



6<sup>TH</sup>  
**INTERNATIONAL  
CONFERENCE ON SMALL  
AND MEDIUM WIND  
ENERGY**

22 SEPTEMBER 2021

**ALSO  
ONLINE!**

**NORDIC FOLKECENTER FOR RENEWABLE ENERGY**  
Kammersgaardsvej 16, Sdr. Ydby, 7760 Hurup Thy (DK)



With the support of Aarhus University





# Introduction

Nordic Folkecenter for Renewable Energy, the Danish Test and Resource Centre for Small Wind Turbines, the Danish Association for Small and Medium Wind Turbines, with the support of Aarhus University, are pleased to announce the 6th International Conference on Small- and Medium Wind Energy.

The event is the continuation of a series of five successful conferences which focused on small & medium wind and which reached hundreds of people around the world. The conferences were held in the period 2019-2021 and the proceedings (as well as the videos) can be found on [www.folkecenterevents.net](http://www.folkecenterevents.net).

The 6th conference was held both online and in physical form and it focused on:

- Innovations
- Development
- Testing

**The videos of the presentations, together with all the material relative to the conference can be found on [folkecenterevents.net](http://folkecenterevents.net), under the section "Previous Events"**

**#smallwind #smallwindconference  
#SMWC2021**





# The Conference

## Program



In person



Online

10:00

### Welcome

Jane Kruse, Director, Nordic Folkecenter for Renewable Energy, Denmark



## Session 1: Innovation

10:05

### Bringing Beautiful Design to Renewable Energy

Julien Daligault, CEO, Innoventum, Sweden



10:30

### Airborne Wind Energy Systems for decentralized energy production

Tobias Broening, Head of Sales, SkySails Power GmbH, Germany



## Session 2: Road for Shaping Smart Cities with the Cooperation of Five Countries



Co-funded by the  
Erasmus+ Programme  
of the European Union



10:55

### Presentation of the Smarties Educational Material & The Role of Small & Medium Wind Energy in Smart City Planning

George Xydis Associate Professor, CET, Aarhus University, Denmark



11:30

### Break

11:45

### Challenges of Wind Turbines: the Avifauna Collision Dilemma

Eldina Salkanovic CET, AU; Vestas Wind Systems A/S, Denmark



12:10

### Electric Vehicles and Renewable Energy Systems – A Smart Power Electronics Solution

Sanjeevikumar Padmanaban, Researcher, CGC Research Centre & CET, Aarhus University, Denmark







# The Conference

## Session 3: Planning & Development

12:35

### Towards updating the standards for small wind turbines, via IEA Wind Task 41

Mark C. Kelly, Associate Professor, Danish Technical University, Denmark



13:00

### Lunch Break



14:00

### Life Cycle Analysis of SWTs with focus on technology shaping

Markus Drapalik, University of Natural Resources and Life Sciences, Vienna (BOKU), Austria



14:25

### Urban wind energy potential assessment with resilience approach in Dominican Republic (Caribbean)

Alexander Vallejo, PhD fellow, INTEC, Dominican Republic

## Session 4: Testing

14:50

### Developing a Small Wind Turbine: The Importance of Testing

Otto Reinke, TWE-Tandem Wind Energy GmbH, Germany



15:15

### Update on the Services offered by the Danish Test & Resource Center for Small Wind Turbines

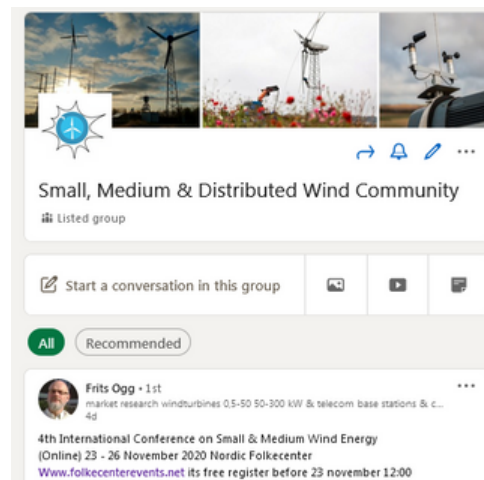
Tonny Brink, CTO, Nordic Folkecenter for Renewable Energy & Test Site Manager, Danish Test and Resources Center for Small Wind Turbines, Denmark



15:30

### Networking

Interested in Small,  
Medium & Distributed  
Wind? Join our LinkedIn  
group!



