



Slovnaft

ADVANCING HYDROGEN MOBILITY IN SLOVAKIA

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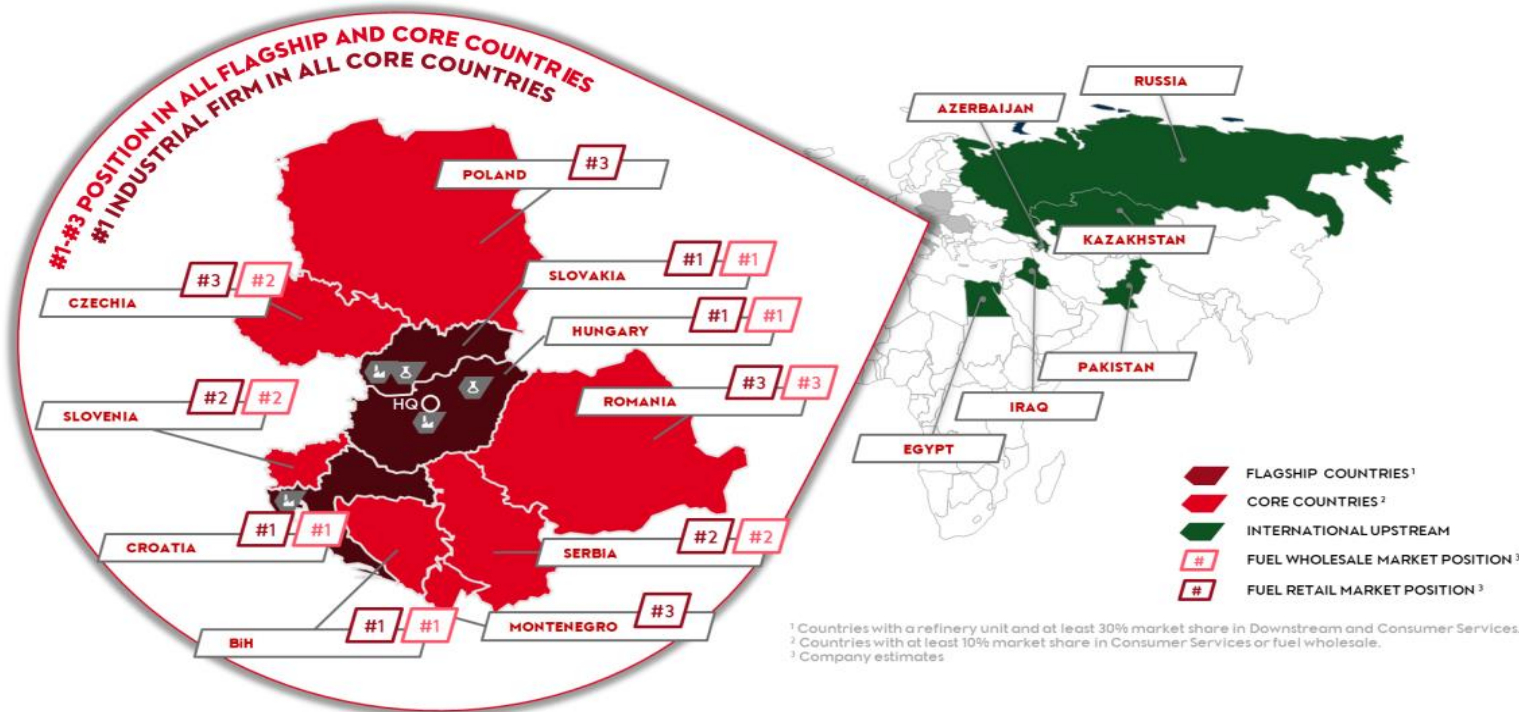
Managing Director, Messer Slovnaft



slovnaft.sk

MOLGROUP is an integrated international oil and gas company dominant in CEE region with business activities in 30+ countries

MOL IS THE DOMINANT O&G PLAYER OF THE CEE REGION



At MOL Group, we have a vision. We strive for a smart energy transition delivering solutions for tomorrow: we are making our region more sustainable, more self-sufficient and more competitive.



