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UNITED ARAB EMIRATES  
MINISTRY OF INDUSTRY  
& ADVANCED TECHNOLOGY

GMIS Connect Roadshow  
Trieste, Italy

14 November 2023

# Powering Sustainable Manufacturing: The Rise of Green Hydrogen

## PROGRAMME AGENDA

HOST COUNTRY PARTNERS



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# Background

**S**ustainable manufacturing is becoming increasingly important, and as organisations search for sustainable solutions to power their factories and facilities, green hydrogen emerges as a promising option due to its clean and renewable energy source. Italy has taken an active interest in the potential of green hydrogen which very much aligns with the country's ambitious 2030 targets and its overall commitment to reducing carbon emissions and embracing sustainable practices. Trieste has emerged as a hub for green hydrogen innovation in Italy, with the North Adriatic Hydrogen Valley initiative leading the way.

This initiative aims to promote the use of green hydrogen in various sectors, including manufacturing, and has already seen successful collaborations with the United Arab Emirates. As a city with a rich industrial history, Trieste is uniquely positioned to spearhead sustainable manufacturing practices and innovation through green hydrogen. By exploring the potential of green hydrogen, Trieste can pave the way for a more sustainable future for its manufacturing industry, while also contributing to Italy's broader efforts to reduce carbon emissions and promote environmental sustainability.



Programme

13 November  
Elettra Sincrotrone Trieste



15:00-15:30

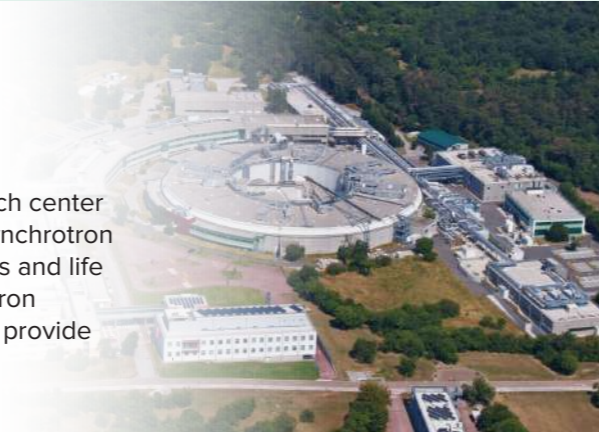
Arrival at Elettra Sincrotrone Trieste | Strada Statale 14 - Basovizza

15:30-17:30

Site Visit



Elettra Sincrotrone Trieste is a multidisciplinary research center of excellence specialized in generating high-quality synchrotron and free-electron laser light and applying it in materials and life sciences. The research center's main assets, the electron storage ring Elettra and the free-electron laser FERMI, provide light to over 30 experimental stations.



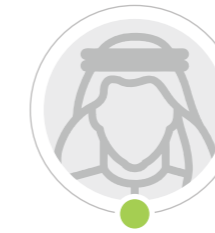
18:00

Cocktail Event

09:10-09:20

Co-Chair Keynote Address

Manufacturing in the Age of Climate Change: The Critical Role of Green Hydrogen



Representative  
Ministry of Industry &  
Advanced Technology, UAE

09:20-09:30

Keynote Address



H.E. Omar Obaid Mohamed Alhesan Alshams  
United Arab Emirates Ambassador to Italy  
*Video Message*

09:30-09:35

Co-Chair Keynote Address

From Vision to Action: UNIDO's Approach to Green Hydrogen Implementation in the Manufacturing Industry



Diana Battaglia  
Head of  
UNIDO Investment and Technology  
Promotion Office, Italy

09:35-09:45

Welcome to GMIS

Introduction to the  
Global Manufacturing and Industrialisation Summit



Namir Hourani  
Managing Director  
Global Manufacturing & Industrialisation Summit  
(GMIS)

Programme

14 November  
The Palace of the Autonomous Region of Friuli-Venezia Giulia



08:30-09:00

Registration

09:00-09:10

Welcome Address and Keynote

From Industrial Heritage to Sustainable Future: Trieste's Commitment to Green Hydrogen and Climate Action



H.E. Massimiliano Fedriga  
President  
Friuli Venezia Giulia Autonomous Region

HOST COUNTRY PARTNERS



GMIS CONNECT ROADSHOW

09:45-10:10

Panel discussion

**Green Hydrogen Technologies and Applications in Manufacturing and Service**

The use of green hydrogen in the manufacturing sector has gained significant attention in recent years as a promising solution for reducing carbon emissions and promoting sustainable practices. Green hydrogen is a clean and renewable energy source that can power various manufacturing processes, providing an alternative to traditional fossil fuels. According to a report by the United Nations Industrial Development Organization (UNIDO), the industrial sector accounts for over one-third of global carbon emissions. Therefore, the adoption of green hydrogen technologies in manufacturing has the potential to significantly reduce carbon emissions and contribute to global efforts to mitigate climate change.