<https://www.linkedin.com/groups/8929012/>



# Speakers



## **Jane Kruse, Director, Nordic Folkecenter for Renewable Energy, Denmark**

Director of Folkecenter since 2013, she has 30 years of experience in renewable energy. In the second half of 1980s she started a wind cooperatives with more than 40 local families involved in it. Since 1993 she was the Head of Information and Training Programs in Folkecenter and she has been the project leader for several renewable energy projects, both in the Global North and the Global South.



## **Julien Daligault, CEO, Innoventum, Sweden**

Julien is the CEO of InnoVentum since 2 years and was previous CTO for 8 years. He hold a M.Sc in Sustainable Energy Engineering from KTH, Stockholm and B.Eng in Mechanical Product Design from Swansea University. He has over 15 years experience with small wind turbine and solar energy from design, manufacturing, installation and commissioning.



## **Tobias Broening, Head of Sales, SkySails Power GmbH, Germany**

Tobias joined SkySails Power in 2020 as Head of Sales, coming from conventional Energy giant technipFMC. He has a track record of building sustainable sales organizations and profitable customer relationships in Europe, Latin- and South America as well as Africa. Being a Business Manager by education, Tobias is now driving the global commercialization of the first serial-produced AWE System SkySails Power PN-14.

The first applications to address with a fully commercial and ready-to-launch Airborne Wind Energy (AWE) product are micro grids in remote areas and off-grid islands: By adding a reliable source of sustainable wind energy to existing Diesel generators, such hybridization immediately lowers generation costs and reduces the CO2 footprint.



## **George Xydis, Associate Professor, Department of Business Development and Technology - Aarhus University, Denmark**

George Xydis, PhD had the opportunity to work in the wind sector together with developers, utilities, constructors, universities, and research institutes. He used to work as a Wind Projects Development Coordinator at Iberdrola Renewables, as a Wind Project Developer at Vector Hellenic Windfarms S.A., and as a Researcher in the Center for Electric Power and Energy, at the Technical University of Denmark. He is now an Associate Professor at the Centre for Energy Technologies, Department of Business Development and Technology, Aarhus University. George is an adjunct lecturer at Johns Hopkins University at Energy Policy and Climate program. He teaches 425.624 - Wind Energy: Science, Technology and Policy.

## **Eldina Salkanović, PhD fellow, Center for Energy Technologies - Aarhus University & Vestas Wind Systems A/S, Denmark**

Eldina Salkanović is a PhD fellow at Aarhus University, Center for Energy Technologies. Her background is primarily in the Environmental Sciences, ranging from a Bachelors in Environmental Policy to a double-Masters in Ecosystems & Biodiversity and Environmental Management. Before starting her PhD she worked as an intern at a wind development company in The Black Forest where she became inspired for her research. She is currently researching the impacts of wind farms on avifauna populations, and how AI can be used to reduce impacts to biodiversity.



# Speakers



## **Sanjeevikumar Padmanaban, Researcher, CGC Research Centre & CET, Aarhus University, Denmark**

Sanjeevikumar Padmanaban (Member'12–Senior Member'15, IEEE) received a Ph.D. degree in electrical engineering from the University of Bologna, Bologna, Italy 2012. He was an Associate Professor at VIT University from 2012 to 2013. In 2013, he joined the National Institute of Technology, India, as a Faculty Member. In 2014, he was invited as a Visiting Researcher at the Department of Electrical Engineering, Qatar University, Doha, Qatar, funded by the Qatar National Research Foundation (Government of Qatar). He continued his research activities with the Dublin Institute of Technology, Dublin, Ireland, in 2014.

Further, he served as an Associate Professor with the Department of Electrical and Electronics Engineering, University of Johannesburg, Johannesburg, South Africa, from 2016 to 2018. From March 2018 to February 2021, he has been a Faculty Member with the Department of Energy Technology, Aalborg University, Esbjerg, Denmark. Since March 2021, he has been with the CTIF Global Capsule (CGC) Laboratory, Department of Business Development and Technology, Aarhus University, Herning, Denmark.

