

2023

# INTERNATIONAL HYBRID POWER PLANTS & SYSTEMS WORKSHOP



23 - 24  
MAY 2023

Faroe Islands



ORGANIZED BY ENERGINAUTICS

## BACKGROUND INFORMATION

Become a Sponsor  
on the Faroe Islands!



Content

Workshop ..... 3

Workshop Focus ..... 4

Previous Workshops ..... 5

Review Previous Workshops ..... 6

Workshop Participants 2022 ..... 7

Workshop Quality ..... 8

Advisory Committee ..... 9

Schedule ..... 10

Workshop Organizer ..... 11

Sponsoring ..... 12

Capacity Building ..... 15

Previous Sponsors & Ambassadors ..... 16

Contact ..... 18



## 7<sup>th</sup> International Hybrid Power Plants & Systems Workshop

After six successful workshops in Hawaii (2013), Puerto Rico (2016), Tenerife (2018), Crete (2019), virtual (2021) and Madeira (2022) we would like to introduce you to the 7<sup>th</sup> International Hybrid Power Plants & Systems Workshop on the Faroe Islands.

### Purpose

The main objective of the workshop is to discuss the challenges that arise with the integration of high shares of renewables (wind, solar, hydro) into isolated power systems and micro-grids in combination with batteries/flywheels and conventional power generators.

Finding viable combinations of conventional and renewable energy is one key solution for the efficient and sustainable running of these types of power systems. International experts will convene for the 7<sup>th</sup> International Hybrid Power Plants & Systems Workshop to share their project experiences and to detect areas in need of improvement.

### Background

One challenge of island grids and micro-grids is to maintain the balance between production and consumption. Diesel generators are still frequently used for this task. Due to the unavoidable dependence on fuel price and delivery options, and the environmental impact, alternatives are being sought. Wind and solar power are independent of imported fuels and environmentally friendly, and therefore the logical choice for island and micro-grids. However, these renewable energies are dependent on variable resource availability; hence their maximum production capacity is subject to natural fluctuations. It is therefore important to develop strategies for how to align production and consumption in the best possible way and to find the perfect combination of conventional and renewable energy.



## Focus of the Conference

The 7<sup>th</sup> International Hybrid Power Plants & Systems Workshop offers a prime opportunity to discuss the future of hybrid power systems and hybrid power plants. Participants will look at applications in a variety of locations and operating environments with a focus on system design, operating experience, business models, economics, and implementation issues.

## Workshop Target Groups

- System planners and designers
- Operators of small systems
- Project developers and consultants
- Universities and research institutes
- Regulators and NGOs
- Technology vendors of distributed variable generation & storage technology

