



PRISM

ENERGY  **CEANIA**
FOR A SUSTAINABLE FUTURE

5th INTERNATIONAL CONFERENCE ON
GLOBAL RENEWABLE ENERGY

November 13-15, 2024
Crowne Plaza, Melbourne, Australia

Supporting Sponsors



UNSW
SYDNEY



Hydrogen
Society
of Australia

www.energyconferenceaustralia.com

Instructions For Speakers

1. Plenary Talks: Plenary speakers will be allotted 35 minutes to present their results, followed by a 5 minutes discussion period.
2. Keynote Talks: Keynote speakers will be allotted 25 minutes to present their results, followed by a 5 minutes discussion period.
3. Invited and Oral Talks: Invited and oral speakers will be allotted 15 minutes to present their results, followed by a 5 minutes discussion period.
4. Please do not exceed the allotted time slot
5. Speakers should have their presentations saved on a USB memory stick.
6. It is suggested to email a copy of the presentations to us as back up.
7. Please prepare the presentation in PPT files, PDF is not recommended.
8. Basic AV setup will be provided: laser pointer, cordless mike, desktop mike, sound system.
9. Laptops equipped with Windows 10, Office 2010 Pro English (Word, Power point, Excel) and Adobe Reader are provided.
10. If your presentation files contain movies, please make sure that they are well formatted and connected to the main files. You may check your slides during the breaks.
11. Projectors are equipped with standard VGA connection ports. Mac users should bring their own adapter cord.
12. Please re-check this program prior to the conference to confirm if any changes have been made to your session.
13. Conference volunteers will move the mic during Q&A. Audience with questions may raise hand to receive the mic.

Instructions For Poster Presentation

1. Prepare your poster in an e-poster format with a 16:9 resolution.
2. Use the official PowerPoint (PPTX) template provided by the conference organizers.
3. Plan for a 5-minute presentation to cover both your main points and conclusion.
4. Be ready for a 3-minute Q&A session with the poster judge and audience after your presentation.
5. Printing a physical copy of the poster is not required.

Speaker Zoom Guidelines

How to Participate in a Zoom Meeting?

If you have trouble logging in to Zoom or any technical issues, please write to us at committee@energyconferenceaustralia.com and info@energyoceania.com.

Join a Meeting

- Join a meeting by clicking on a Zoom link received from the organizers.
- Follow the prompts to download and run Zoom application
- Enter the meeting ID if prompted
- Click to join the audio.
- When you are in the meeting, click on the Start Video button to start your video.

If you already have Zoom software installed: Open the Zoom platform, click 'join' and enter the meeting ID and password.

Mute/Unmute & Audio Settings

You can mute and unmute your microphone. The host also can mute you. We recommend using a headset and/or micro - phone as it will lead to better sound quality than using your computer audio. Turn off all sound notifications on your device.

Note: During the presentation we will unmute everyone except the speaker and the chairs.

Screen Share

You will be allowed to share your screen during your presentation. Your computer screen will become visible to all the participants once you start sharing your screen. Please close all other applications on your computer so that notifications do not appear during your presentation. Keep the PowerPoint slide open on your system before you click the 'Share Screen' button. You are recommended to share the specific PowerPoint slide and not your desktop.

Presentation Timings

Please note that all the timings mentioned in the program are as per the Melbourne time zone (GMT+11). Do ensure that you check the time difference well in advance and join the meeting at least 30 minutes prior to your scheduled presentation time. If you need us to tell the specific time slot for your presentation (in local time zone), do let us know. (or) use world time buddy.com for the accurate time zone.

