



Con la partecipazione incondizionata di:



**CONVEGNO ON LINE
LUNEDÌ 19 MAGGIO 2025, ORE 15.00 - 18.00**

**Transizione energetica:
ricerca e applicazioni nel campo
dell'Idrogeno**

Presentazione dell'International Agency for Green Energy: obiettivi e programmi di intervento

Adolfo IULIANELLI
Consiglio Nazionale delle Ricerche
President, IAGE Italy Chapter

19 Maggio, 2025



The International Association for Green Energy

International Association for Green Energy (IAGE) History

- A Chronicle of Green Drive

- 2000: Conceptualization for a new energy journal, International Journal of Green Energy (IJGE)
- 2001: Negotiation with publisher and Association of Energy Engineers (AEE)
- 2002: Common understanding reached
- 2003: Written agreement signed and preparation for IJGE launch
- 2004: First volume of IJGE published (4 issues/volume, number of issues/volume increased over the subsequent years)
- 2005: The International Green Energy Conference (IGEC) series launched, and the first IGEC (IGEC-I) held at Waterloo, Canada, June 2005
- 2005-2008: Green Energy Conference for Youth launched in collaboration with ABC (Association for Bright Children) – this conference was run annually for three years (2005-2008)
- 2006: IGEC-II held in Oshawa, Ontario, Canada, June 2006
- 2007: IGEC-III held at Mälardalen University, Västerås, Sweden, June 2007
- 2007: International Association for Green Energy (IAGE) launched
- 2007: Master of Engineering – Green Energy Certificate Program launched at the Department of Mechanical and Mechatronics Engineering, University of Waterloo,

- 2007: IGEC-III held at Mälardalen University, Västerås, Sweden, June 2007
- 2007: International Association for Green Energy (IAGE) launched
- 2007: Master of Engineering – Green Energy Certificate Program launched at the Department of Mechanical and Mechatronics Engineering, University of Waterloo, Ontario, Canada
- 2008: IGEC-IV held in Beijing, China, October 2008
- 2010: IGEC-V held in Waterloo, Ontario, Canada, June 2010
- 2011: IGEC-VI held in Eskişehir, Turkey, June 2011
- 2011: Progress in Green Energy Book Series launched
- 2012: IGEC-VII held in Dalian, China, May 2012
- 2013: IGEC-VIII held in Kiev, Ukraine, June 2013
- 2014: IGEC-IX held in Tianjin, China, May 2014
- 2015: IGEC-X held in Taichung, Taiwan, May 2015
- 2015: IJGE increased to 12 issues/volume
- 2016: IGEC-XI held in Anchorage, Alaska, USA, May 2016
- 2017: IGEC-XII held in Xi'an, China, August 2017
- 2017: IJGE increased to 15 issues/volume
- 2021: IGEC-XIII held virtually, July 2021
- 2022: IGEC-IX held virtually, July 2022
- 2022: IAGE new logos released
- 2023: IGEC-X held in Glasgow, UK, July 2023 (hybrid conference)
- 2023: IJGE page budget removed, publishing all the papers accepted with no page limit
- 2023: IAGE Newsletter launched

<https://www.iage-net.org/>



The International Association for Green Energy

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The International Association for Green Energy



Xianguo Li, Ph.D., P.Eng., FCAE, FEIC, FCSME
President, International Association for Green Energy (IAGE)

*Professor, Mechanical and Mechatronics Engineering
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University of Waterloo, Waterloo, Ontario N2L 3G1 Canada*

xianguo.li@uwaterloo.ca

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Professor Hikmet Karakoc
Chair of IAGE International Committee

*Faculty of Aeronautics and Astronautics,
Eskisehir Technical University, Turkey*

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Website: <https://www.iage-net.org/>

Twitter: [@the_IAGE](https://twitter.com/the_IAGE)

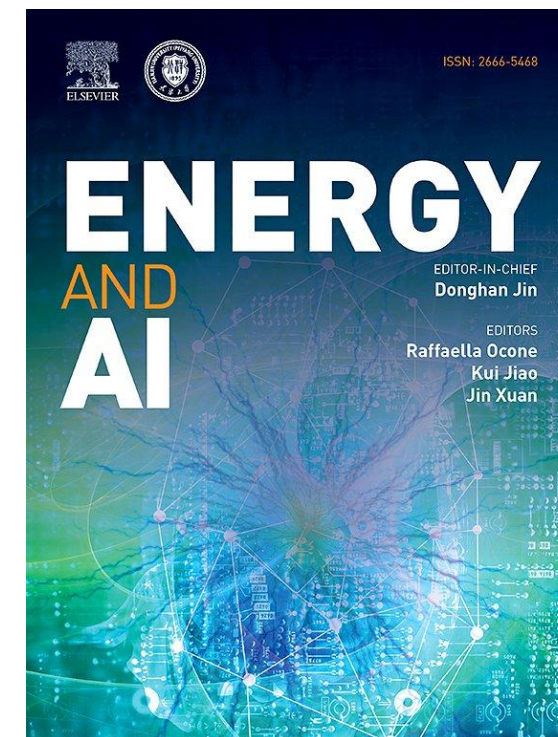
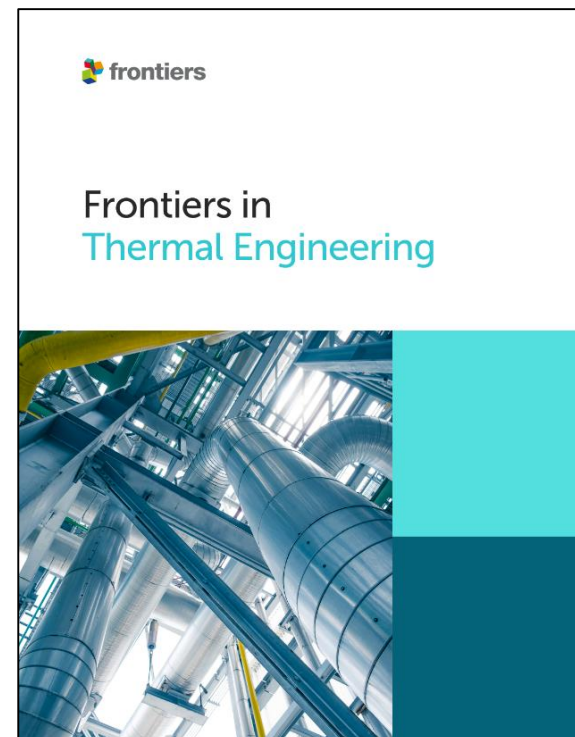
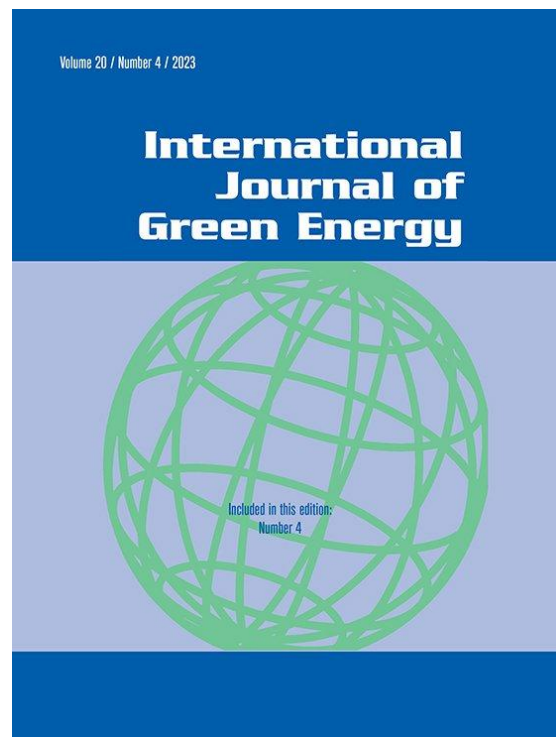
LinkedIn: <https://www.linkedin.com/company/the-iage/>