S. Padmanaban has authored over 300 scientific papers and received the Best Paper cum Most Excellence Research Paper Award from IET-SEISCON'13, IET-CEAT'16, IEEE-EECSI'19, IEEE-CENCON'19, and five best paper awards from ETAEERE'16 sponsored Lecture Notes in Electrical Engineering, Springer book. He is a Fellow of the Institution of Engineers, India, the Institution of Electronics and Telecommunication Engineers, India, and the Institution of Engineering and Technology, U.K. He is an Editor/Associate Editor/Editorial Board for refereed journals, in particular the IEEE SYSTEMS JOURNAL, IEEE Transaction on Industry Applications, IEEE ACCESS, IET Power Electronics, IET Electronics Letters, and Wiley–International Transactions on Electrical Energy Systems, Subject Editorial Board Member—Energy Sources—Energies Journal, MDPI, and the Subject Editor for the IET Renewable Power Generation, IET Generation, Transmission and Distribution, and FACETS Journal (Canada)

## **Mark C. Kelly, Associate Professor, Danish Technical University, Denmark**

Mark Kelly has been working for 2 decades with boundary-layer meteorology, CFD, and statistics, applying these to wind resource assessment (WRA) since 2008. His works include universal forms of atmospheric stability distributions, and wind profiles accounting for such; relations connecting shear, stability, turbulence intensity, and turbulence length scales; turbulence parameterizations for RANS & LES; meteorological characterization for loads; top-down (capping inversion) effects; characterization of roughness and flow over complex terrain; uncertainty quantification for wind modelling and its inputs (e.g. WAsP, RANS, WRF), and for the entire WRA process. These are all adapted to industrial use (and often driven by it).

## **Markus Drapalik, University of Natural Resources and Life Sciences, Vienna (BOKU), Austria**

Markus Drapalik is a physicist at the University of Natural Resources and Life Sciences Vienna. For 15 years he has been working in the field of renewable energy, focusing on wind energy in the last 10 years. In the context of technology assessment and shaping he wants to analyze technologies comprehensively and seeks to identify possibilities to shape them in a way which minimizes detrimental effects.

His institute owns a Piggot-SWT which is currently used for education and research (and possibly charging USB devices).





# Speakers



**Alexander Vallejo Díaz, PhD Candidate & Commercial Coordinator, Santo Domingo Institute of Technology (INTEC)**

Alexander Vallejo holds a B.Eng. in Mechanical Engineering, MSc. in Renewable Energy Technologies, and PhD candidate in Energy Management for Sustainable Development, from Technological Institute of Santo Domingo, Dominican Republic.

Has been professor for more than 12 years, in the mechanical's field, and has 10 years of experience consolidated in Energy Market with demonstrated expertise in engineering projects, sales, and contract management in the wholesale electricity market.



**Otto Reinke, CEO, TWE-Tandem Wind Energy GmbH, Germany**

Otto Reinke is the founder and CEO of TWE-Tandem Wind Energy GmbH. After the high school he studied economics and business administration at the University in Hanover and the Business School of Cardiff (UK). During his professional career Otto Reinke held various senior management positions in large international corporations, medium-sized family businesses and private equity-controlled start-up companies. He has extensive know-how in the internationalization process of companies and the development of national and international business opportunities. As managing director in European sales organizations (Belgium, Finland, Poland, Germany) as well as "Director International Sales" and "Director International Business Development" Otto Reinke was mainly responsible for the establishment and expansion of companies and international sales and service organizations in Europe and Middle East / Africa



**Tonny Brink, CTO, Nordic Folkecenter for Renewable Energy & Test Site Manager, Danish Testand Resources Center for Small Wind Turbines, Denmark**

Educated as a Marine Engineer, he is Folkecenter's Chief Technical Director. He has got 35 years of experience in the international wind industry, working for Vestas Wind Systems A/S and Folkecenter. This has provided him with broad knowledge in service and maintenance site management and construction and operational project management. Hold positions and responsibilities (among others): Travel Technician, Site Manager, Logistics Coordination, Area Service Manager, Technical After Sales/Customer Reporting, Technology Transfer, Project Management and Execution Leader.



