# PROGRAM AS OF 13 MAY 2024

**Important: This preliminary program is subject to changes. It is strongly recommended to check back regularly.**

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# TIMETABLE 8TH INTERNATIONAL HYBRID POWER PLANTS & SYSTEMS WORKSHOP

## TUESDAY 14 MAY 2024

**Workshop Day 1**

| | | | |
|---|---|---|---|
| 09:00– 10:50 | 08:00 – 09:00 REGISTRATION / FOYER | | |
| | HORTÊNSIA | | |
| | **WELCOME & SESSION 1:** KEYNOTE SESSION | | |
| | COFFEE BREAK & GROUP PHOTO (30 MIN) | | |
| 11:20 – 13:00 | HORTÊNSIA | CEDRO | PROTEA |
| | **SESSION 2A:** COUNTRY EXPERIENCE AZORES | **SESSION 2B:** HYBRID POWER PLANTS I | **SESSION 2C:** BATTERY ASPECTS |
| | LUNCH 13:00 – 14:00 | | |
| 14:00 – 15:40 | HORTÊNSIA | CEDRO | PROTEA |
| | **SESSION 3A:** HYBRID POWER SYSTEMS COUNTRY EXPERIENCE I | **SESSION 3B:** HYBRID POWER PLANTS II | **SESSION 3C** MODELLING ASPECTS |
| | COFFEE BREAK & POSTER SESSION (20 MIN) | | |
| 16:00 – 18:20 | HORTÊNSIA | CEDRO | PROTEA |
| | **SESSION 4A:** HYBRID POWER SYSTEMS COUNTRY EXPERIENCE II | **SESSION 4B:** FREQUENCY ASPECTS | **SESSION 4C** HYDROGEN AND HYBRID POWER PLANTS |
| 18:45 | **WORKSHOP NETWORKING EVENT/DINNER** – separately bookable – | | |

## WEDNESDAY 15 MAY 2024

**Workshop Day 2**

| | | | |
|---|---|---|---|
| 09:00– 10:40 | HORTÊNSIA | CEDRO | PROTEA |
| | **SESSION 5A:** BLACK START ASPECTS | **SESSION 5B:** ECONOMIC ASPECTS OF HYBRID POWER PLANTS | **SESSION 5C** ENERGY MANAGEMENT SYSTEMS |
| | COFFEE BREAK (30 MIN) | | |
| 11:10 – 12:50 | HORTÊNSIA | CEDRO | PROTEA |
| | **SESSION 6A:** EDF HYBRID POWER SYSTEMS EXPERIENCE | **SESSION 6B:** HYBRID POWER PLANTS III | **SESSION 6C** LOCAL MARKETS AND LOCAL ENERGY COMMUNITIES |
| | LUNCH 12:50 – 13:50 | | |
| 13:50 – 15:30 | HORTÊNSIA | CEDRO | PROTEA |
| | **SESSION 7A:** HYBRID POWER SYSTEMS COUNTRY EXPERIENCE III | **SESSION 7B:** TECHNICAL ASPECTS | **SESSION 7C:** GENERATION ASPECTS |
| | COFFEE BREAK (20 MIN) | | |
| 15:50 – 16:50 | HORTÊNSIA | | |
| | **SESSION 8:** CLOSING SESSION: PANEL DISCUSSION | | |
| 08:00 | **THURSDAY, 16 MAY 2024** **STUDY TRIP** – separately bookable – | | |

# TUESDAY, 14 MAY 2024

## 08:00 – 09:00 Registration

**All times in the session tables show the on-site time on the Azores/Portugal (Azores Summer Time/AZOST = UTC), the highlighted stripes show the starting times of the respective sessions in additional time zones.**

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|---|---|
| **09:00 – 09:15** | **WELCOME** |
| 05:00 New York \| 06:00 Rio de Janeiro \| 11:00 Berlin \| 14:30 New Delhi \| 16:00 Jakarta \| 17:00 Beijing \| 18:00 Tokyo \| 19:00 Sydney | |
| **09:15 – 10:50** | **SESSION 1 – KEYNOTE SESSION** |
| 05:15 New York \| 06:15 Rio de Janeiro \| 11:15 Berlin \| 14:45 New Delhi \| 16:15 Jakarta \| 17:15 Beijing \| 18:15 Tokyo \| 19:15 Sydney | |
| **> Session Chair** | **Thomas Ackermann (Energynautics, Germany)** |
| **09:15 – 10:35** | **Presentations (20 min. each)** |