Day 1

13th November, 2024

Advanced Power and Renewable Energy Systems

09:00 - 09:05 Opening Ceremony
09:05 - 09:15 Welcome Remarks by Conference Chairs



Honorable Conference Chair
Prof. Wenxian Li
University of New South Wales, Australia



Honorable Conference Chair
Prof. Wei Luo
Donghua University, China



Honorable Conference Chair
Prof. Jiujuan Zhang
Fuzhou University, China

Honorable Conference Co-Chairs

Bing Sun, University of Technology Sydney, Australia
Chi Cheng, University of New South Wales, Australia
Feng Li, University of Sydney, Australia

Plenary Session

Session Chair: *Aonghus McNabola*, RMIT University, Australia

09:15 - 09:55 Title: The Solar Revolution: The Fastest Energy Change
in History
Andrew Blakers, Australian National University, Australia
09:55 - 10:35 Title: Leveraging AI and Machine Learning for Smart Grid
Management
Xinghuo Yu, RMIT University, Australia

10:35 - 11:00 **Morning Coffee Break and Networking**

Advanced Power and Energy Systems

Session Chair: *Xu Liu*, DECRA Fellow, University of New South Wales, Australia

- 11:00 - 11:30 Title: The Accelerating Energy Capacitance of Oceans and Landscapes: A Quantum Thermodynamic Perspective
Geoff Smith, University of Technology Sydney, Australia
- 11:30 - 11:50 Title: Strategies Enabling Efficient and Stable Perovskite PV Devices
Xu Liu, University of New South Wales, Australia
- 11:50 - 12:10 Title: Enabling Future Distributed Energy Systems using Data
Reza Razzaghi, Monash University, Australia
- 12:10 - 12:30 Title: Controlling Power Systems in the Transition to Net-Zero: A Paradigm Shift using Negative Imaginary Systems Theory
Elizabeth Ratnam, Monash University, Australia
- 12:30 - 12:50 Title: Substrate Optimization for Reproducible and Efficient p-i-n Perovskite Solar Cells
Wang Yihao, University of New South Wales, Australia

12:50 - 13:35 **Group Photo and Lunch Break**

Plenary Session

- 13:35 - 14:15 Title: Electrochemical Water Splitting Catalysis On 2D Nanomaterials
Ziqi Sun, Queensland University of Technology, Australia

Renewable Energy Systems and Standards

Session Chair: *Stefania Castelletto*, Professor, RMIT University, Australia

- 14:15 - 14:45 Title: Design and Development of Next Generation Light-Driven Biotechnologies: From Atomic to Industrial Scale
Ben Hankamer, University of Queensland, Australia
- 14:45 - 15:05 Title: Micro-Hydropower Energy Recovery in Existing Infrastructure: Concept, Resource Assessments & Pilot Demonstrations
Aonghus McNabola, RMIT University, Australia

15:05 - 15:25 **Title: Pulping Modification on Ordered Conversion of Biomass in Supercritical Water: The Systematic Study of Experiment Evaluation, Sulfur and Heavy Metals Transformation, and Thermodynamic Analysis (Online)**

Bin Chen, Xi'an Jiaotong University, China

15:25 - 15:55 **Title: Renewable Energy Systems: Current Status in the World and Prospects (Online)**

Soteris A. Kalogirou, Cyprus University of Technology, Cyprus

15:55 - 16:20

Evening Coffee Break

16:20 - 16:35

Presentation from Hydrogen Society Of Australia

Melinda Krebsz, Victoria Chapter Leader, Hydrogen Society of Australia

Policy, Economics, and Commercialization

Session chair: *Namita Roy Choudhury*, Professor, RMIT University, Australia

16:35 - 16:55

Title: Emerging Technologies and Pathways to Decarbonise Australian Heavy Industry

Alfonso Chinnici, University of Adelaide, Australia

16:55 - 17:15

Title: Identifying Challenges of the Hydrogen Economy: A Global Approach to Low-Carbon Strategies

Minhee Son, Energy Studies Institute, National University of Singapore, Singapore

17:15 - 17:35

Title: Outcomes of Time-Matching in Renewable Energy PPAs and Implications for Planning and Policy

Anna Bruce, University of New South Wales, Australia

17:35 - 17:55

Title: Legal and Economic Aspects of the Energy Transition in Poland, Especially in the Context of EU Regulations (Online)