IGEC Publications - Journals

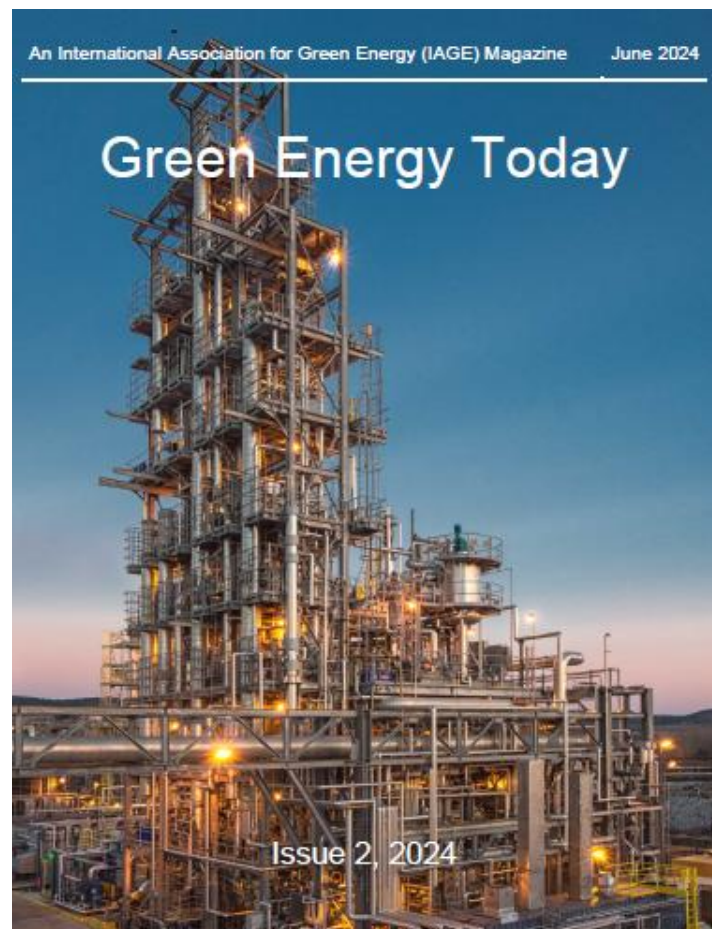
IGEC-XVI (2024) Journal Publications

High-quality original papers of archival value will be recommended for publication in seven special issues in the following prestigious international journals

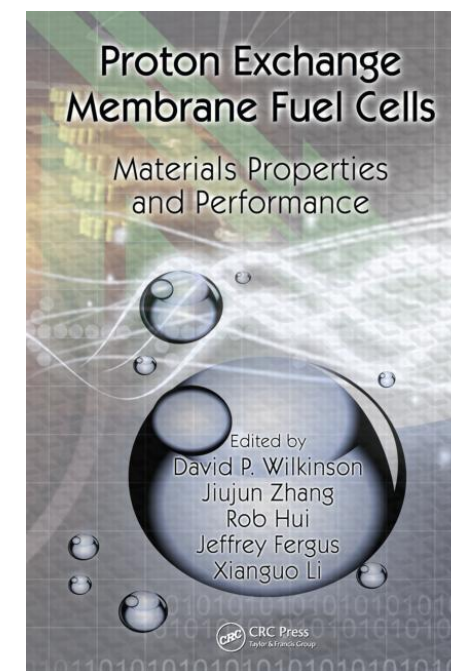
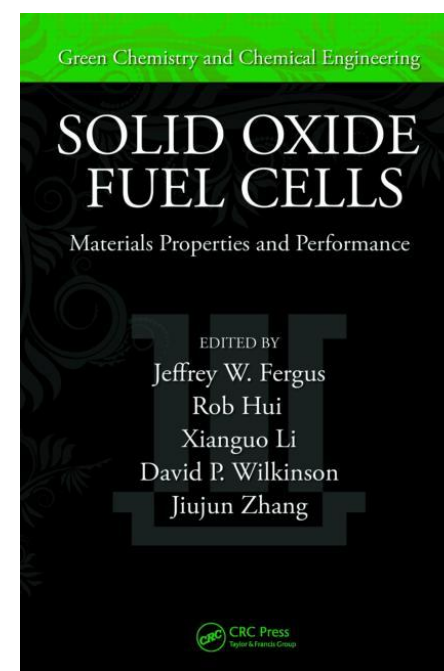
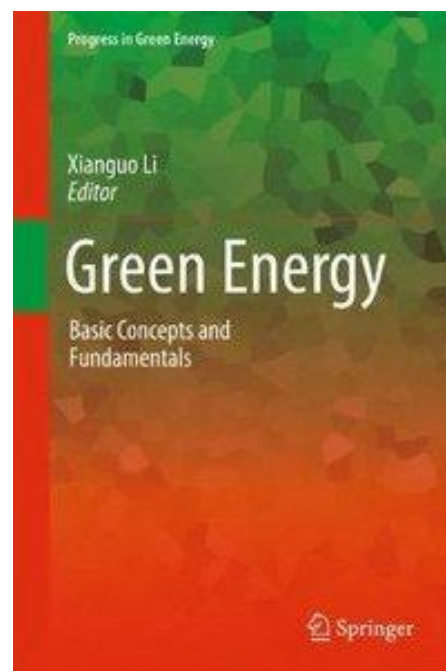
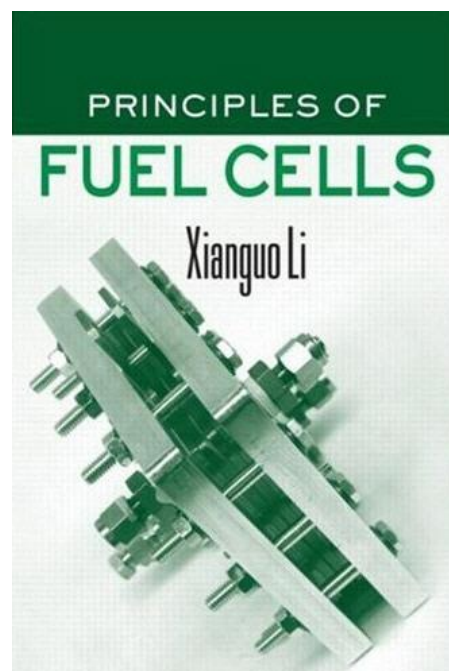
- **International Journal of Green Energy** (Taylor & Francis)
<https://www.tandfonline.com/journals/ljge20>
- **Frontiers in Thermal Engineering** (Frontiers)
<https://www.frontiersin.org/journals/thermal-engineering>
- **Energy and AI** (Elsevier)
<https://www.sciencedirect.com/journal/energy-and-ai>