- **Welcome Address & Azorean Energy Strategy 2030 – Status Update**
  **Dra. Joana Ferreira Rita** (Regional Director of Energy, Autonomous Region of the Azores, Portugal) (Submission-ID HYB24_116)
- **Electrical Energy Production on the nine Azorean Islands**
  **Paulo Jorge da Costa André** (President of the Board of Directors of EDA, Autonomous Region of the Azores, Portugal) (Submission-ID HYB24_111)
- **Roadmap toward 100% Renewable Energy in the Azores**
  **Fernando José de Melo Henriques** (Director Innovation & Technical Planning of EDA, Autonomous Region of the Azores, Portugal) (Submission-ID HYB24_118)
- **The Hybrid Power Plant in Graciosa island - a Pioneer Project in the Azores Islands**
  **Duarte Conde Silva** (Graciólica, Portugal) (Submission-ID HYB24_110)

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|---|---|
| **10:35 – 10:50** | **Discussions** |

## 10:50 – 11:20 COFFEE BREAK | GROUP PHOTO

| | |
|---|---|
| **11:20 – 13:00** | **SESSION 2A – COUNTRY EXPERIENCE AZORES** |
| 07:20 New York \| 08:20 Rio de Janeiro \| 13:20 Berlin \| 16:50 New Delhi \| 18:20 Jakarta \| 19:20 Beijing \| 20:20 Tokyo \| 21:20 Sydney | |
| **> Session Chair** | **João Peças Lopes (INESC TEC \| FEUP, Portugal)** |
| **11:20 – 12:40** | **Presentations (20 min. each)** |

- **System Studies for Large-Scale Integration of PV-Battery Hybrid Power Plants in Azorean Islands**
  **M. Castro**, R. Sousa (INESC TEC, Portugal), C. Moreira, J. Peças Lopes (INESC TEC, Portugal | FEUP, Portugal) (Submission-ID HYB24_054)
- **Decarbonisation of Terceira Island Through Technology Installation and Power Flow Optimisation for Island Energy Self Sufficiency**
  **M. Fitzpatrick**, A. Carvalho, E. Rodrigues (EDP NEW – Centre for New Energy Technologies, Portugal), C. Martins (EDA – Electricidade dos Açores, Portugal), C. Papadopoulos (CERTH – Centre for Research & Technology Hellas, Greece), R. Menezes-Barros, R. Amaral Lopes (UNINOVA – Instituto de Desenvolvimento de Novas Technologias, Portugal) (Submission-ID HYB24_068)
- **BESS Applications in Microgrids: The Azores Islands Use Case**
  **P. Ribeiro**, R. Verissimo, J. Damásio (Siemens, Portugal), J. Mori (Siemens, Spain), F. Henriques (EDA – Electricidade dos Açores, Portugal) (Submission-ID HYB24_052)

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|---|---|
| **12:40 – 13:00** | **Discussions** |

**11:20 – 13:00 SESSION 2B – HYBRID POWER PLANTS I**

**07:20 New York | 08:20 Rio de Janeiro | 13:20 Berlin | 16:50 New Delhi | 18:20 Jakarta | 19:20 Beijing | 20:20 Tokyo | 21:20 Sydney**

**> Session Chair Ben Kroposki (NREL, USA)**

**11:20 – 12:40 Presentations (20 min. each)**

- **Beyond Blueprints: EPRI's Vision and Strategies of the Hybrid Energy Future in 2024**
  **D. Vazquez Pombo** (Electric Power Research Institute – EPRI, Ireland), P. Pezzini (Electric Power Research Institute – EPRI, USA) (Submission-ID HYB24_008)
- **Control Architectures for Co-Located Hybrid Power Plants**
  **F. Iov** (Aalborg University, Denmark), J. Martinez Rico (Tekniker – Basque Research and Technology Alliance, Spain), L. Petersen (Vestas Wind Systems, Denmark), A. G. Raducu (Vattenfall, Denmark), K. Das (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_043)
- **Complex Hybrid Power Plants with Renewable Energies and Storage: Insights into Optimizing Sizing and Revenue Streams**
  **U. Gunnemann** (BayWa r.e., Germany) (Submission-ID HYB24_003)
- **5G vPAC Virtual Hybrid Power Plant**
  **K. Winter** (Vattenfall, Germany) (Submission-ID HYB24_056)