Italy has been actively exploring the potential of green hydrogen in the manufacturing sector. The North Adriatic Hydrogen Valley initiative, based in Trieste, is a notable example of this. The initiative aims to promote the use of green hydrogen in various sectors, including manufacturing, and has already seen successful collaborations with the United Arab Emirates. As a country committed to reducing carbon emissions, Italy

has set ambitious targets to achieve carbon neutrality by 2050. The integration of green hydrogen technologies in manufacturing processes can play a significant role in achieving these targets.

Green hydrogen technologies are rapidly gaining momentum in the manufacturing industry as a sustainable solution for reducing carbon emissions. According to the UNIDO report, green hydrogen has the potential to revolutionize various sectors, including manufacturing, transportation, and energy. The report highlights that by adopting green hydrogen, manufacturing companies can reduce their carbon footprint and improve their overall sustainability performance. With advancements in technology and decreasing costs, green hydrogen is becoming increasingly feasible for large-scale applications, providing manufacturers with a viable alternative to traditional fossil fuel-based energy sources. As the world shifts towards a more sustainable future, green hydrogen technologies are poised to play a critical role in powering the manufacturing industry and driving environmental sustainability.

Moderator:



**Cristina Sbaizero**  
 Chief Executive Officer  
 World Trade Center Trieste  
 & Board Member WTCA

Speakers:



**Fabio Spanò**  
 Gas Technology Manager EU+MEA  
 Electrolux Italia S.p.A.



**Roberta Padovan**  
 Project Manager  
 Maritime Technology Cluster MareFVG  
*presentation of Vanguard Initiative  
 FVG demo-case Hydrogen in  
 Shipping*



**Paolo Privileggio**  
 President & CEO  
 Interporto di Trieste S.p.A.  
*Video Message*

10:10-10:50

Coffee Break/NAHV Poster Session

HOST COUNTRY PARTNERS



10:50-11:35

Panel Discussion

**Powering Profitability with Green Hydrogen: Investment and Business Models for Sustainable Manufacturing and Services**

As the world shifts towards a more sustainable future, green hydrogen technologies are gaining momentum as a promising solution for reducing carbon emissions and promoting sustainable practices. In the manufacturing sector, green hydrogen has emerged as a viable alternative to traditional fossil fuel-based energy sources, offering a clean and renewable energy source that can power various manufacturing processes. However, the adoption of green hydrogen in manufacturing also presents significant challenges, including high upfront costs and the need for significant infrastructure investments.

Despite these challenges, investment opportunities and business models for green hydrogen in manufacturing are rapidly emerging. The decreasing cost of green hydrogen production, along with advancements in technology and growing demand for sustainable solutions, are driving the development of innovative business models for green hydrogen production and distribution. According to a report by Bloomberg New Energy Finance, the global green hydrogen market is expected to reach \$11 trillion by 2050, with the potential to create up to 30 million jobs worldwide. This presents significant investment opportunities for companies and investors looking to participate in the transition towards a more sustainable future. However, to unlock the full

potential of green hydrogen in manufacturing, innovative business models and investment strategies will be required to address the significant upfront costs and infrastructure requirements of green hydrogen technologies.

Italy has recognised the importance of green hydrogen technologies in achieving its carbon neutrality goals and has taken steps to promote investment in this sector. The Italian government has allocated €470 million to support the development of green hydrogen production and deployment infrastructure. The North Adriatic Hydrogen Valley initiative in Trieste is a prime example of Italy's commitment to green hydrogen technologies. The initiative aims to create a sustainable hydrogen value chain by connecting renewable energy sources to industrial users, such as manufacturers. Through collaborations with international partners, such as the United Arab Emirates, Italy is also exploring the potential for exporting green hydrogen, opening up new business opportunities and increasing investment in the sector. With continued support and investment, Italy has the potential to become a leader in green hydrogen technologies, driving sustainable growth in the manufacturing sector and contributing to global efforts to combat climate change.