IAGE Publications - Magazine



IAGE Publications - Books



IGEC and IAGE Awards

CALL FOR

nominations

IAGE

GREEN ENERGY

AWARDS'24



AWARDS 2024

IMPORTANT DATES

March 31, 2024

- Deadline of Application

July 4, 2024

- Announcement of Award Winners

IAGE

GREEN ENERGY

AWARDS'24

AWARDS will be presented at

International Green Energy

Conference (IGEC-XVI) 2024

June 30 - July 4

2024





INTERNATIONAL ASSOCIATION FOR GREEN ENERGY



jing.shi@uc.edu

CALL FOR

candidates

IGEC

CONFERENCE

AWARDS'24



AWARDS 2024

Submit your paper

and presentation

at the IGEC

website.

For more information:



iage-net.org

IGEC

CONFERENCE

AWARDS'24

AWARDS will be presented at

International Green Energy

Conference(IGEC-XVI) 2024

June 30 - July 4

2024





INTERNATIONAL ASSOCIATION FOR GREEN ENERGY



jing.shi@uc.edu



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The International Association for Green Energy

ANNOUNCEMENT OF IGEC 2025



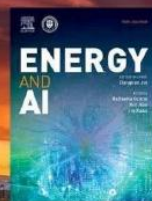
**The 17th International Green Energy Conference &
the 6th International Conference on Energy and AI &
the 6th Arctic Energy Forum**

October 12-15, 2025
Reykjavik, Iceland

**The 17th International Green Energy Conference
The 6th International Conference on Energy and AI
The 6th Arctic Energy Forum 2025
In a Merged Events Format**

Reykjavik, Iceland

October 12-15, 2025



Arctic Circle Assembly 16-19 October 2025

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POLITECNICO
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Politecnico di Milano



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DISCIPLINES
Architecture, Design, Engineering

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An International Campus

A Cosmopolitan Campus, of international reputation with over 950 students from 83 countries, and mobility and exchange programs (Erasmus, Most and Dual).

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Via Alberto Savinio
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Biomedical sciences Chemistry and materials technology
Earth and environment Engineering, ICT, energy and transportation
Physics and matter Human sciences and cultural heritage
Bio and agri-food



Arctic: identified mechanisms controlling black carbon concentrations
Press release 20/03/2024

A new study conducted by researchers at the Institute of Polar Sciences of the National Research Council of Italy, in collaboration with Stockholm University and ETH Zurich, has identified the mechanisms that control the Arctic transport of black carbon, an air pollutant that contributes to climate warming, while also establishing the variability of its concentrations across polar seasons. The work, published as a highlight paper in Atmospheric Chemistry and Physics, lays the groundwork for a deeper understanding of the impact of this compound on regional and global climate

Call for proposals of joint lab projects
Institutional Area

Interested parties are advised that the procedures for submitting proposals for the establishment of

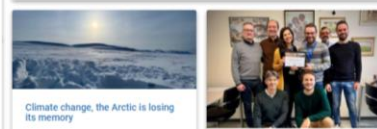
Research Grant on the theme "Virtual, Augmented and Mixed Reality" available at Cnr-isti
News 08/02/2024

In the framework of the PRIN Project IPAD (Italian Performance Archive in



Trapping light, a new paradigm in Photonics
Press release 27/02/2024

An international study involving Italian researchers of the Institute of Applied Sciences and Intelligent Systems of the National Research Council of Italy (Cnr) opens new avenues for trapping and converting light energy. Published on Nature, the research could facilitate developments in quantum technology, high-resolution imaging, and photonic devices



Climate change, the Arctic is losing its memory




ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development

HOME ENEA AGENCY RESEARCH & DEVELOPMENT SERVICES INTERNATIONAL ACTIVITIES PROJECTS INFORMATION AND CONTACTS


HIGHLIGHTED

Spase: Italian garden begins its simulated mission on the Red Planet
21 March 2024



With the simulation of the landing on Mars and the beginning of the isolation period, the Amadee-2s mission, organized by the Austrian Space Forum in collaboration with the American Space Agency, has started to pave the way for future space exploration missions.


Water: From ENEA and HIERA new technologies to ensure a safe reuse for irrigation
21 March 2024



WORLD WATER DAY 2024

ENEA, the Italian National Agency for New Technologies, Environment and Sustainable Economic Development, in collaboration with Gruppo HIERA, has recently installed an innovative instrument for the real-time monitoring of the microbial content (i.e. E coli) in reclaimed water.

Energy: Antarctica, the Mario Zucchelli station becomes increasingly "renewable"
21 March 2024



The 39th research expedition has just concluded at the Italian-Mario Zucchelli base in Antarctica, where over 20% of power supply was provided by clean energy, thanks to the expansion of a photovoltaic system, capable of "capturing" solar radiation - available 24 hours a day during the austral summer - and the optimization of a wind farm, capable of converting katabatic winds, among the most powerful on the planet, into energy.

Environment: Rome, ENEA turns building heritage in urban mine

Real estate: Surge in inflation pushes Italians to invest

UPCOMING EVENTS

Campagna di formazione/informazione e di sensibilizzazione sull'efficienza energetica per le PMI 2024
14 March 2024
Immesse, Ricerca, Sostenibilità, Info Dev servizi e finanziamenti per il futuro green dell'Emilia-Romagna 27 March 2024
Save the date! 14° Workshop Tematico MIT-ENEA | Teleconferenza applicata alla sessione delle risorse idriche 09 June 2024
Save the date! 10th EBN&Set SIG Workshop on Coast Zones 17 June 2024
Hydrogen Summer School | Mastering safety and regulation in the hydrogen value chain 18 June 2024
Tutti gli eventi ENEA sul sito tematico dedicato

PATRONAGES AND CONTRIBUTIONS

OPPORTUNITY


MARKET SURVEY ALERTS

ENEA - Agenzia nazionale

ENEA - Agenzia nazionale

#Formazione #STEM #EfficienzaEnergica #ItalianClass4A, la campagna nazionale per l'informazione e la formazione sull'efficienza energetica promossa da ENEA è stata tra i protagonisti della Fiera #Cioccolata Italia, tra i più importanti eventi fieristici dedicati all'innovazione del mondo della scuola. Tra gli appuntamenti della manifestazione, il saln "Formazione e Futuro", tenutosi presso lo stand #ENEA che per l'occasione si è trasformato in una vera e propria area di con-