## Proposed Preferential Topics of the Workshop

### Hybrid Power/Energy Systems (HESs)

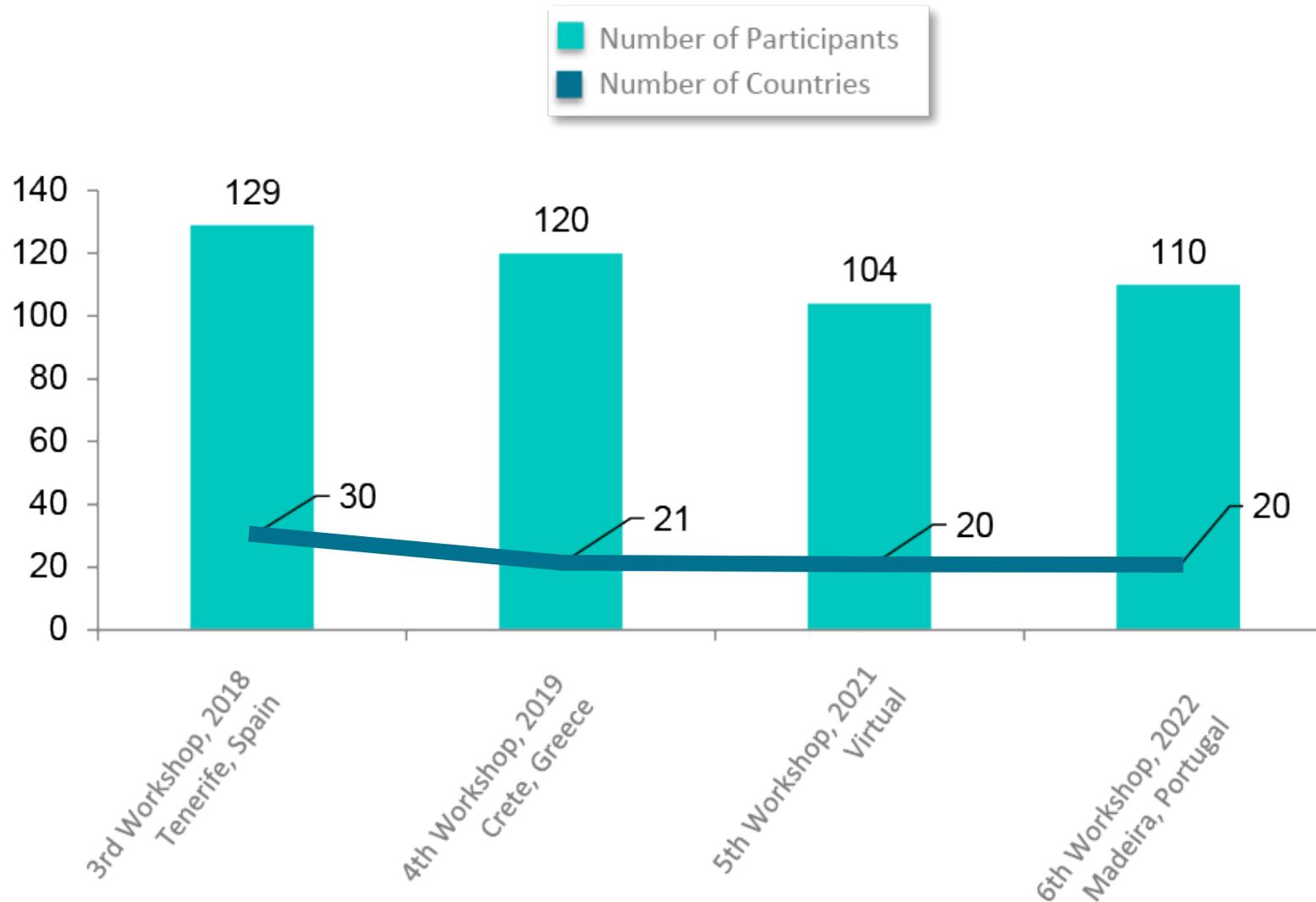
- » Hybrid Power Systems Design Options (Island Power Systems)
- » Hybrid Power System Technologies
- » Project Experience and Case Studies: Hybrid Power Systems
- » System Modelling and Simulation: Hybrid Power Systems
- » Pico-/Mini-/Micro-Grid Systems Design
- » Intelligent Control and Grid Stabilization
- » Managing Variability and Uncertainty
- » Load Assessment Strategies
- » Standards and relevant Grid Codes for Hybrid Power Systems
- » Regulatory Challenges related to Hybrid Power Systems
- » Protection Issues for Hybrid Power Systems
- » Design of Energy Management Systems for Hybrid Power Systems
- » Economic Evaluation of Hybrid Power Systems
- » Ancillary Services in Hybrid Power Systems

### Hybrid Power Plants (HPPs)

- » Hybrid Power Plant Design Options (Combined Wind & Solar plus may be storage as a power plant connected to a grid)
- » Project Experience and Case Studies: Hybrid Power Plants
- » System Modelling and Simulation: Hybrid Power Plants
- » Storage Design and Sizing
- » Standards and relevant Grid Codes for Hybrid Power Plants
- » Intelligent Control and Grid Stabilization
- » Resource Assessment and Forecasting
- » Managing Variability and Uncertainty
- » Remote Mining and Tourist Applications

## Development of the International Hybrid Power Plants & Systems Workshop

Energynautics has been organizing the International Hybrid Power Plants & Systems Workshop since 2018. The Workshop has developed into an excellent platform for discussing the subject of grid integration of hybrid power into power systems as well as hybrid power plants.