Aneta Suchoń, Adam Mickiewicz University, Poland

17:55 - 18:45

Drinks and Networking

Day 2

14th November, 2024

Innovations in Energy Storage and Sustainability

Plenary Session

Session Chair: *Richard Manasseh*, Swinburne University of Technology, Australia

- 08:30 - 09:10 Title: State-of-the-Art and Emerging Materials for Energy Storage Technologies
Marzi Barghamadi, CSIRO, Australia
- 09:10 - 09:50 Title: Nanocarbon Materials for Emerging Battery Electrodes and Real-time Characterization of Reaction Kinetics
Jang-Kyo kim, University of New South Wales, Australia
- 09:50 - 10:30 Title: Graphene-coated Ni-Cu Alloys for Durable Degradation Resistance of Bi-polar Plates for Proton Exchange Membrane Fuel Cells
Raman Singh, Monash University, Australia

10:30 - 10:55 **Morning Coffee Break and Networking**

Advanced Materials for Energy Storage

Session Chair: *Alfonso Chinnici*, University of Adelaide, Australia
Co Chair: *Andreas Helwig*, University of Southern Queensland, Australia

- 10:55 - 11:25 Title: What's Hot and What's Not: Thermal Batteries Powering the Future
Gary Rosengarten, RMIT University, Australia
- 11:25 - 11:55 Title: Interfacially Engineered Graphene Inks for Energy Applications
Namita Roy Choudhury, RMIT University, Australia
- 11:55 - 12:25 Title: Fighting Urban Overheating Using Advanced Super Cool Materials (Online)
Mattheos Santamouris, University of New South Wales, Australia
- 12:25 - 12:45 Title: Metal-Air Batteries for Sustainable Energy Storage
Bing Sun, University of Technology Sydney, Australia

12:45 - 13:30 **Lunch Break**

- 13:30 - 13:50** **Title: Lithium Metal Capacitors: High Energy and High Power for Next-Generation Energy Storage**
Md. Joynul Abedin, Monash University, Australia
- 13:50 - 14:10** **Title: Developing High-Energy Density Magnesium-ion Batteries Through Hybrid Electrolyte Advancements**
Sarah K. W. Leong, University of Hong Kong, Hong Kong
- 14:10 - 14:30** **Title: Advanced Ionic Materials for Energy Storage Applications**
Mega Kar, Deakin University, Australia
- 14:30 - 14:50** **Title: Multifunctional Li⁺-Containing Organic Ionic Plastic Crystals for Advanced Rechargeable Batteries**
Hiroyuki Ueda, Deakin University, Australia
- 14:50 - 15:10** **Title: Understanding Liquid Metal Systems for Renewable Energy Synthesis and Storage**
Andrew Christofferson, RMIT University, Australia
- 15:10 - 15:30** **Title: Moving Ions and Molecules Across Sheets of Atoms for Low-Carbon Manufacturing**
Chi Cheng, University of New South Wales, Australia

15:30 - 15:55 **Evening Coffee Break**

Sustainability and Environmental Impact

Session Chair: *Meng zhang*, Lecturer, University of New South Wales, Australia

- 15:55 - 16:25** **Title: Wave-Energy Converters: Controlling Coastlines and Generating Electricity**
Richard Manasseh, Swinburne University of Technology, Australia
- 16:25 - 16:45** **Title: Pathways to Decarbonise the Alumina Industry**
Woei Saw, University of Adelaide, Australia
- 16:45 - 17:05** **Title: Generationally Sustainable Renewable Energy**
Andreas Helwig, University of Southern Queensland, Australia
- 17:05 - 17:25** **Title: Management of Local Ionic Transport for Stable CO₂ Electrolysis**
Mengran Li, University of Queensland, Australia
- 17:25 - 17:45** **Title: Electrification of Dry Reforming of Methane**
Hamza Asmat, Monash University, Australia

17:45 - 18:05

Title: Mimicking a Cell Plasma Membrane to Regulate Dynamic Polysulfide Chemistry for a Practical Lithium-Sulfur Battery