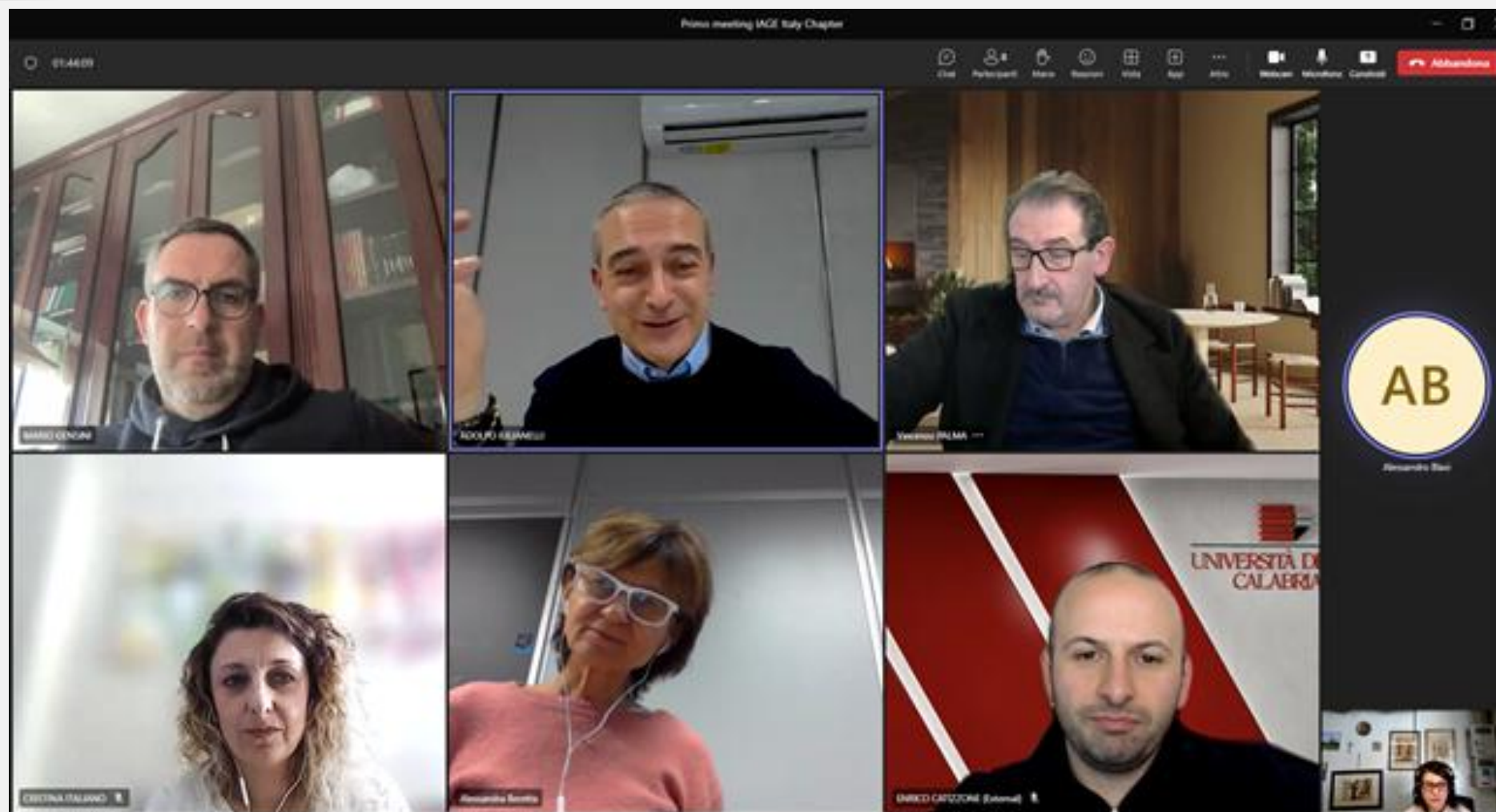
Alto



Geographic IAGE Italy Chapter Board Entities Distribution



IAGE-Italy Chapter – 1st online meeting



IAGE-Italy planned activities in the mid-term

- **Organization of a National event in the framework and under the auspices of IAGE**
 - *Promoting the IAGE activities*
 - *Disseminating research projects outcomes in the framework of IAGE objectives*
 - *Promoting students, PhD students participation to the event and to the association*
 - *Getting new members*
 - *Realizing a dedicated special issue on International Journal of Green Energy*
- **Promotion of special issues among the institutions involved in the IAGE Italy Chapter**
- **Participation to the IAGE conference in China, proposing Special Sessions and invited speakers**
- **Strengthening the cooperation of the IAGE Italy Chapter members**
- **Disseminating activities in the framework of IAGE through the Social Media**
- **Realizing online/in person IAGE Italy chapter meetings every month, with a summary of concluded activities**




IAGE - Italy website and social media

www.iage-italy.it

← → ↻ iage-italy.it

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International Association for Green Energy - Divisione Italiana

"Impegnarsi per progressi nei sistemi energetici verdi sostenibili a beneficio dell'ambiente, dell'economia e della società."

Missione

La divisione italiana dell'International Association for Green Energy (IAGE) è un'organizzazione senza scopo di lucro che costruisce una piattaforma educativa e informativa per il networking e lo scambio di conoscenze tra il mondo accademico, gli enti di ricerca, l'industria e la società in generale in tutti i settori della "Green Energy". Essa promuove la creazione di una rete scientifica italiana che abbia lo scopo di promuovere lo sviluppo scientifico nell'ambito delle energie rinnovabili, dei processi di produzione di energia sostenibili, mirando al contempo alla tutela ambientale ed al miglioramento della qualità della vita. Essa rappresenta la branca italiana della divisione internazionale dell'associazione, cui maggiori informazioni possono essere consultate al link: <https://www.iage-net.org>

Visione


Creare una rete scientifica italiana che si ispiri a quella internazionale e rappresentare una delle risorse principali per accademici e industriali in tutte le aree dei sistemi energetici verdi e sostenibili.

<https://www.iage-italy.it>

https://twitter.com/iage_italy

International Association for Green Energy - Ita

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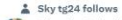
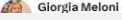
International Association for Green Energy - Italy
@iage_italy

Official account for Italian Board of [#theIAGE](#)
📍 Italy [iage-italy.it](#) 📅 Joined March 2024
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Italy trends

1 • Only on X • Trending
#GrandeFratello
153K posts

2 • Only on X • Trending
#Baltimora

3 • Only on X • Trending
Beatrice
53.8K posts

4 • Trending
#26marzo
3,353 posts

5 • Only on X • Trending

IAGE - Italy Scientific events sponsorship



DIPARTIMENTO DI INGEGNERIA DELL'INNOVAZIONE



Green Hydrogen Generation and its Application as a Fuel

1st HyGen Workshop

Scientific Committee

- Patrizia Bocchetta, Department of Innovation Engineering, University of Salento (Lecce, Italy)
- Meenal Gupta, Department of Innovation Engineering, University of Salento (Lecce, Italy)
- Antonio Ficarella, Department of Innovation Engineering, University of Salento (Lecce, Italy)
- Vincenzo Baglio, CNR-ITAE (Messina, ITALY)
- Isabella Nicotera, Department of Chemistry and Chemical Technologies, University of Calabria (Rende, Italy)
- Ghulam Yasin, School of Environmental Science and Engineering, Tianjin University (China).