New pillar of business
launched in July 2023



Being one of the most complex refineries in Europe, its adaptability and expertise make it pivotal player in the region while its commitment to sustainability ensures it remains a forward-thinking industry leader



6 mil. tonnes of crude oil processing annually including alternative crudes from Azerbaijan, Libiya, Kazakhstan, Oman, USA, Norway, Iraq, Saudi Arabia and Guayana



Key focus on production of light, high value products – motor fuels, plastics, chemicals and transforming yields structure towards products with high added value



Integrated refinery and petrochemical complex production site producing various products of highest quality in accordance with international standards using best techniques

OUR KEY ACTIVITIES...



Refining and Petrochemicals



Retail



Energy



Mobility



3300 employees



6 WS distribution centres in SK

RESULTS IN:



More than 250+ products

H2 production



Slovnaft

- SLOVNAFT is the biggest producer of H2 in SLOVAKIA
- Production mainly by steam reforming technology
- Majority of produced H2 is processed in refinery
- Small part of production sold to Messer Slovnaft



- MOL Group built the largest electrolyser in CEE
- Location in Duna refinery
- Capacity 10 MW
- Significant CO2 reduction



Messer Introduction

Messer Tatragas as a reliable partner of SLOVNAFT for decades

Messer Tatragas a member of Group founded in 1898. Messer Group has gradually expanded, becoming the world's largest family-owned company specializing in industrial, medical, and specialty gases.



The largest privately owned industrial gases specialist in the world, Messer employs more than 11 000 people, operates in 30 countries worldwide



Messer is actively expanding its hydrogen projects across Europe, and takes part in hydrogen valleys initiatives, for example in Germany (Reallabor, HyBayern), France (Zero Emission Valley) and others.



Through the Messer partnership in hydrogen value chain, Slovnaft joins the ranks of key partners like Siemens Energy, FEST and Toyota Group, strengthening the position in the development of hydrogen infrastructure and sustainable energy solutions





In 1990, first ever German-Slovak joint venture is founded – Messer Tatragas, followed by foundation of Messer and Slovnaft joint venture in 1992 – Messer Slovnaft



Messer and Slovnaft have a successful collaboration where Slovnaft produces 3.0 (99,9%) hydrogen, while Messer purifies hydrogen to the 5.0 quality (99,999%) to fill cylinders, bundles and hydrogen tube trailers



This long-term partnership paves the way for the ongoing advancements in sustainable technologies and innovation