\*Data for the first and second Workshop not available due to change of organizer.

## Review Previous Workshops

### Madeira, Portugal 2022



### Virtual Event 2021



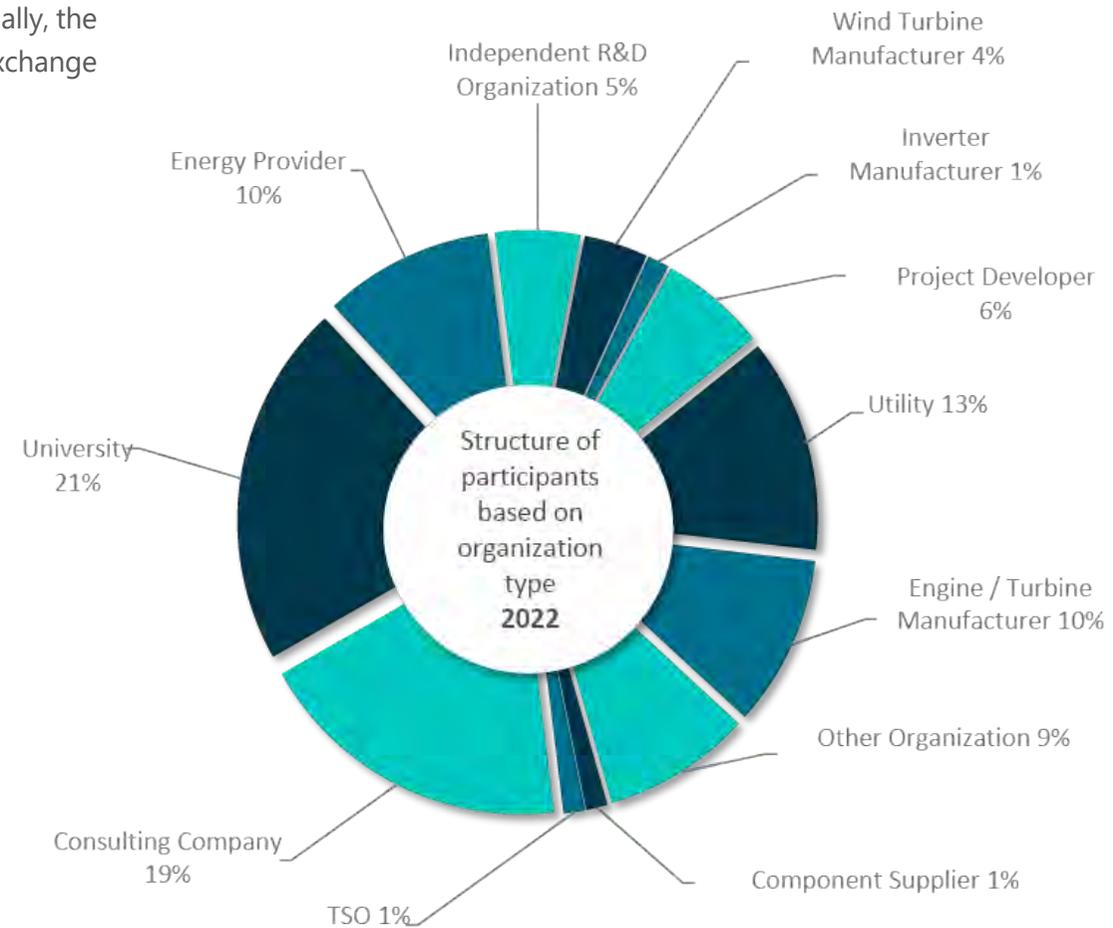
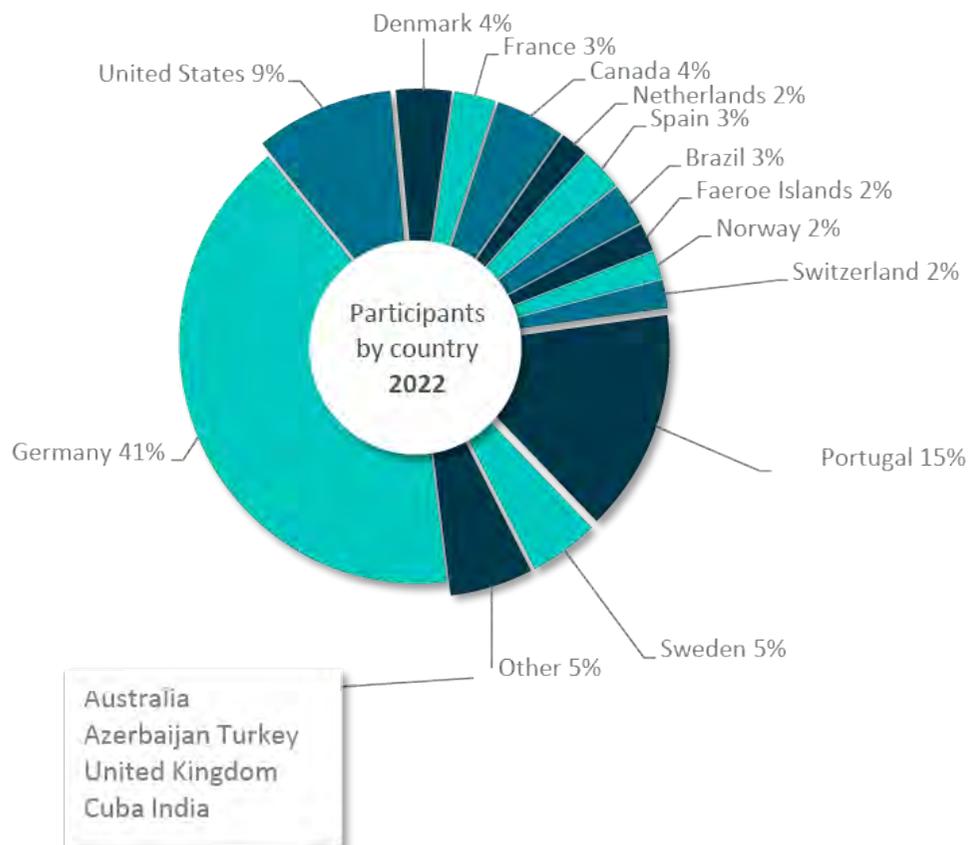
### Crete, Greece 2019