Local Organizing Committee

- Patrizia Bocchetta, Department of Innovation Engineering, University of Salento (Lecce, Italy)
- Meenal Gupta, Department of Innovation Engineering, University of Salento (Lecce, Italy)
- Filippo Selleri, Labsel s.r.l., Lequile (Lecce, Italy)
- Giorgia Pino, Department of Innovation Engineering, University of Salento (Lecce, Italy)
- Vincenzo Caramia, Department of Innovation Engineering, University of Salento (Lecce, Italy)

08-10 April 2024 | 10:00 AM | Google Meet



POLITECNICO
MILANO 1863

DIPARTIMENTO DI ENERGIA

Thursday, April 11th, 2024

h 9.00 – 13.00

Location: Politecnico di Milano,
Campus Bovisa La Masa,
Via Giuseppe La Masa 1,
Building B23 DMEC, Sala Consiglio, 1st floor
For information: veronica.piazza@polimi.it

Registration form

<https://forms.office.com/e/zc55PdA96z>

EN: science

The role of biomass to fuels in the energy transition

The valorisation of biomass offers a great potential for the current energy transition and circular economy, but technological development and market deployment face challenges related to economic, regulatory as well as fundamental issues (feedstock, chemistry, reactors).

This seminar aims to overview the research frontiers, the technological status, the market and political drivers. Distinguished researchers and industrial experts will bring their vision, tackling key questions.

Which role for biogenic C within a future carbon-free energy market?
Bio-syngas, bio-liquids, bio-char, bio-CCS?

Which scientific, technological and regulatory obstacles must be overcome to enhance energy and carbon efficiency and improve the economic competitiveness?

Program:

IAGE - Italy encounters Prof. Hikmet Karakoc at CNR-ITM



IAGE-Italy chapter and researchers of the Institute on Membrane Technology of the Italian National Research Council encounters Prof. Karakoc

Prof. Karakoc meeting with some members of IAGE-Italy and visit in CNR-ITM labs

WEBINAR on:
Sustainable Aviation SARES Activities and
ESTU projects – Collaboration with CNR

By Prof. Hikmet T. Karakoc

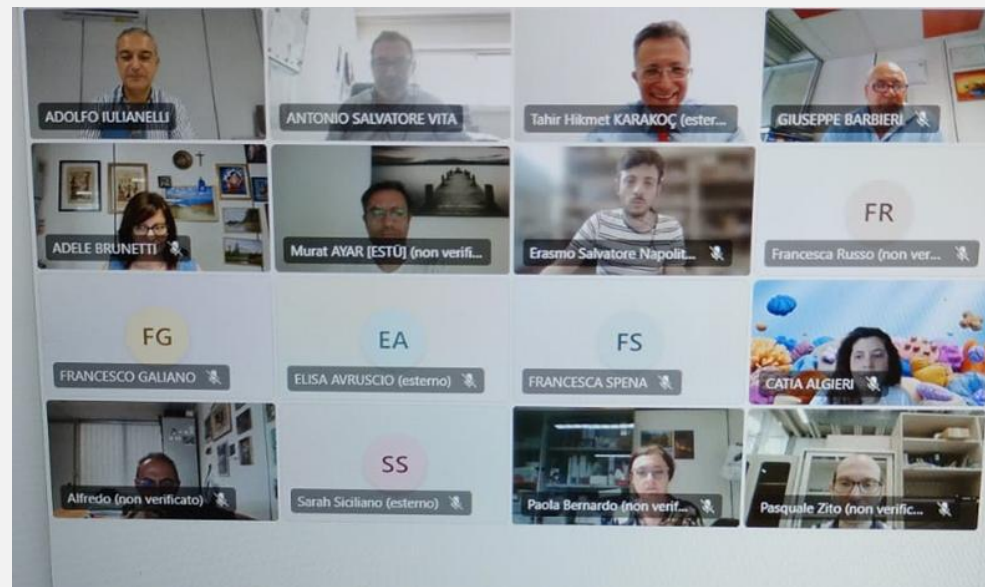


Hikmet T. Karakoc is currently Full Professor at the Faculty of Aeronautics and Astronautics of the Eskisehir Technical University (Turkey). Among others, his research topics deal with "Renewable Energy, Energy Economics, Fuels, and Combustion, Sustainable Aviation, Aircraft Propulsion System, Gas Turbines, Cogeneration Systems". On these topics, he has taken part in numerous Industrial Projects, and as Project Coordinator for over 30 projects and corporations. He published national and international papers in over 300 and 40 books. He is Chair of International Committee in the Board of Directors of the International Association for Green Energy (IAGE), and is currently President of the International Sustainable Aviation and Energy Research Society (SARES).

Moderator: Dr. Adolfo Iulianelli

WHEN: Friday 21st of June 2024; 11:30 a.m. CET

WHERE: TEAMS link: https://teams.microsoft.com/l/meetup-join/19%3ameeting_OGE3MjkxYzAtMiNiYS00NDhmLThtYktNiVmZmYwMDlIMGZl%40thread.v2/0?context=%7b%22Tid%22%3a%2234c64e9f-d27f-4edd-a1f0-1397f0c84f94%22%2c%22Oid%22%3a%2224f6d64-7161-4972-9a19-3c407504436f%22%7d



IAGE – Italy: National scientific event



[Home](#) [Committees](#) [Plenary](#) [Program](#) [Venue](#) [Submission](#) [Registration](#) [Info](#) [Sponsorship](#) [Satellite Event](#)