**12:40 – 13:00 Discussions**

**11:20 – 13:00 SESSION 2C – BATTERY ASPECTS**

**07:20 New York | 08:20 Rio de Janeiro | 13:20 Berlin | 16:50 New Delhi | 18:20 Jakarta | 19:20 Beijing | 20:20 Tokyo | 21:20 Sydney**

**> Session Chair Daniela Pagnani (Ørsted, Denmark)**

**11:20 – 12:40 Presentations (20 min. each)**

- **Analysis, Classification and Economical Comparison of Li-Ion Battery Off-Grid Systems**
  **F. Stortz,** G. Bopp, N. Reiners (Fraunhofer ISE, Germany), S. Rosenfeld, N. Geze (Rolls Royce Solutions, Germany), S. Trittler, J. Mhanna (Asantys Systems, Germany), M. Müller (Office for renewable energy systems, Germany) (Submission-ID HYB24_088)
- **Comparison of Model Performance and Field Data for Hydro-Battery Hybrid Systems Providing Frequency Control**
  **D. Laban** (Uppsala University | Fortum Sverige, Sweden), P. Norrlund (Uppsala University | Vattenfall, Sweden), U. Lundin (Uppsala University, Sweden) (Submission-ID HYB24_039)
- **Towards Energy Transition with Battery Energy Storage System at AEW in Switzerland**
  P. Linggi (AEW NIB, Switzerland ), **H. Bitaraf** (Hitachi Energy, USA), G. Sadhana S (Hitachi Energy, India), N. Vezzini, E. Soressi (Hitachi Energy, Italy) (Submission-ID HYB24_003)
- **Combining Batteries and Synchronous Condensers: The Case Study of Madeira Island**
  **F. Fernandes**, J. Peças Lopes, C. Moreira (University of Porto – FEUP | INESC TEC, Portugal) (Submission-ID HYB24_027)

**12:40 – 13:00 Discussions**

## 13:00 – 14:00 LUNCH BREAK

**14:00 – 15:40 SESSION 3A – HYBRID POWER SYSTEMS COUNTRY EXPERIENCE I**

**10:00 New York | 11:00 Rio de Janeiro | 16:00 Berlin | 19:30 New Delhi | 21:00 Jakarta | 22:00 Beijing | 23:00 Tokyo | 24:00 Sydney**

**> Session Chair Phil Mckay (Electricity Transition Hub – CanREA, Canada)**

**14:00 – 15:20 Presentations (20 min. each)**

- **Energy Transition League – A Comparison of Islands' Paths to Net Zero Emissions**
  **D. G. Quirk** (Technical University of Denmark – DTU, Denmark | Energy and Sustainability Centre IoM, Isle of Man), F. Mendonça, F. Henriques (EDA – Eletricidade dos Açores, Portugal), T. Jørgensen, M. Lahtimo (BEOF – Bornholms Energi og Forsyning, Denmark), A. Figueira (EEM – Empresa de Electricidade da Madeira, Portugal), H. M. Tróndheim, T. Nielsen (SEV, Faroe Islands), C. Nordberg (Vind AX Ab, Åland), G. Davies, L. Fraser (Aquatera, Orkneys), P. Alberg Østergaard, H. Lund (Aalborg University, Denmark), M. Kristensen, S. Hermansen (Samsø Energiakademi, Denmark), A. Cowin, R. Peake (Energy and Sustainability Centre IoM, Isle of Man) (Submission-ID HYB24_105)
- **The History and Future of Storage for Remote Hybrid Systems: Village Power, Island Power, and the Potential for Hydrogen**
  **P. Lilienthal** (formerly UL Solutions, USA), N. Verma (UL Solutions, India) (Submission-ID HYB24_026)
- **Transitioning the 5 Isolated Diesel Micro Grids in the Faroe Islands**
  **H. M. Tróndheim**, T. Nielsen (SEV R&D, Faeroe Islands) (Submission-ID HYB24_067)
- **PV Integration on Grand Bahama**
  P. Henzel, **P.-P. Schierhorn** (Energynautics, Germany) (Submission-ID HYB24_098)

**15:20 – 15:40 Discussions**

**14:00 – 15:40 SESSION 3B – HYBRID POWER PLANTS II**

**10:00 New York | 11:00 Rio de Janeiro | 16:00 Berlin | 19:30 New Delhi | 21:00 Jakarta | 22:00 Beijing | 23:00 Tokyo | 24:00 Sydney**