## 6<sup>th</sup> International Hybrid Power Systems Workshop 2022 Madeira, Portugal

The following charts about our previous workshop show the origin of the participants in relation to their country and the type of organization/company they work for.

Regardless of whether the workshops have taken place on-site or virtually, the mix of participant types is a unique advantage for networking and exchange as it does not only appeal to academic participants.



## Quality Control & Feedback

The participants of every workshop receive the opportunity to give their feedback after the event answering a number of questions regarding the quality of the workshop program, venue, location and organization.

The workshop team evaluates the answers thoroughly and initiates changes wherever applicable. Many new ideas are making its way to us this way.

### Selected answers from previous participants:

... It is the most informative forum on hybrid energy systems with world-class experts and an outstanding level of technical expertise.

... It is the only workshop dealing with Hybrid Power Systems. Moreover, it is combining aspects of small-scale / off-grid systems and large-scale / utility scale power systems. It was good that more stakeholders of the wind industry participated this year.

... The event offers unique content and is the only conference really focused on hybrid systems.

... It gave me a very efficient overview concerning the different aspects of Hybrid Power Plants & Systems.

... This is the flagship conference for microgrid/minigrid issues.

... It had sophisticated participants, interesting topics and conversations.

it was possible to learn, share knowledge, improve and increase the possibility of synergies.

it is very important to share insights on various aspects (technical, economica, regulation etc..) with others entities involved, have the feedback from the projects realised and get contact with suppliers/stakeholders in this sector



... I got some new contacts with interesting research fields.

## Advisory Committee of the International Hybrid Power Plants & Systems Workshop

The Workshop Advisory Committee currently consists of 36 members. Besides giving general advice for content and topics of the workshop, and working as reviewers of submitted abstracts during the Call for Paper process, they are acting as multipliers for the workshop idea and date.