# List of Participants

Ahmed El-Ghandour, Triple M construction  
Ahmed Abbas  
Akin Akinsal, Akin Akinsal  
Alexander Vallejo Díaz, Santo Domingo Institute of Technology (INTEC)  
Alexander Starovoit  
Ali Kemal Havare, Toros University  
Alistair Munro, Ryse Energy  
Alizeh Asif , University of Pécs  
Allen Tebugulwa,  
Andreas Okholm, Kitex  
Andres Enrique Zappa, INTI  
Andrew Auruku, Youth and Women for Opportunities Uganda  
Anirudha Kharote , Hamburg University of Applied Science  
Anker Mardal, Nordic Folkecenter for Renewable Energy  
Anna Krenz, NFC  
Arash Zamani, Rajman Kabir  
Arjen de Ruijter, nvt  
Ashkan Sabzevarzadeh, AMark Power  
Bhavya Dharmesh Pandya,  
Bjørn Søeberg  
Bose Sumantraa, NIWE  
Brent Summerville, NREL  
Brouyere Paul, Empyrix  
Corneliu Barbu Barbu, Aarhus University  
Daligault Julien, InnoVentum AB  
Daniele Pagani, Nordic Folkecenter for Renewable Energy  
David Carr, RenewTest LLC  
Dawar Hussain Lak  
Drew Gertz Gertz, Northwind Engineering OÃœ  
Edimu Isaac Felix , Youth and Women Empowerment Initiative Uganda  
Eduardo Ortiz, Cinvestav  
Eduardo Mate, Lancor 2000, S.Coop.  
Ekanga Emmanuel Emmanuel, Youth and Women for Development (YWD)  
Eldina Salkanovic, Aarhus University  
Emil Petersen  
Emir Karakuş  
Eduino Ortiz, Cinvestav  
Faribourz Baghshomali, AMarkPower  
Firas Basim Ismail Alnaimi, Universiti Tenaga Nasional  
Frank Helbo Christensen  
Frits Ogg, O2G Sustainable Energy Solutions  
Galal Osman, WWEA Egypt  
Garrett Smith, Wind Fisher  
George Xydis, Aarhus University  
George Kekelidze Kekelidze, Eurosolar Russia, NPP  
Hadi Shahgholi, AMarkPower  
Hakan Göçer  
Hector Enriquez  
Henry César Caraballo Durán, Ministry of Energy and Mines  
Idalberto Herrera Herrera, UCLV  
Ijssebrand Ziel, Eaz wind  
Ilaria Pellegrini, Aria Srl  
Imad Eldin Saeed,  
Jacob Wendt Jørgensen, Dania  
James Duffy, Nixon Peabody LLP  
Jean Pitteloud, WWEA  
Jon Kemp, Ryse Energy  
Jonas Schack  
Josh Carlson Carlson, Ambor Structures, Inc.  
Jyotsna Marasini, Europa Universität Flensburg  
Karina Manon,  
Ken Visser, Ducted Wind Turbines, Inc. / Clarkson University  
Kimon Silwal, Nelson Mandela University  
Larissa Zajicek  
Laura Schultz, Orbital