**> Session Chair Nuno Taveira (ENERCON, Portugal)**

**14:00 – 15:00 Presentations (20 min. each)**

- **The case for Utility scale Hybrids in Australia**
  **J. Dyson** (Greenview Strategic Consulting, Australia) (Submission-ID HYB24_092)
- **Empowering Renewable Hybrids by Overcoming Regulatory Barriers – What we Can Learn about the Different Regulatory Environments in Europe**
  **U. Gunnemann** (BayWa r.e., Germany) (Submission-ID HYB24_102)
- **Hybridization of Wind Farms Using Hybrid Power Plant Sizing Optimization**
  M. Grossi, **J. P. Murcia Leon**, M. Friis-Møller, S. Viorel Spataru (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_021)

**15:00 – 15:40 Discussions**

**14:00 – 15:40 SESSION 3C – MODELLING ASPECTS**

**10:00 New York | 11:00 Rio de Janeiro | 16:00 Berlin | 19:30 New Delhi | 21:00 Jakarta | 22:00 Beijing | 23:00 Tokyo | 24:00 Sydney**

**> Session Chair José Mori de Santiago (Siemens, Spain)**

**14:00 – 15:00 Presentations (20 min. each)**

- **On Resilience of Future Decarbonised Energy Systems in Europe**
  **J. Lotze** (TransnetBW, Germany | KIT – Karlsruhe Institute of Technology, Germany), M. Moser (TransnetBW, Germany), V. Hagenmeyer (KIT – Karlsruhe Institute of Technology, Germany) (Submission-ID HYB24_066)
- **EPSO-based Methodology for Modelling Equivalent PV-Battery Hybrid Power Plants using Generic Converters Models**
  **R. Pinto de Sousa**, M. Castro (INESCTEC, Portugal), C. Moreira, J. Peças Lopes (INESCTEC, Portugal | University of Porto, Portugal) (Submission-ID HYB24_083)
- **Enhancing Accuracy in Curtailment Loss and Profitability Predictions for Oversized Hybrid PV-Wind Power Plants Using High, Instead of Hourly, Resolution Data**
  **Ø. Klyve** (Institute for Energy Technology – IFE | University of Oslo, Norway), R. Grab (Fraunhofer ISE, Germany), V. Olkkonen (Institute for Energy Technology – IFE, Norway), E. Marstein (Institute for Energy Technology – IFE | University of Oslo, Norway) (Submission-ID HYB24_051)

**15:00 – 15:40 Discussions**

## 15:40 – 16:00 COFFEE BREAK & POSTER SESSION

**16:00 – 18:20 SESSION 4A – HYBRID POWER SYSTEMS COUNTRY EXPERIENCE II**

**12:00 New York | 13:00 Rio de Janeiro | 18:00 Berlin | 21:30 New Delhi | 23:00 Jakarta | 24:00 Beijing | 01:00 Tokyo | 02:00 Sydney**

**> Session Chair Andy Hoke (NREL, USA)**

**16:00 – 18:10 Presentations (20 min. each)**

- **Challenges and Opportunities for Transitioning Island Power Systems to High Levels of Wind and Solar**
  **A. Hoke** (National Renewable Energy Laboratory – NREL, USA) (Submission-ID HYB24_064)
- **Energy Transitions for Island Power Systems and Contributions of the Interamerican Development Bank**
  **José Ramón Gómez** (Interamerican Development Bank – IDB) **– 10 min**
- **Leapfrogging from Primarily Diesel-based to Primarily PV-Battery Island Power Systems in Galapagos**
  **C. Fernández** (ElecGalapagos, Ecuador) (Submission-ID HYB24_106)
- **Integration of Wind Generation in Jamaica's Power System**
  D. Reid (Jamaica Public Service, Jamaica) (Submission-ID HYB24_107)
- **System Protection for Highly Inverter-based Island Power Systems**
  **C. Kruse** (Kauai Island Utility Cooperative, USA) (Submission-ID HYB24_108)
- **Puerto Rico Grid Resilience and Transitions to 100% Renewable Energy Study (PR100)**
  **B. Kroposki** (National Renewable Energy Laboratory – NREL, USA) (Submission-ID HYB24_101)
- **Philippines Island Microgrids Case Study: Design, Simulation, Deployment and Operations with Integrated Digital Platform**
  **S. Cherian** (Spirae, USA) (Submission-ID HYB24_100)

**18:10 – 18:20 Discussions**

**16:00 – 18:20 SESSION 4B – FREQUENCY ASPECTS**

**12:00 New York | 13:00 Rio de Janeiro | 18:00 Berlin | 21:30 New Delhi | 23:00 Jakarta | 24:00 Beijing | 01:00 Tokyo | 02:00 Sydney**