International Congress on Sustainable Energy and related Technologies

Lipari (Italy), June 22-26, 2025

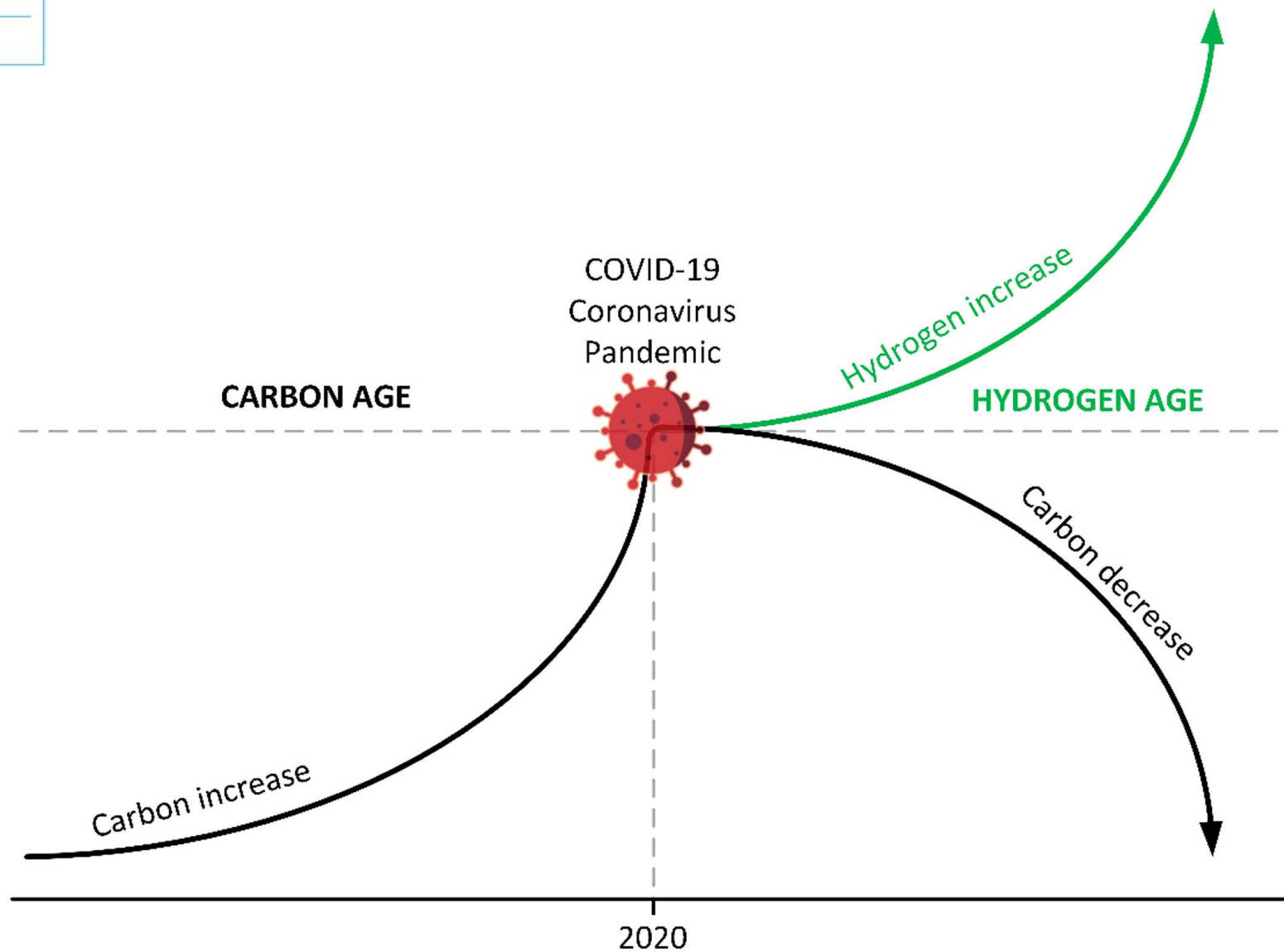
Save the Planet, Enjoy your Life!

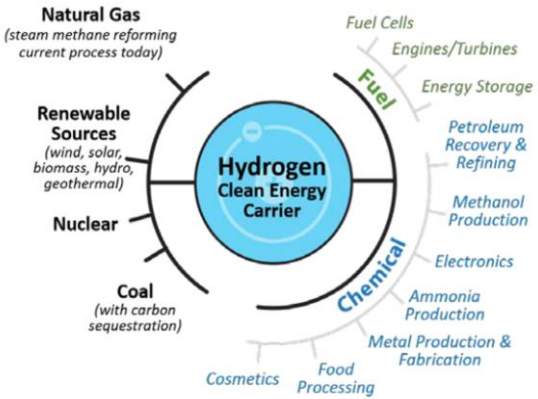
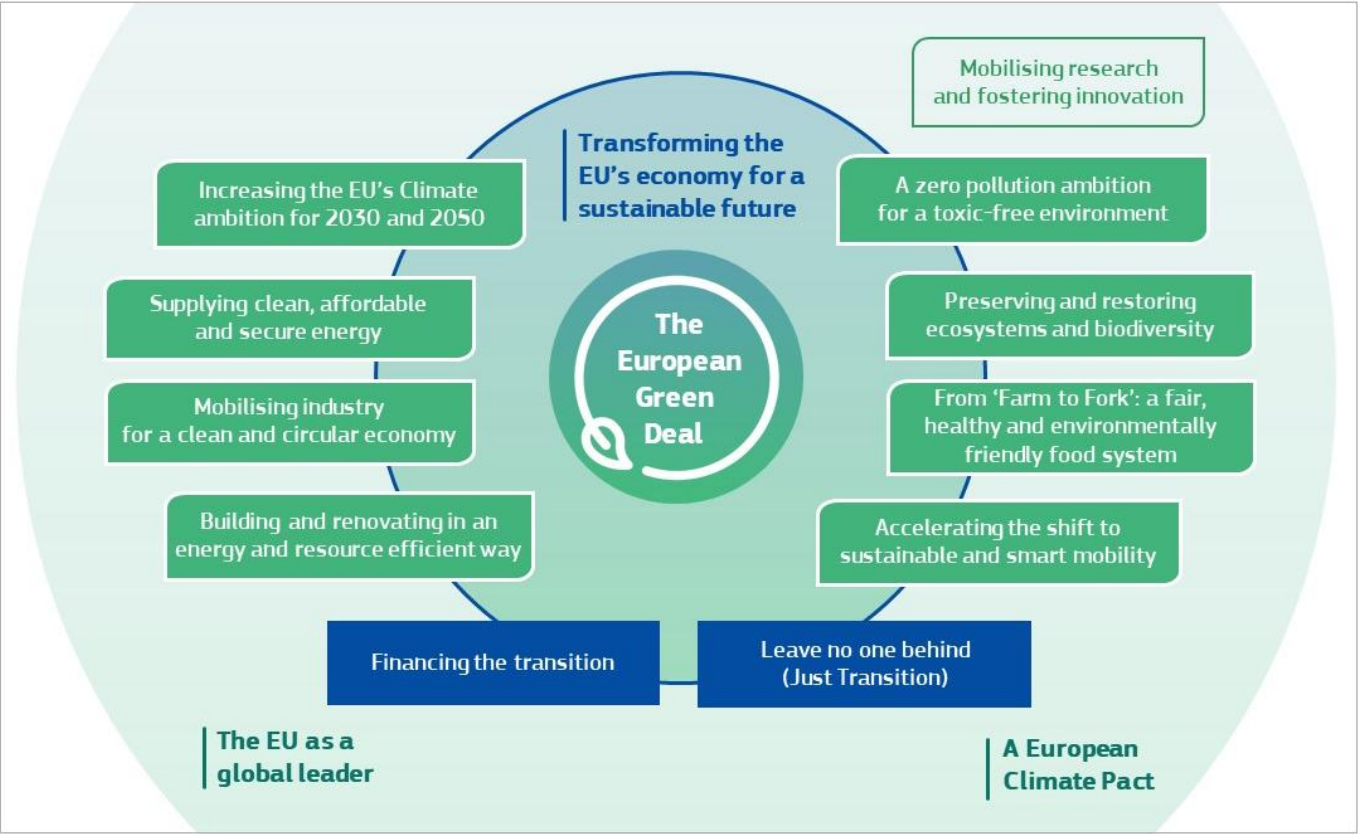
We are pleased to announce the **1st International Congress on Sustainable Energy and related Technologies (ICSET 2025)**. This unique event aims to provide a common platform dedicated to energy systems, with a spotlight on the notable scientific and technical advancements in the sphere of energy transition. ICSET 2025 will be hosted in **Lipari (Italy)**, mother island of the enchanting Aeolian archipelago, taking place from June 22nd to 26th, 2025.