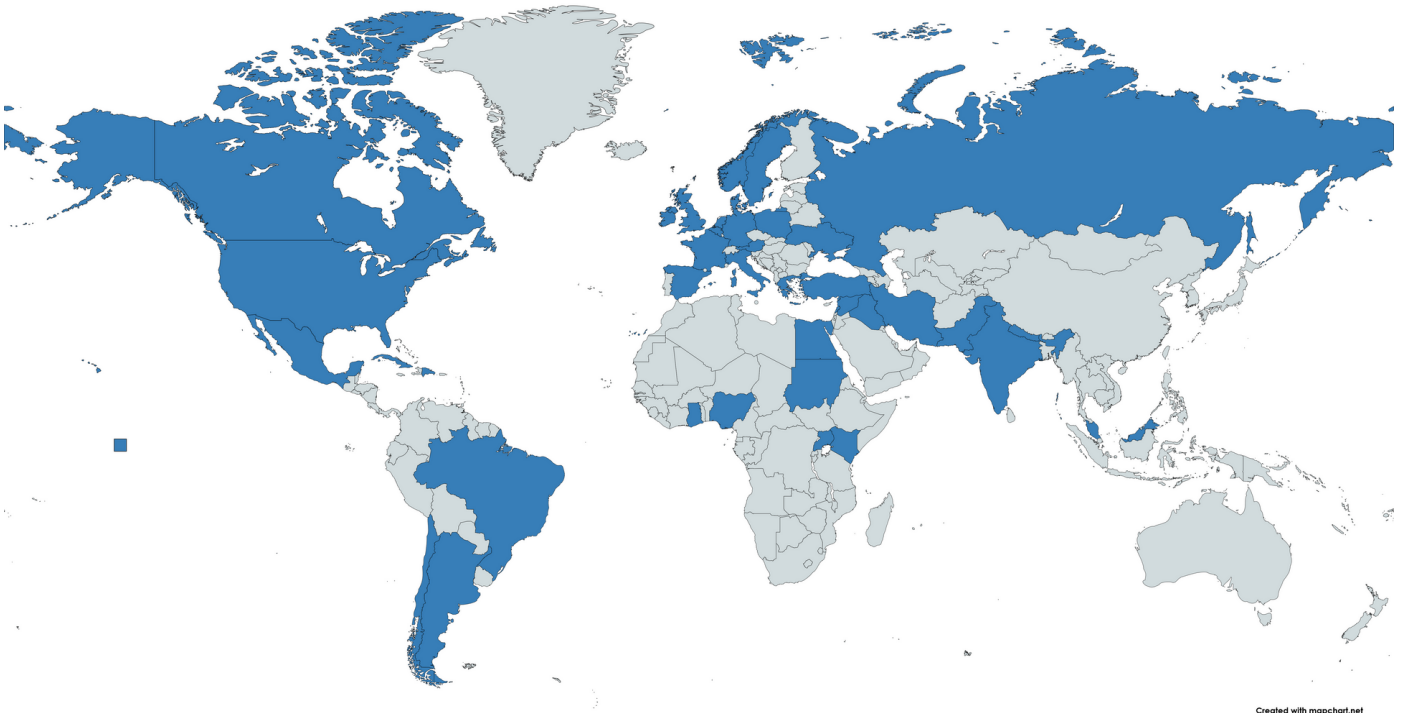
# List of Participants

Lennart Kuiper, Hanzehogeschool Groningen  
Liam Griggs, Ryse Energy  
Lorenzo A. Fuerte, D&T Inspections and Consulting  
Luis Arribas Arribas, CIEMAT  
Luis Cano, CIEMAT  
Luiz Justino da Silva Junior, Federal University of Western Bahia (UFOB)  
Mariano Amadio, INTI  
Mark Joyce, Xia Analytics  
Mark Kelly, The Danish Technical University [DTU]  
Markus Drapalik, University of Natural Resources and Life Sciences, Vienna (BOKU)  
Maruf Mohammed, Green Focus Africa  
Matias Sanabria,  
Michael Bergey, Bergey Windpower Co.  
Mike Wastling  
Mohammad Mohsen Haghighi, AMarkPower ApS.  
Morten Victor Petersen, Brancheforeningen for Smaa- og Mellemstore Vindmøller  
Muhammad Mubashar Ashraf, NUST  
muhammad shoaib arshad khan,  
Niels Adema, Hanze University of Applied Sciences  
Niels H. Jakobsen, Orbital A/S  
Nurys Vallejo  
Pablo Garces Jerez,  
Patrick Jones, Ryse Energy  
Peggy Friis, Peggy Friis  
Pep Puig i boix, Eolpop  
Pirouz Ebrahimi garakani ,  
Quentin Gargan Gargan, Voltsys  
Raheemat Olukoya , Kingston University  
Reinhard Lonsing  
Rishikesh Joshi Joshi, TU Delft  
Robert Wills, Intergrid  
Rocky McIntosh, Sonsight Wind  
Roza Pedersen, Toxregulatory Advisor ApS  
Salah Ibrahim, Arab consulting office  
Salwan Dihrab, VIA University College  
Sama Frinso,  
Sanjeevikumar Padmanaban, Aarhus University  
Sean Smith, Individual  
Sean Smith Smith, Individual  
Sergey Bolotov, Enecsyst WRTB Corp.  
Shraddha M  
Shweta Kamble, wish Energy Solutions Pvt Ltd  
Slava Movchan Movchan, UK engineering  
Smirnov Alexey, PENPROC LLC  
Sofia Pavlatou, individual  
Somhari Tripathi , Kathmandu Alternative Power and Energy Group  
Steen Kjølby,  
Steffen Sand  
Surabhi Jagtap  
Surendra Pandit, Kathmandu Alternative Power and Energy Group (KAPEG)  
Tarique Anwar Qureshi, MANIT BHOPAL  
Thomas Koech,  
Thorstein Midttun, VANNHANDEL  
Tobias Bröning, SkySails Power System GmbH  
Tom Nyvold  
Tonny Brink, Nordic Folkecenter for Renewable Energy  
Ulrich Høgenhaven, Viking Wind ApS  
Vadimir Matveev, We4Ce  
Valentin Heusgen,  
VICTOR MARTINEZ, ENEL  
Vilas Warudkar, Maulana Azad National Institute of Technology Bhopal India  
Vinit Dighe, TU Delft  
Youssef Shamas, LOMC