**> Session Chair Helma Maria Tróndheim (SEV, Faroe Islands)**

**16:00 – 18:00 Presentations (20 min. each)**

- **Stability Services by Wind-Solar-Storage Hybrid Power Plants**
  **V. Gevorgian** (NREL, USA) (Submission-ID HYB24_035)
- **Centralized Frequency Control of Offshore Hybrid Power Plant**
  **A. Celna** (Ørsted Energy Systems | Technical University of Denmark – DTU, Denmark), M. Gryning, M. K. Bakhshizadeh (Ørsted Energy Systems, Denmark), A. D. Hansen (Technical University of Denmark – DTU, Denmark), S. Afkhamimeybodi (Ørsted Energy Systems, Denmark), P. E. Sørensen, K. Das (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_011)
- **Improved Frequency Control in Microgrids Dominated by Renewables and Grid-Forming Energy Storage**
  **S. Cherevatskiy** (Enerjia, Australia), D. Stephens (Horizon Power, Australia) (Submission-ID HYB24_089)
- **Frequency Services from Hybrid Storage Wind Turbines**
  **S. Pouraltafi Kheljan** (Technical University of Denmark – DTU, Denmark), M. Moataz El-Seid, M.-A. Rahmani (TotalEnergies, France), K. Das, P. Ejnar Sørensen (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_063)
- **An Artificial Intelligence Approach for the Identification of the Normative Behavior of Decentralized Generators in an Islanded Network**
  **C. Bernecker-Castro**, S. Faltz, J. Timmermann (TU Munich – TUM, Germany), T. Lechner, S. Seifried (Augsburg University of Applied Sciences, Germany), K. Schaarschmidt (LEW Distribution Network Operator, Germany), S. Herrmann (AVS Aggregatebau, Germany), M. Finkel (Augsburg University of Applied Sciences, Germany), R. Witzmann (TU Munich – TUM, Germany) (Submission-ID HYB24_077)
- **Validation of a Laboratory-Scale Inverter's Role in Forming a Stand-Alone Multi-Energy Microgrid**
  **E. D. Gomez Anccas**, K. Pourhossein, D. Schulz (Helmut Schmidt University / University of the Armed Forces Hamburg, Germany) (Submission-ID HYB24_079)

**18:00 – 18:20 Discussions**

**16:00 – 18:20 SESSION 4C – HYDROGEN AND HYBRID POWER PLANTS**

**12:00 New York | 13:00 Rio de Janeiro | 18:00 Berlin | 21:30 New Delhi | 23:00 Jakarta | 24:00 Beijing | 01:00 Tokyo | 02:00 Sydney**

**> Session Chair Nick Miller (HickoryLedge, USA)**

**16:00 – 18:00 Presentations (20 min. each)**

- **Evaluation of Grid-Connected and Off-Grid Operation of Hybrid Power Plant with P2H Integration**
  M. Gupta, **J. P. Murcia Leon**, M. Friis-Møller, K. Das (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_044)
- **Off-Grid Concept for Large Scale Production of Green Hydrogen from Wind Energy**
  **A. Jain** (Vestas, Portugal), T. Abeyasekera (Vestas, Denmark), M. Gupta (Vestas, India), T. Lund, O. Sønderby, A. Tuxen (Vestas, Denmark) (Submission-ID HYB24_004)
- **Commissioning and First Operation of the Hybrid Power System "Hydrogen Lab Bremerhaven"**
  **A. Heuschmann**, J. Vervoort, K. Schalk, N. Denecke (Fraunhofer IWES, Germany) (Submission-ID HYB24_024)
- **Development of a Controller for Voltage Stabilisation in Fuel Cells using an Electric Field Modifier (EFM) Electrode**
  **C. Cosse** (Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Germany), R. Costa Castelló, M. Serra (Institut de Robòtica i Informàtica Industrial – CSIC-UPC, Spain), D. Schulz (Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Germany) (Submission-ID HYB24_093)
- **Green Hydrogen Production: Cost and $CO_2$ Emissions Co-Optimisation**
  **S. Farah**, G. B. Andresen (Aarhus University, Denmark) (Submission-ID HYB24_046)
- **Wind Turbine Design Optimization for Hydrogen Production**
  J. Thomas, C. Irmas, G. Starke (National Renewable Energy Laboratory – NREL, USA), T. Tully (Colorado School of Mines, USA), E. Grant, N. Riccobono, K. Nagasawa, **C. Bay** (National Renewable Energy Laboratory – NREL, USA) (Submission-ID HYB24_090)

