

VTG AG POLICY BRIEF

HOW RAIL FREIGHT TRANSPORT CAN CONTRIBUTE TO A SUCCESSFUL HYDROGEN STRATEGY

Dear Sir or Madam,

Almost no other topic has dominated the debate on transportation policy in the past year as much as hydrogen has. It's becoming increasingly clear that we will only be able to achieve our climate goals if we exploit the advantages of hydrogen technology in the energy and transport transition to the greatest extent possible.

Policymakers have already recognized this development and, with the adoption of the National Hydrogen Strategy in 2020, laid down the basic framework for the coming decades. Its content must now be implemented swiftly by all those involved – there's no time to lose!

Rail will play a pivotal role in the transportation of hydrogen. Whether it's imported hydrogen or 'green' hydrogen produced in Germany, reliable, safe and flexible distribution requires a well-developed rail freight transport infrastructure.



This issue of the policy brief will show you why rail is an indispensable part of an integrated hydrogen economy, as well as explaining what logistics companies need to be able to fulfill this key role in the future.

I hope that you find the brief to be an interesting and stimulating read.

Dr. Heiko Fischer
CEO

40%

this is how much **ENERGY IS SAVED** when transporting a hydrogen gas container by rail compared to by road.

Source: LEA

HYDROGEN AND RAIL – THE PERFECT COMBINATION

Five compelling reasons for transporting hydrogen by rail:

CLIMATE PROTECTION AND REDUCED CONGESTION ON ROADS

Compared to roads, the railway is able to transport larger volumes in one single load. It generates fewer emissions, is safer, and reduces traffic congestion.

THE REQUIRED INFRASTRUCTURE IS ALREADY AVAILABLE

High investments and lengthy planning phases, which would be necessary for the expansion of hydrogen pipeline systems – especially in rural areas – are no longer needed.

THE 'SPILLOVER EFFECTS' CAN BE EXPLOITED

In the future, rail freight transportation will benefit from further investments in new stretches of track, which are urgently needed in view of the mobility transition. In certain cases, however, e.g. at low frequencies, it is uneconomical to electrify rail lines. Here, the use of hydrogen as a fuel for locomotives and multiple units presents a suitable alternative to diesel locomotives.

THE TRANSPORT CONCEPT IS TRIED AND TESTED

Many companies already have access points and sidings available – even in rural areas. If necessary, these can be upgraded quickly and with little effort in order to accommodate the transportation of hydrogen.

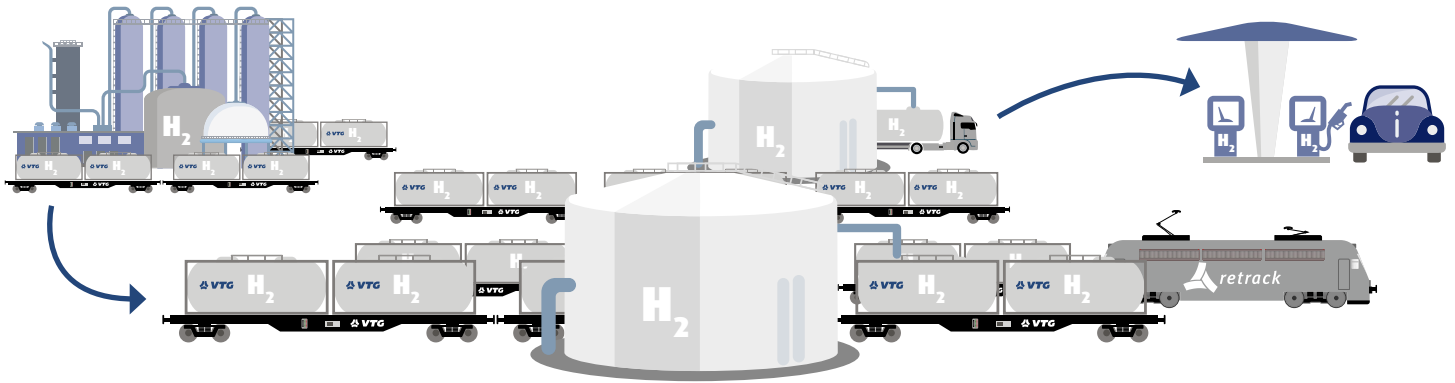
MAXIMUM FLEXIBILITY

The VTG 'All-in-One H₂ Cargo' concept allows for customers of different sizes, ranging from small (e.g. gas stations) to medium (e.g. municipal supplies and pilot plants) to large (e.g. industrial plants, chemical parks or the steel industry), to be supplied with hydrogen.

RAIL AS A KEY PART OF AN INTEGRATED HYDROGEN ECONOMY

VTG has the required expertise and the logistic concepts, including wagons, containers and traction, for transporting hydrogen reliably, safely and quickly via the rail network, within Germany and across Europe, for the benefit of our economies and to ensure a sustainable energy transition.

In the future, freight depots near hydrogen plants or at important hubs in the pipeline network can be used as central hydrogen hubs. This means that they will not only be transshipment points for loading and unloading hydrogen, but can also be connected directly to electrolysis plants or gas stations.



SHAPING TOMORROW'S HYDROGEN TRANSPORT INFRASTRUCTURE TOGETHER – REGULATORY IMPETUS FROM VTG

FINANCIAL SUPPORT IS ESSENTIAL FOR THE TRANSFORMATION AND DEVELOPMENT OF HYDROGEN LOGISTICS



Procuring tank containers capable of transporting and transshipping hydrogen requires a substantial financial investment. As there are very few hydrogen producers and customers in the pre-competitive phase, the operators' costs cannot be covered initially by their operations on the market alone. It, therefore, makes perfect sense to use government investment and innovation programs – not least to keep the expertise required here in Germany, which will support the economy.

WE NEED GOVERNMENT FUNDING PROGRAMS WITH A SIGNAL EFFECT



A government-sponsored procurement program for tank containers capable of transporting hydrogen is, therefore, necessary. It is also possible to include the essential logistics in funding programs for pilot projects that demonstrate an overall concept for hydrogen production, transport and use in an experimental framework.

UNIFORMLY REGULATED TRANSPORT AND TRANSSHIPMENT REGULATIONS FOR HYDROGEN AT INTERNATIONAL OR EUROPEAN LEVEL



We foresee that hydrogen will become a globally traded product in the future, and reliable cross-border distribution can be ensured via the rail network. A prerequisite for this, however, is that all countries agree on uniform transportation and transshipment conditions. As hydrogen is a hazardous material, strict safety requirements are necessary. Modern rail freight transportation can meet these requirements and comply with all regulations.

CONTACTING VTG

We would like to engage in active dialog with you! Please feel free to contact us with all of your rail freight transport-related questions and queries. We would be delighted to assist you and provide you with any facts, figures and estimates you may require.

YOUR CONTACT

Dr. René Abel
Head of Corporate Communications

+49 40 2354-1341
publicaffairs@vtg.com

VTG Aktiengesellschaft
Nagelsweg 34
20097 Hamburg
Germany

www.vtg.com/policy