All members receive the paper/digital leaflets and support the workshop communication.

- Tom Acker | Northern Arizona University, USA
- Thomas Ackermann | Energynautics, Germany
- Jaap de Boer | Energy Watch, Netherlands
- Sigrid Bolik | Siemens, United Kingdom
- Julien Callec | Rte, France
- Peter W. Christensen | Atkins SNC-Lavalin, Denmark
- Kaushik Das | Technical University of Denmark – DTU, Denmark
- Ana Estanqueiro | LNEG, Portugal
- Alain Forcione | Hydro Québec/IREQ, Canada
- Jens Fortman | HTW Berlin, Germany
- Michael Nørtoft Frydensbjerg | Vattenfall, Denmark
- Julian Gerstner | BayWa r.e. Global, Germany
- Gregor Giebel | DTU, Denmark
- Ulrike Gunnemann | BayWa r.e. Global, Germany
- Jutta Hanson | Technical University of Darmstadt, Germany
- Hannele Holttinen | Recognis, Finland
- Dimitris Al. Katsaprakakis | Hellenic Mediterranean University, Greece
- Peter Lilienthal | HOMER Energy, USA
- Frank Martin | Siemens Gamesa, Denmark
- Julija Matevosyan | ESIG, USA
- Nickie Menemenlis | Hydro Québec/IREQ, Canada
- Mahesh Morjaria | Terabase Energy, USA
- Gayathri Nair | IRENA, Germany
- Terji Nielsen | SEV, Faroe Islands
- Lise Nielson | Linie P, Denmark
- João A. Peças Lopes | FEUP – University of Porto, Portugal
- Eckard Quitmann | ENERCON, Germany
- Nigel Schofield | University of Huddersfield, United Kingdom
- Charles Smith | ESIG, USA
- Lennart Söder | KTH – Royal Institute of Technology, Sweden
- Jian Sun | Rensselaer Polytechnic Institute, USA
- Nuno Taveira | ENERCON, Germany
- Pieter Tielens | Engie Impact, Belgium
- Helge Urdal | Urdal Power Solutions, United Kingdom
- Costas Vournas | NTUA, Greece
- Yoh Yasuda | Kyoto University, Japan



## The 7<sup>th</sup> International Hybrid Power Plants & Systems Workshop

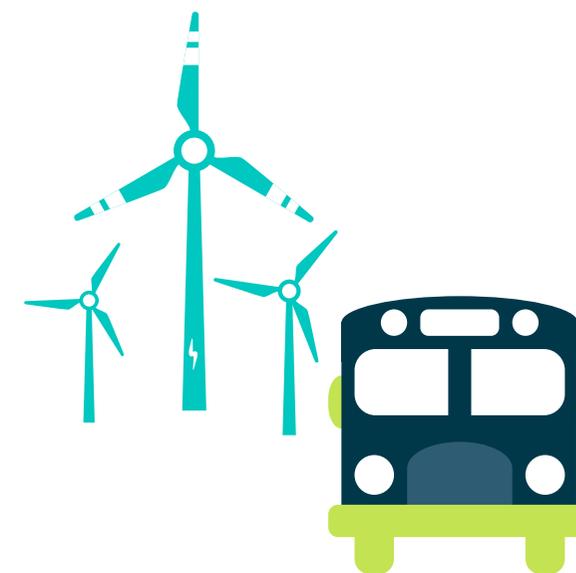
- 23 - 24 May 2023
- Faroe Islands
- Expected number of participants: 110 +

### Preliminary Timetable 2023

Agenda	
Tuesday, 23 May 2023	<p><b>Day 1</b></p> <p>09:00 - 17:30 Keynote Session &amp; Parallel Sessions</p> <p>All Day: Poster Session during Breaks (TBC)</p> <p>Evening: Networking Event</p>
Wednesday, 24 May 2023	<p><b>Day 2</b></p> <p>09:00 - 16:00 Parallel Sessions &amp; Closing Session</p> <p>All Day: Poster Session during Breaks (TBC)</p>

### Study Trip

A Study Trip to power system facilities on the Faroe Islands is planned for either Wednesday afternoon or Thursday morning.