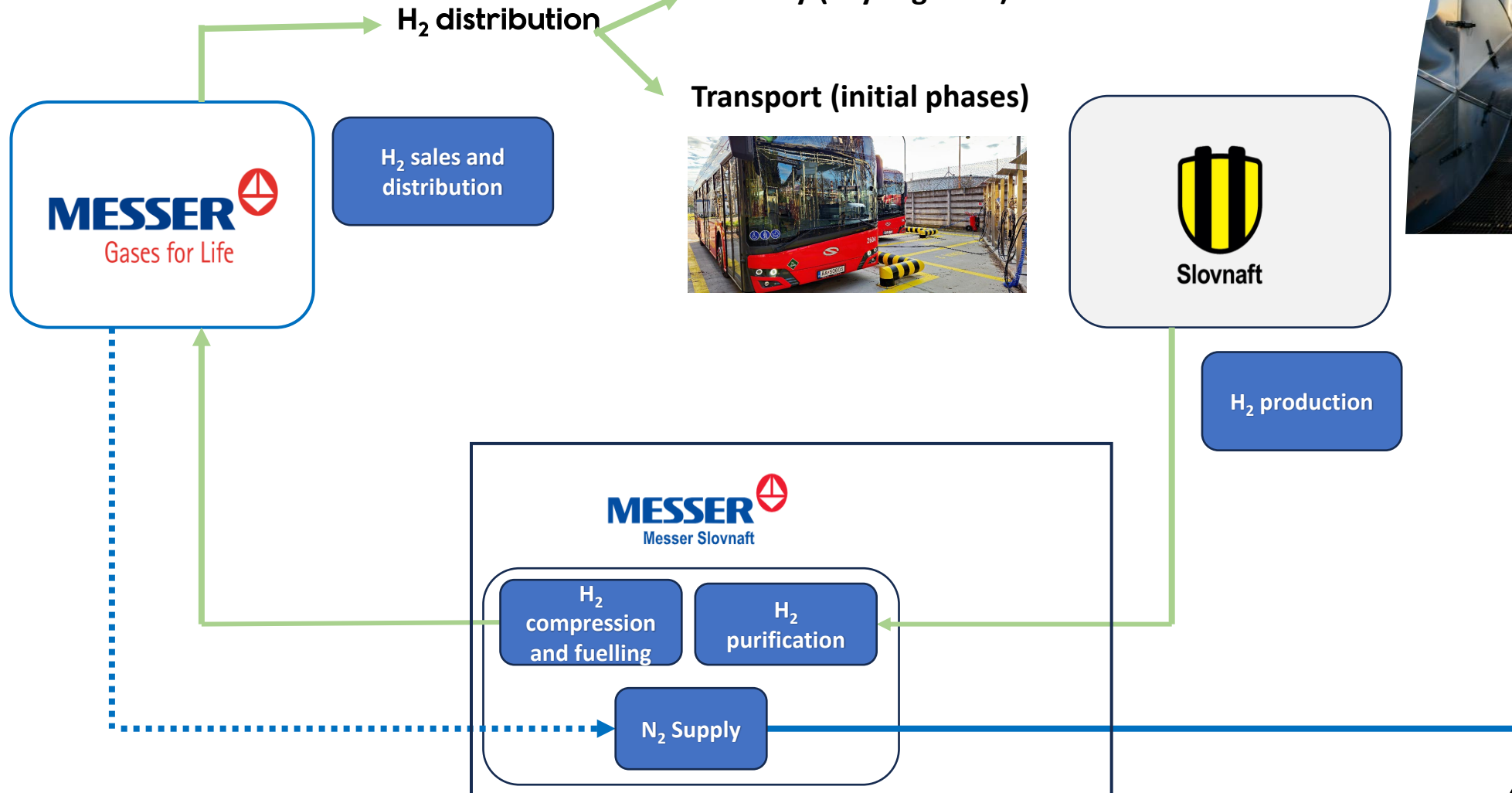




Industry (key segment)



Transport (initial phases)



1st hydrogen filling station in Slovakia



Constructed in 2022 as 200 bar filling station



Immediately after successful commissioning the first steps were taken toward enhancing the capacity to 350 bar



Being the first project of its kind, thorough preparations were required before obtaining all the approvals



- Public transport of Slovakia capital, Bratislava, became one of the first customers
- Public transport company currently operates fleet of 4 hydrogen buses Solaris Urbino 12 hydrogen
- Hydrogen consumption reaches 5,7 kg/100 km

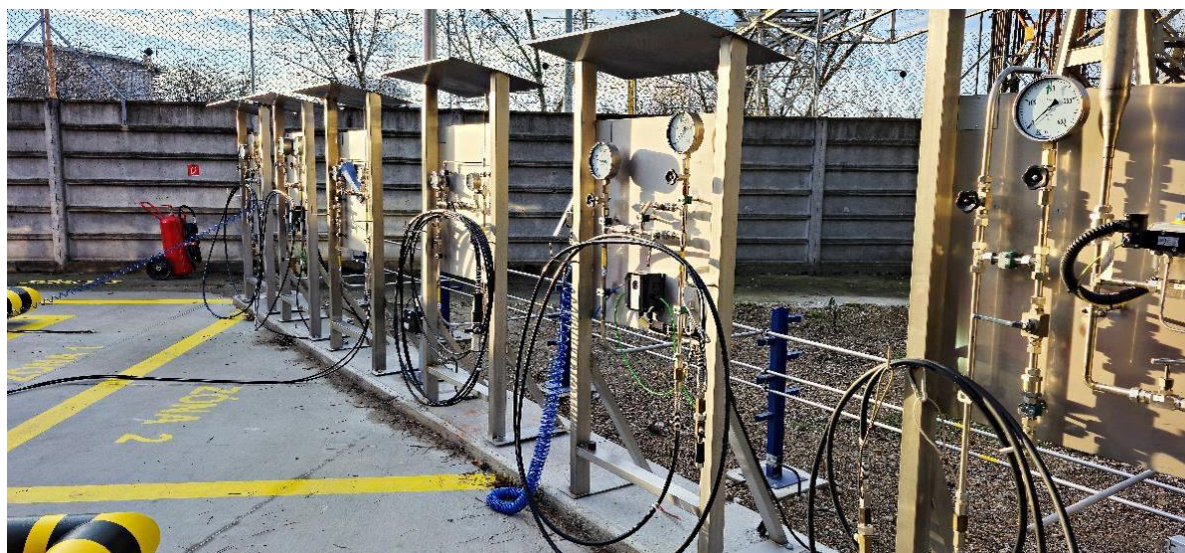
As of 2024, new 350 bar hydrogen compressor and 3 hydrogen filling stations were installed

