a relevant GH₂/PtX management & procurement process



Provision of technical assistance for GH₂/PtX infrastructure development

MEET OUR COLLEAGUES, CLIENTS AND BENEFICIARIES

GFA has contributed significantly to shaping the hydrogen ecosystem in the highlighted countries. **Detailed references can be found on our website.**

Gina Elisa Lagunes Diaz

Head of the German-Nigerian Hydrogen Office




"The German-Nigerian Hydrogen Office commissioned GFA to prepare a study on policy and regulatory frameworks for hydrogen in Nigeria. The study included a review of international examples and a policy roadmap. The policy recommendations developed by GFA to improve the policy and regulatory framework are essential for the further development of a hydrogen market in Nigeria. The GFA experts were very professional and adaptable and their work was high-quality and always delivered on time."

Federico Villatico

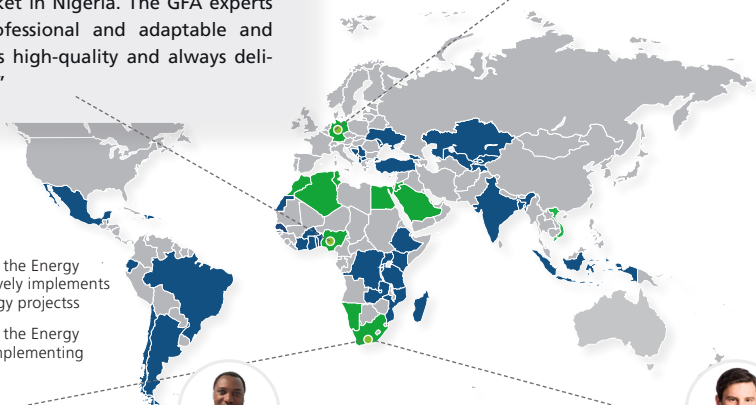
Senior Hydrogen Specialist and Advisor of European Commission on GH₂



"With its worldwide experience, established network and extensive expertise, GFA is a high quality partner for the implementation of GH₂/PtX projects of financial and technical international cooperation."

 Countries where the Energy Department actively implements sustainable energy projects

 Countries where the Energy Department is implementing GH₂/PtX projects



Théoneste Uhorakeye

GFA Team Leader
Renewable H₂ market potential and value chain analysis in South Africa



"I am proud to contribute with my team to the development of a global hydrogen market. Together with governmental decision makers and the private sector our experts at GFA have shaped national roadmaps and strategies to facilitate a sustainable green hydrogen market ramp up in our partner countries."

Henrik Uehlecke

GFA Key Expert/Project Manager
H₂/PtX-Market Opportunities for South Africa



"GFA has valuable country-specific expertise and networks through trusted and long-standing working relationships with various governments, Development Financial Institutions (DFIs) and donor organizations around the world, advising on issues such as regulation, policy frameworks, value chains and the conduct of feasibility studies and environmental impact assessments."

WHAT MAKES GFA SPECIAL

By implementing our services in key future hydrogen markets, we are not only constantly applying and expanding our expertise, but also our network.

Our close collaboration with governments, institutions, and key decision-makers provides valuable insights into market trends and local developments and access to experienced sector experts.

A profound understanding of the regional and local context is critical for any GH₂/PtX project.

We are well-positioned for future opportunities thanks to our internal technical capabilities, our broad network of highly competent experts, and access to the latest GH₂/PtX innovative thinking.