Petar Jovanović, Monash University, Australia

18:05 - 18:20

Poster Presentations

(PP 1)

Title: Plant Protein-Assisted Synthesis of Pt-Based Electrocatalysts for PEMFC Applications

Sami Alfaifi, RMIT University, Australia

(PP 2)

Title: Impact of using Smart Domestic Electric Water Heating to minimise electrification on the Low Voltage Network

Sparkle Prentice, RMIT University, Australia

Day 3

15th November, 2024

Future Directions in Renewable Energy

Materials for Renewable Energy Applications

Session Chair: *Salvy Russo*, Professor, RMIT University, Australia

- | | |
|---------------|---|
| 09:00 - 09:20 | Title: Drilling Solutions for Offshore Wind Foundations and Export Cable Landfalls
<i>Marc Peters</i> , Herrenknecht AG, Germany |
| 09:20 - 09:40 | Title: Supported Single Site Cobalt-Based Molecular Catalysts for CO ₂ Conversion
<i>Oliver J. Conquest</i> , University of Sydney, Australia |
| 09:40 - 10:00 | Title: The Power of Physics-Informed Machine Learning in Solving Nanoscale Challenges
<i>Sherif Abdulkader Tawfik</i> , Deakin University, Australia |
| 10:00 - 10:20 | Title: Enhancing Efficiency in Perovskite-Si Tandem Solar Cells through Quantum Interference at the Recombination Junction
<i>Zijun C. Zhao</i> , University of Western Australia, Australia |

10:20 - 10:45 **Morning Coffee Break and Networking**

Renewable Energy Fuels and Future Directions

Session Chair: *Glen Farivar*, University of Melbourne, Australia

- | | |
|---------------|--|
| 10:45 - 11:15 | Title: Ion Specific Separators and Their Role within Energy Storage Devices
<i>Matthew R. Hill</i> , Monash University, Australia |
| 11:15 - 11:35 | Title: Future Directions for Silicon Solar Cells in Mass Production – Beyond 27% Efficiency
<i>Daniel MacDonald</i> , Australian National University, Australia |
| 11:35 - 11:55 | Title: 100% Renewable Energy Systems Research
<i>Muhammad Zeeshan</i> , University of Lahore, Pakistan |
| 11:55 - 12:15 | Title: Assessment of a Sustainable Bioethanol Plant in Dubai (Online)
<i>Gaurav CJK</i> , Rochester Institute of Technology, UAE |

12:15 - 12:30 **Closing Ceremony**

12:30 - 13:15 **Lunch Break**

Notes

[illegible]

Notes

[illegible]



PRISM

Professional Conference Organizers

Prism Scientific Services Pty Ltd., a premier conference organizer, envisions a sustainable future for the renewable energy industry. Our goal is to unite experts and stakeholders through conferences, fostering collaboration and advancing sustainable practices. Committed to curating conferences on renewable energy and eco-friendly technologies, we catalyze the industry's development. Emphasizing interdisciplinary collaboration, our events address complex challenges. Dedicated to sustainability, we minimize footprints and promote eco-friendly venues, inspiring environmental responsibility. As catalysts for positive change, we guide the renewable energy industry toward an innovative, environmentally responsible future in conferences that prioritize sustainable development.

If you are interested in forming a partnership with us for the planning and organization of conferences and events worldwide, please don't hesitate to contact us via email at writeus@scientificprism.com or by phone at +61 416000202. Our services extend to facilitating conferences anywhere in the world, and we look forward to the opportunity to discuss your specific needs and requirements.

We wish to see you at
ENERGY OCEANIA-2025

August 4-6, 2025

Prism Scientific Services Pty Ltd
302/480 Collins Street, Melbourne, VIC 3000, Australia
<https://www.Scientificprism.com>

Contact Information:
committee@energyconferenceaustralia.com
info@energyoceania.com

Phone: +61 390163202

Website: www.energyconferenceaustralia.com



PRISM