Moderator:



**Barbara Monaco**  
 Technologist  
 Area Science Park

Speakers:



**Gianluca Tesolin**  
 Chief Executive Officer  
 Bofrost S.p.A.



**Giovanni Toffolutti**  
 Managing Director  
 Faber Industrie S.p.A.  
*Video Message*



**Vittorio Torbianelli**  
 General Secretary  
 Port Network Authority of the Eastern Adriatic Sea



**Rita Gollino**  
 Corporate Development Manager  
 Samer & Co. Shipping S.p.A.



**Lucio Penso**  
 Director of Company Crisis Resolution and Industrial Transition division - Directorate for productive activities & tourism  
 Friuli Venezia Giulia Autonomous Region

11:35-12:20

Panel Discussion

### Empowering the Green Hydrogen Workforce: Strategies for Capacity Building and Skills Development in Manufacturing & services

The emergence of green hydrogen as a promising solution for reducing carbon emissions has led to a surge in demand for skilled workers in the manufacturing sector. The manufacturing industry is one of the major contributors to global carbon emissions, and the adoption of green hydrogen technologies requires a workforce that is equipped with the necessary skills and knowledge to handle this new technology. According to a report by the International Renewable Energy Agency (IRENA), the green hydrogen industry is expected to create over 30 million jobs globally by 2050. Therefore, capacity building and skills development are critical for empowering the green hydrogen workforce.

Capacity building and skills development for the green hydrogen workforce involve various strategies, including training programs, apprenticeships, and certifications. These strategies aim to equip workers with the necessary technical and practical skills needed to operate, maintain, and repair green hydrogen

technologies. In addition, these strategies can help address the shortage of skilled workers in the manufacturing industry and create new job opportunities. To achieve this, collaboration between industry players, governments, and educational institutions is necessary to ensure that training programs and certifications are aligned with industry needs and standards.

In Italy, efforts are underway to empower the green hydrogen workforce. The North Adriatic Hydrogen Valley initiative, based in Trieste, aims to promote the use of green hydrogen in various sectors, including manufacturing, and has a specific focus on capacity building and skills development. The initiative has already seen successful collaborations with educational institutions to develop training programs that align with industry needs. These efforts are critical for ensuring a smooth transition to green hydrogen technologies and for positioning Italy as a leader in sustainable manufacturing practices.

Moderator:



**Cristina Sbaizero**  
Chief Executive Officer  
World Trade Center Trieste  
& Board Member WTCA

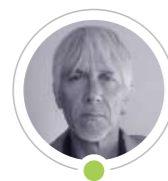
Speakers:



**Rodolfo Taccani**  
Professor, Department of  
Engineering and Architecture  
University of Trieste



**Rolando Paolone**  
Chief Executive Officer & CTO  
DANIELI Group



**Massimo Giacomini**  
Head New plant Start-up  
Acegas Hera

13:30-14:15

Panel Discussion

### Government Policies and Regulations for Green Hydrogen in Manufacturing and Services

As the world moves towards a more sustainable future, governments around the world are implementing policies and regulations to encourage the adoption of green technologies, including green hydrogen. The manufacturing industry is a significant contributor to global carbon emissions, making it an important area for policymakers to target in their efforts to reduce carbon emissions. Governments are increasingly recognizing the potential of green hydrogen in the manufacturing sector and are implementing policies and regulations to incentivize its adoption. These policies include tax incentives, subsidies, and grants to support the development and deployment of green hydrogen technologies in the manufacturing industry.

Despite the benefits of green hydrogen, there are challenges to its adoption in the manufacturing industry. One of the major challenges is the high cost of production and deployment of green hydrogen technologies. This is particularly true in developing countries where the cost of renewable energy sources

is often higher than traditional fossil fuels. Another challenge is the lack of infrastructure to support the production and distribution of green hydrogen. Governments need to invest in the development of infrastructure to support the adoption of green hydrogen technologies in the manufacturing sector.

To address these challenges, governments need to work with industry stakeholders to develop effective policies and regulations. This includes creating a regulatory environment that supports the development and deployment of green hydrogen technologies, as well as providing funding and support to help manufacturers adopt these technologies. Governments can also encourage the development of public-private partnerships to help finance and deploy green hydrogen technologies in the manufacturing sector. By working together, governments and industry stakeholders can create a regulatory and funding environment that supports the growth of green hydrogen in the manufacturing industry.

Moderator:



**Cristina Sbaizero**  
Chief Executive Officer  
World Trade Center Trieste  
& Board Member WTCA

Speakers:



**Elena Caprotti**  
Director of Energy Transition Department  
- Environment Protection, Energy &  
Sustainable Development Directorate  
Friuli Venezia Giulia Autonomous Region



**Alessandro Alessio**  
Energy Professional,  
Energy Policy Department  
Confindustria



**Smeeta Fokeer**  
Research & Industrial Policy Officer,  
Department of Policy Research  
& Statistics (PRS)  
United Nations Industrial  
Development Organization  
(UNIDO)



**Luigi Crema**  
President  
Hydrogen Europe  
Research

12:20-13:30

Lunch Break/NAHV Poster Session

HOST COUNTRY PARTNERS







14:15-15:15



Panel Discussion

Navigating the Climate Crisis: Strategies and Solutions for COP28

Climate change is a pressing global issue that requires immediate action from individuals, businesses, and governments alike. The consequences of climate change, including rising sea levels, increased frequency and severity of natural disasters, and loss of biodiversity, are already being felt across the world. To mitigate these consequences and prevent further damage, there is a need for a coordinated global response. This includes implementing policies and initiatives that reduce greenhouse gas emissions, increase the use of renewable energy, and encourage investments in sustainable solutions.