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IAGE – Italy Chapter





Global Hydrogen Market















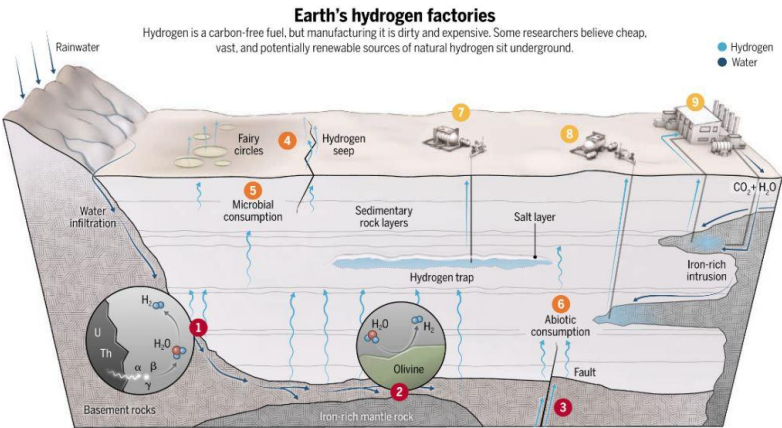
Hydrogen production from different primary energy sources

Colors of hydrogen

Hydrogen
Hydrogen
Hydrogen
Hydrogen
Hydrogen
Hydrogen
Hydrogen

- Hydrogen produced by fossil fuels, mostly natural gas and coal, causing CO₂ emissions in the process
- Hydrogen produced by fossil fuels in combination with CCS, reducing the GHG emissions of the process
- Hydrogen produced via pyrolysis of fossil fuels, where the buy-product is solid carbon
- Hydrogen produced by electrolysis using electricity generated from RES
- Hydrogen produced by electrolysis using electricity from nuclear power plants
- Hydrogen produced by electrolysis using grid electricity
- Natural hydrogen present in the Earth

Primary Inputs	Natural gas + water, coal + air	Natural gas+ water+ air	Natural gas + water	Renewable electricity + water	Nuclear electricity+ water	Grid electricity+ water
						
Process	SMR, coal gasification	SMR + CCS	Pyrolysis	Electrolysis	Electrolysis	Electrolysis
						
Output	H ₂ + CO ₂	H ₂ + CO ₂ (partly captured)	H ₂ + C	H ₂ + O ₂	H ₂ + O ₂ + nuclear waste	H ₂ + CO ₂



Regolamentazione ufficiale in merito alle categorie associate alla produzione di idrogeno

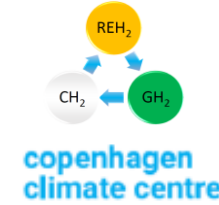
RENEWABLE HYDROGEN DEFINITION, Example

- **Renewable hydrogen** is hydrogen produced through the **electrolysis** of water (in an electrolyser, powered by electricity), and with the **electricity** stemming **from renewable sources**;
- The **full life-cycle** greenhouse gas **emissions** of the production of renewable hydrogen are **close to zero**;
- Renewable hydrogen may also be produced through the **reforming of biogas** (instead of natural gas) or **biochemical conversion of biomass**, if in compliance with sustainability requirements;
- **Renewable hydrogen** is commonly **known as green hydrogen**. Additional environmental, social and governance criteria or grid-connected production criteria can be specified to further differentiate the product (IRENA).



Renewable Hydrogen is defined by reference to the definition of the Proposed Directive to Amend RED II, e., as hydrogen that (i) derives its energy content from renewable sources other than biomass; and (ii) achieves a 70% GHG emission reduction compared to fossil fuels.

Low-Impact Hydrogen Emissions is defined as hydrogen with an energy content that is derived from non-renewable sources, and that meets a GHG emission reduction threshold of 70% compared to fossil-based hydrogen.



CLEAN HYDROGEN, Examples

- **Clean Hydrogen** encompasses clean hydrogen generated from both **renewables** and **fossil fuels** through the use of **carbon capture** and storage (CCS) technology.

LOW-CARBON HYDROGEN, Examples

- **Low-carbon hydrogen** encompasses:
 - **Fossil-based** hydrogen **with carbon capture** and
 - **Electricity-based** hydrogen, with significantly **reduced** full life-cycle **greenhouse gas emissions** compared to existing hydrogen production.

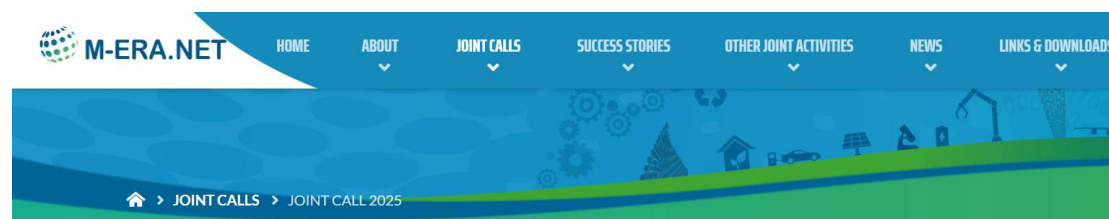
Research Opportunities & Projects Call



Horizon Europe – the Framework Programme for Research and Innovation (2021/2027)

19 topics available

- 7 topics – 40M€ funding - Renewable Hydrogen Production
- 3 topics – 16M€ funding - Hydrogen Storage and Distribution
- 3 topics – 17M€ funding - Transport
- 1 topic – 5M€ funding - Heat and Power
- 3 topics – 6.5M€ funding - Cross-cutting
- 2 topics – 80M€ funding - Hydrogen Valleys



in preparation
Joint Call 2025

Public consultation on thematic priorities

M-ERA.NET has invited the materials community to provide suggestions for potential future call topics.



The public consultation has been closed.

Thank you very much for your contributions.