New Neuman&Esser compressor



- 70 kg/h capacity
- 32 kW power demand
- suction pressure 170-210 bar
- discharge pressure 380 bar

Upgrade to 350 bar makes the hydrogen public transport more efficient, as hydrogen buses range increased by 40 %, reaching 350 km



Flexible filling stations are able to deliver hydrogen for:

- 200 bar tube trailers
- 300 bar tube trailers
- 350 bar FCEV vehicles

Project schedule:

- **12/2022 – H2 compressor ordered**
- **7/2023 – project documentation for building permit and relating engineering ordered**
- **12/2023 – detail design documentation ordered**
- **3/2024 - building permit obtained**
- **7/2024 – detail design documentation finished**
- **7-12/2024 – realization**
- **12/2024 – commissioning and authority approval**

Significant media coverage

S I T A

VODÍKOVÁ PLNIČKA MENÍ EKOLOGICKÚ DOPRAVU (FOTOGRAFIE)



1/15 | Vodíkové čerpacie stanice počas tlačovej besedy spoločností Messer Tatragas a Slovnaft v priestoroch vodíkovej plniacej stanice v areáli Slovnaftu na tému: Bratislavská vodíkových autobusov DPB sa zvýšil o február 2025. Foto: SITA/Milan Illík

Slovensko | Ekonomika

Možnosti využitia vodíka v doprave prinášajú veľa výhod. V Bratislave zmodernizovali plniacu stanicu

taš/Lucia Špaňúrová

22.2.2025 10:27



AKTUÁLNE: Slovensko má prvú vodíkovú čerpaciu stanicu, nie však vďaka štátu. Takto sa na nej tankuje

PETER HODAL | 18. FEBRUÁRA 2025



Foto: Slovnaft

Vodíková plniaca stanica v areáli Slovnaftu prešla modernizáciou a umožňuje už aj tankovanie nákladných vozidiel a autobusov.



Hľadaný výraz ...



Podujatia

Spravodajstvo

Legislativa

Adresár firiem

Kotly

Solárne panely

Vodíková čerpacia stanica prešla modernizáciou. Plánujú aj zelený vodík (+FOTO)

Zvýšenie tlaku umožňuje vozovému parku predĺžiť dojazd vozidiel na vodíkový pohon.



Foto: Energie-portal.sk

In recent years, Messer Slovnaft has made significant efforts to improve the existing hydrogen infrastructure, thereby increasing the reliability and capacity of its production:

- **2021 - New H2 compressor - MK3**
- **2022 - Installation of the first hydrogen filling station for FCEV vehicles in Slovakia (200 bar)**
- **2023 - Installation of new purification unit – 24/7 mode**
- **2024 –Installation of the new 350 bar H2 compressor and 3 filling stations**

Support for the developers of the 1st Slovak
hydrogen bus and

- fully homologized
- city bus with 8 meters length
- composite body = ultra light
- hydrogen storage in the back
- 3,2 kg H₂ / 100 km



mobility &
innovation
production s.r.o.



... And first homologized FCEV truck

- Ford F-MAX platform
- 700 bar hydrogen tanks
- hydrogen capacity 48 kg
- driving range up to 750 km
- additional 120 km with onboard battery





Slovnaft

Thank you!

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