## About the Organizer

The International Hybrid Power Plants & Systems Workshop has been organized by Energynautics, Germany since 2018. It is a partner event of the renowned Wind & Solar Integration Workshop, E-Mobility Power System Integration Symposium and Hydrogen Power System Integration Symposium organized annually by Energynautics as well.

As an expert in isolated power systems with a high share of renewable energies, Energynautics brings extensive knowledge and project experience to the table.

Island	Client	Grid Code	Grid Study	Microgrid Development
Guyana	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)		x	
Indonesia	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	x	x	
Dominican Republic	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)		x	x
Bahamas	United Nations Industrial Development Organization (UNIDO) & Inter-American Development Bank (IDB)		x	
Trinidad & Tobago	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)		x	
Galápagos Islands	Inter-American Development Bank (IDB)		x	
Barbados	Barbados Light & Power Company (BLPC)	x		
Republic of Seychelles	World Bank & the Government of the Seychelles		x	

## Your Benefits as Sponsor

Being sponsor of the International Hybrid Power Plants & Systems Workshop not only raises awareness for your company among participants but also gives you the following two main advantages:

### PROFESSIONAL TRAINING FOR YOUR TEAM



- Train your employees on specific topics about the integration of RE
- Share & receive fresh ideas about current issues
- Find solutions for your ongoing projects in industry & academia
- Have serious discussions with worldwide experts

### MEET YOUR FUTURE EMPLOYEES & PARTNERS



- Find highly qualified students & professionals among participants
- Network with potential candidates
- Display your job announcements in our workshop material
- Meet potential partners for new projects

## Your Sponsoring Package

### MEGA SPONSOR

- » Your company logo on conference website, newsletters, digital papers (incl. link to your website) and sponsor overview slides during the conference
- » Your ad in digital papers
- » Your company information in the digital delegate bag (max. 10 MB)
- » Dedicated social media post announcing you as a conference sponsor
- » Your company logo on on-site banners and screens, printed flyers, printed conference agenda
- » One free participant for the conference
- » One free dinner ticket

Please contact us for sponsoring prices!

### GIGA SPONSOR

- » Your company logo on conference website, newsletters, digital papers (incl. link to your website) and sponsor overview slides during the conference
- » Your ad in digital papers
- » Your company information in the digital delegate bag (max. 10 MB)
- » **Your dedicated company slide before two selected sessions**
- » Dedicated social media post announcing you as a conference sponsor
- » **Content box in one newsletter issue**
- » Your company logo on on-site banners and screens, printed flyers, printed conference agenda
- » Your corporate **roll-up banner** in coffee break area
- » **Two** free participants for the conference
- » **Two** free dinner tickets

Please contact us for sponsoring prices!