<https://www.m-era.net/joint-calls/joint-call-2025>

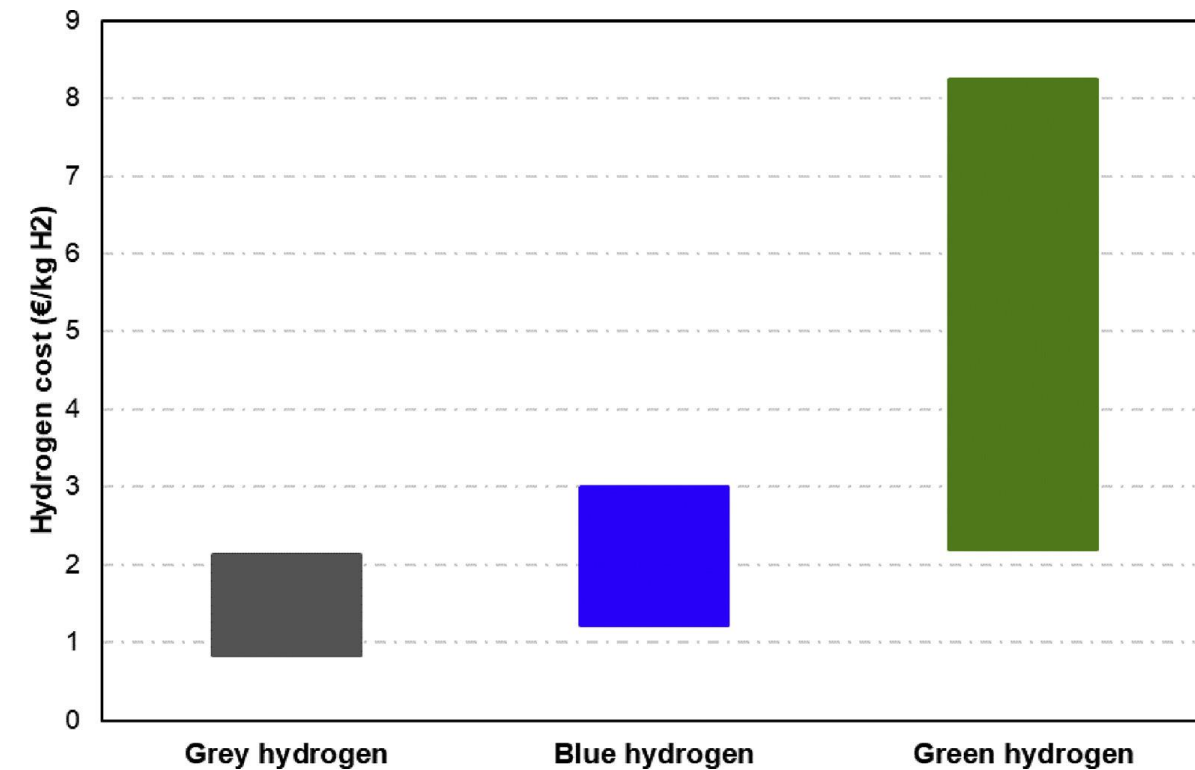


Priority 2 – A greener, low-carbon and resilient Mediterranean by:

- Promoting energy efficiency and reducing greenhouse gas emissions
- Promoting climate change adaptation and disaster risk prevention, resilience taking into account eco-system based approaches
- Promoting access to water and sustainable water management
- Promoting the transition to a circular and resource efficient economy


A total of **€96.9 million** is allocated to Priority 2, corresponding to 42% of the Programme budget.

Cost of the hydrogen production



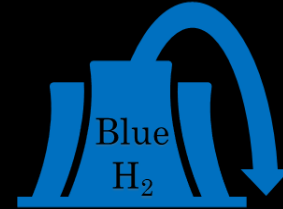
Not all ¹H₂ is created equal.

Green H₂



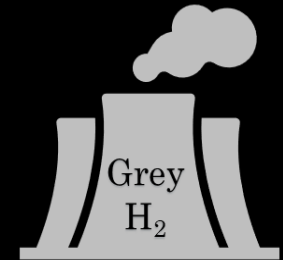
Green hydrogen is an electrofuel – a high-value energy product created from low-cost renewable electricity. Electrofuels are stored and transferred without the need for a host material.⁴ Washington is currently building the largest green PEM electrolyzer in the US.

Blue H₂



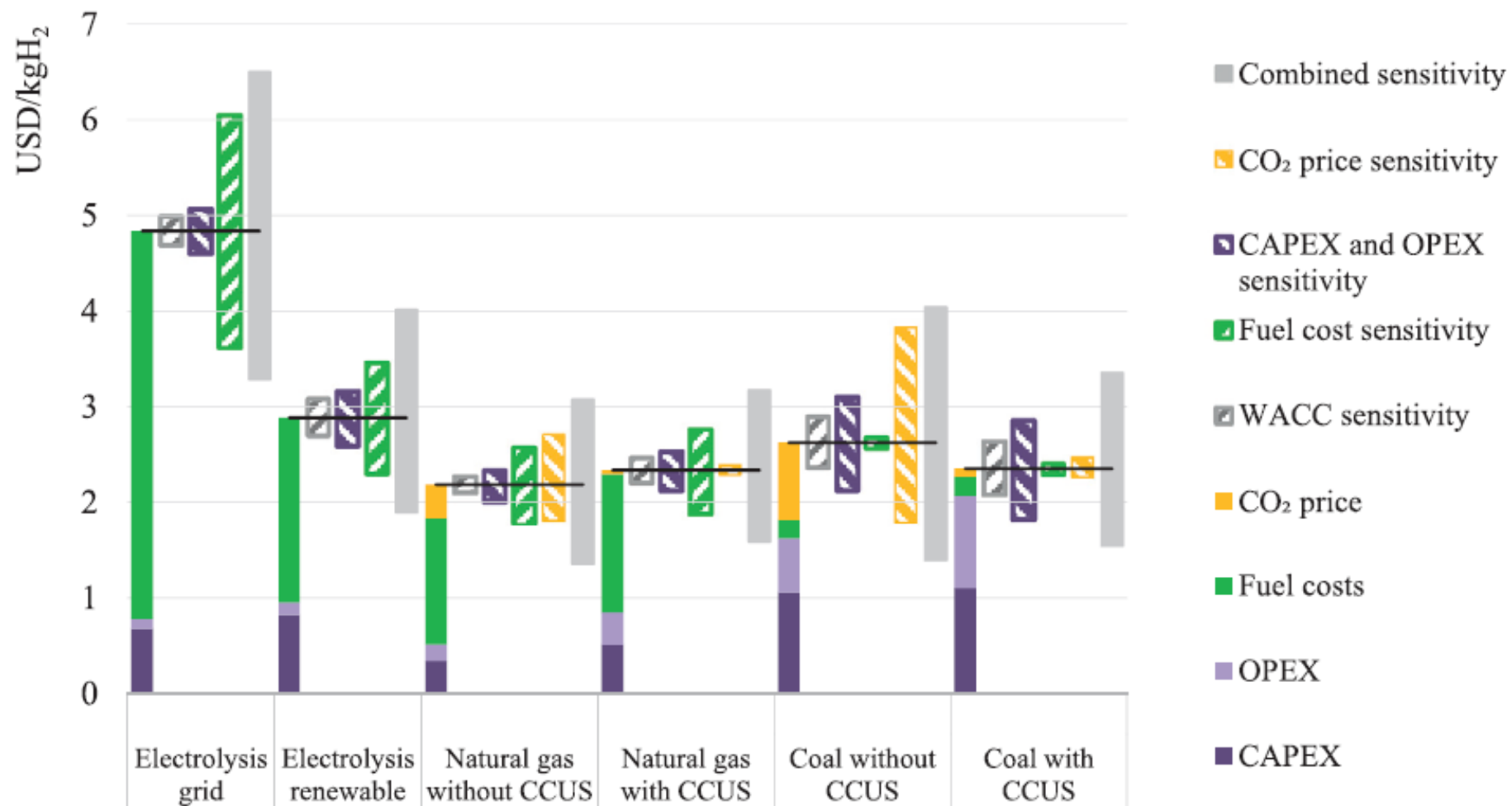
Blue hydrogen is produced with CO₂ but the CO₂ could be captured and sequestered (stored permanently) in a number of ways that are being researched.

Grey H₂



Grey hydrogen from Steam Methane Reforming (SMR) emits 7 kg of CO₂ into the atmosphere for every kg of H₂ produced. Washington State produces 330,500 kg of grey hydrogen every day from natural gas. Enough to recharge 66,100 hydrogen fuel cars per day.^{2,3}

Hydrogen production cost and price sensitivity of various technologies



CO₂ emissions associated with various technologies for hydrogen production