Italy and the UAE are two countries that are taking steps towards addressing climate change. Italy has set ambitious targets to achieve carbon neutrality by 2050 and has already made significant progress in reducing its carbon emissions. The country has been investing in renewable energy sources, such as wind and solar power, and has implemented policies to promote the use of electric vehicles. The North Adriatic Hydrogen Valley initiative in Trieste is another example of Italy's commitment to green technologies, including green hydrogen. By promoting the use of green technologies,

Italy is contributing to global efforts to mitigate climate change.

The UAE, on the other hand, has set a target of reducing its carbon emissions by 23.5% by 2030 and has invested heavily in renewable energy sources. The country is home to the world's largest single-site solar energy project, the Mohammed bin Rashid Al Maktoum Solar Park, and has also been exploring the potential of green hydrogen technologies. The country is set to host COP28, the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change by the end of 2023. This provides an opportunity for the UAE to showcase its commitment to combating climate change and to drive global action towards a sustainable future.

However, there is still much work to be done. Governments, businesses, and individuals need to work together to accelerate the adoption of sustainable practices and technologies. This includes investing in renewable energy, reducing the use of fossil fuels, and implementing policies that promote sustainable practices.

Moderator:



**Massimiliano Rudella**  
 Technologist  
 Area Science Park

Speakers:



**Caterina Cobino**  
 Head of special projects & partnerships - Innovation Directorate & Chief of project IPCEI H2 Fincantieri S.p.A.



**Marco Golinelli**  
 Italcogen & Head of Energy Group ANIMA-Confindustria Meccanica Varia



**Antonio Lucci**  
 Senior Business Developer for Carbon Reduction Excellence RINA

15:15-16:00

Coffee Break/NAHV Poster Session



Programme

14 November  
 Palace of the Autonomous Region of Friuli-Venezia Giulia



16:00-17:15

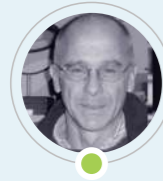
**Hydrogen: Production and Storage**

Moderator:



**Stefano Fantoni**  
 President  
 Trieste International Foundation for Progress and Freedom of Sciences

Speakers:



**Michele Pipan**  
 Vice President  
 National Institute of Oceanography & Applied Geophysics (OGS)



**Fausto Ferraccioli**  
 Director, Geophysics Dept.  
 National Institute of Oceanography & Applied Geophysics



**Paolo Fornasiero**  
 Full Professor–Inorganic Chemistry  
 University of Trieste



**Elena Barbera**  
 Research Associate, Dept. of Industrial Engineering  
 University of Padua

18:30-19:00



**Closing Remarks**  
**GMIS Connect - Trieste Video**

Speakers:



**Alberto Soraci**  
 Technologist  
 Area Science Park



**Stefano Fantoni**  
 President  
 Trieste International Foundation for progress and freedom of sciences



**Luigi Crema**  
 President  
 Hydrogen Europe Research



**Sandra Sodini**  
 Director of International Affairs & European Programming office  
 General Directorate,  
 Presidency of Friuli Venezia Giulia Region



**Diana Battaglia**  
 Head of  
 UNIDO-Investment and Technology Promotion Office, Italy

17:15-18:30



**Roundtable: The Role of the Research in the NAHV Ecosystem**

Introduction and moderator



**Luigi Crema**  
 President  
 Hydrogen Europe Research

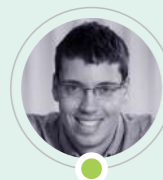
Speakers:



**Marta Boaro**  
 Professor - Polytechnic Department of Engineering and Architecture  
 University of Udine



**Frano Barbir**  
 Professor Emeritus - Dept. of Faculty of Electrical, Mechanical Engineering & Naval Architecture  
 University of Split



**Urban Žvar Baškovič**  
 Faculty of Mechanical engineering,  
 Post DOC  
 University of Ljublian



**Viktor Hacker**  
 Professor at Institute of Chemical Eng. & Environmental Technology  
 Graz University of Technology

Programme

15 November  
 Cividale del Friuli



09:30-10:00

Arrival at Faber Industry | Cividale del Friuli

10:00-12:00

**Guided Factory Tour**



Faber Industrie is a global industry leader specializing in the design, manufacturing and testing of high-pressure gas cylinders and systems utilized in a wide range of applications, including, among others, clean energy (CNG & Hydrogen) storage.



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