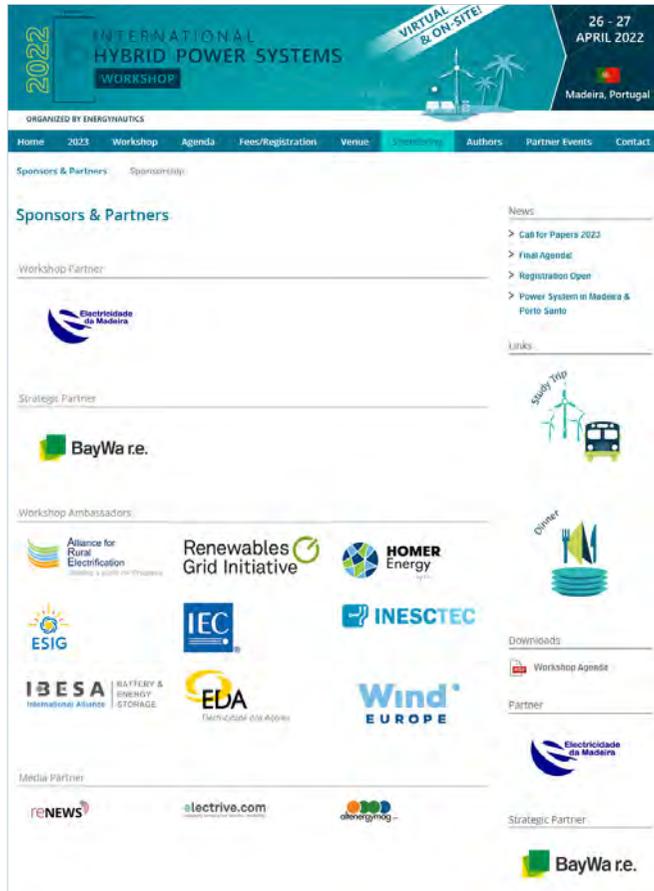
### TERA SPONSOR

- » Your company logo on conference website, newsletters, digital papers (incl. link to your website) and sponsor overview slides during the conference
- » Your ad in digital papers
- » Your company information in the digital delegate bag (max. 10 MB)
- » Your dedicated company slide before two selected sessions
- » **Your company video** before a selected session/lunch break (max 30 s/5 min)
- » Your company logo on on-site banners and screens, printed flyers, printed conference agenda
- » **Display banner** in the coffee break area (size and format to be discussed)
- » **Corporate roundtable** in coffee break area for technical discussions, networking during breaks and poster sessions
- » **One special additional logo** arrangement
- » **Three** free participants for the conference
- » **Three** free dinner tickets

Please contact us for sponsoring prices!

# Embedding your Logotype

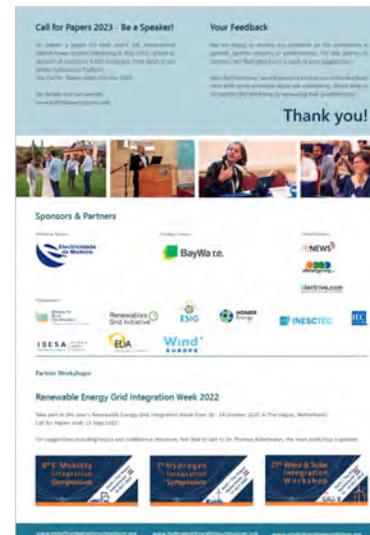
Here are some examples from the International Hybrid Power System Workshops on where your logotype could be positioned.



Website



Flyer



Workshop Guide



Newsletter

## Capacity Building

Many sponsors use the workshop as a training programme for their employees. Take advantage of this unique opportunity to send a larger group to the events of the International Hybrid Power Plants & Systems Workshop at a discount price. We are happy to respond flexibly to your wishes - usually our sponsors prefer one of the following approaches:

### FIXED BUDGET



You have a fixed training budget: let us know your desired price and we will make you an offer that allows as many of your staff as possible to participate in the workshop.

### FIXED NUMBER OF EMPLOYEES



You already have an idea of how many employees you want to send? Then we will be happy to make you a cost-effective offer for your group.

# Previous Sponsors & Ambassadors

## Sponsors & Ambassadors of previous International Hybrid Power Plants & Systems Workshops organized by Energynautics



## Sponsors & Ambassadors of previous Partner Workshops:



## Contact

Thomas Ackermann  
energynautics-Founder & CEO

Energynautics GmbH  
Robert-Bosch-Straße 7  
64293 Darmstadt  
Deutschland

Phone: +49 (0)151 22 66 19 55  
Email: [t.ackermann@energynautics.com](mailto:t.ackermann@energynautics.com)  
Web: [www.energynautics.com/en](http://www.energynautics.com/en)



### ORGANIZER

**energynautics**

solutions for sustainable development

Energynautics GmbH  
[www.energynautics.com](http://www.energynautics.com)

Kathrin Moser  
Events

Energynautics GmbH  
Robert-Bosch-Straße 7  
64293 Darmstadt  
Deutschland

Phone: +49 (0)6151 78 58 62  
Email: [k.moser@energynautics.com](mailto:k.moser@energynautics.com)  
Web: [www.energynautics.com/en](http://www.energynautics.com/en)



### PARTNER



### STRATEGIC PARTNER