# List of Participants

## Countries Represented



Created with mapchart.net

- |           |                    |          |                 |                |
|-----------|--------------------|----------|-----------------|----------------|
| Argentina | Denmark            | Ireland  | Pakistan        | Ukraine        |
| Austria   | Dominican Republic | Italy    | Poland          | United Kingdom |
| Babylonia | Egypt              | Kenya    | Russia          | United States  |
| Belgium   | France             | Lebanon  | Spain           |                |
| Brazil    | Germany            | Malaysia | Sudan           |                |
| Canada    | Ghana              | Mexico   | Sweden          |                |
| Catalonia | Greece             | Nepal    | The Netherlands |                |
| Chile     | India              | Nigeria  | Turkey          |                |
| Cuba      | Iran               | Norway   | Uganda          |                |



# About Folkecenter

Nordic Folkecenter for Renewable Energy is a location known worldwide among energy experts. At the centre visitors are able to experience different renewable energy technologies and to have a complete overview on how could a transition towards a 100% renewable energy society occur.

The conference hall is located in SkibstedFjord, which is an example of innovative underground architecture. The building, with its 750 m<sup>2</sup> and its 140 places, is the ideal location for conferences on renewable energy topics, and enjoys a very pleasant indoor climate in every season.

More information about Folkecenter can be found on:

<http://www.folkecenter.net/>





# Don't Miss



## Build your Own Wind Turbine Workshop

Have you ever considered building your own small wind turbine? In this workshop you will have a chance to learn the essentials...and you will actually build a small wind turbine!

This is the first of a series of courses which will also teach you how to get the most out of your machine!

The workshop will take place in Folkecenter (physical presence required).



## Optimize your Small Wind Turbine

Join us in this series of online workshops where you will learn what your wind turbine can be used for and how the connection should be done.

The workshops will focus on one topic per day



## 7th International Conference on Small & Medium Wind Energy

If you enjoyed this event, you will be glad to hear that we will host a 7th edition of the conference on **21-23 September 2022**. We expect the event to be both physical and online.

If you wish to be one of the speakers, please submit your proposal on [this link](#). The deadline for proposal submissions is 03 June 2022.



Register your interest on [www.folkecenterevents.net](http://www.folkecenterevents.net)



# Nordic Folkecenter for Renewable Energy

*Working for a world running on 100% renewables since 1983*



Find more events on:  
[www.folkecentererevents.net](http://www.folkecentererevents.net)

Web: [www.folkecenter.net](http://www.folkecenter.net)

Facebook: Nordisk Folkecenter

LinkedIn: Nordic Folkecenter for Renewable Energy

Sign up for our (monthly) newsletter [here](#).



Nordic Folkecenter  
for Renewable Energy

[www.folkecenter.net](http://www.folkecenter.net)