**18:00 – 18:20 Discussions**

**18:45** **WORKSHOP NETWORKING EVENT/ DINNER**

**– to be booked separately –**

## WEDNESDAY, 15 MAY 2024

**09:00 – 10:40 SESSION 5A – BLACK START ASPECTS**

**05:00 New York | 06:00 Rio de Janeiro | 11:00 Berlin | 14:30 New Delhi | 16:00 Jakarta | 17:00 Beijing | 18:00 Tokyo | 19:00 Sydney**

**> Session Chair Arjan Winters (Energy solutions B.V., Netherlands)**

**09:00 – 10:20 Presentations (20 min. each)**

- **Black Start of an Islanded Grid with Run of River Hydropower Plant and Battery Energy Storage**
  **V. Gevorgian** (NREL, USA) (Submission-ID HYB24_033)
- **Black Start of an Off-Grid Offshore Wind Farm with Grid Forming Converter**
  **P. H Prakash** (University of Porto, Portugal), J. Peças Lopes, B. Silva (University of Porto | INESC TEC, Porto, Portugal) (Submission-ID HYB24_062)
- **A Grid Restoration Strategy for Medium Voltage Grids Based on Converter-Based Generation**
  D. Vettoretti**, A. Anta** (AIT Austrian Institute of Technology, Austria) (Submission-ID HYB24_018)
- **The Role of ML and AI in Managing Forced Outages in Hybrid Energy Systems**
  **M. Kezunovic** (Texas A&M University, USA) (Submission-ID HYB24_099)

**10:20 – 10:40 Discussions**

**09:00 – 10:40 SESSION 5B – ECONOMIC ASPECTS OF HYBRID POWER PLANTS**

**05:00 New York | 06:00 Rio de Janeiro | 11:00 Berlin | 14:30 New Delhi | 16:00 Jakarta | 17:00 Beijing | 18:00 Tokyo | 19:00 Sydney**

**> Session Chair Miguel Gfall (BayWa r.e., Germany)**

**09:00 – 10:00 Presentations (20 min. each)**

- **Control Challenges for Weak Grid Integration of Hybrid Power Plants**
  **F. Shahnazian**, K. Das (Technical University of Denmark – DTU, Denmark), R. Yan (University of Queensland, Australia), P. E. Sørensen (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_017)
- **Day-Ahead Trading of Wind-Battery Hybrid Power Plants: Wind Forecast Uncertainty and Limited Feed-In Grid Connection**
  M. Ledro (Ørsted Wind Power | Technical University of Denmark – DTU, Denmark), **A. Vicari** (Technical University of Denmark – DTU, Denmark), G. Mouette, J. J. Sørensen (Ørsted Wind Power, Denmark), J. M. Zepter, M. Marinelli (Technical University of Denmark – DTU, Denmark) (Submission-ID HYB24_036)
- **Business Model Evaluation of a Hybrid Wind-Battery Virtual Power Plant Dynamically Updating the Remaining Battery Capacity.**
  **D. Fernández-Muñoz**, J. I. Pérez-Díaz (Polytechnical University of Madrid, Spain) (Submission-ID HYB24_094)

**10:00 – 10:40 Discussions**

**09:00 – 10:40 SESSION 5C – ENERGY MANAGEMENT SYSTEMS**

**05:00 New York | 06:00 Rio de Janeiro | 11:00 Berlin | 14:30 New Delhi | 16:00 Jakarta | 17:00 Beijing | 18:00 Tokyo | 19:00 Sydney**

**> Session Chair Thomas Ackermann (Energynautics, Germany)**

**09:00 – 10:20 Presentations (20 min. each)**

- **Optimal Energy Management System for Hybrid PV-BESS-Diesel Bora Bora Power System to Increase Resiliency with OpEx and Maintenance Costs Reduction**
  M. Santarelli (Hitachi Energy, Italy), M. Giuntoli (Hitachi Energy, Germany), P. Almaleck**, F. Baccino**, M. Cosentino (Hitachi Energy, Italy), K. Furmanska (Hitachi Energy, Poland), P. Serra (Hitachi Energy, Italy) (Submission-ID HYB24_025)
- **Case Study: Energy Management System for a Hybrid Island Microgrid**
  **J. Ågren** (Wärtsila, Finland) (Submission-ID HYB24_104)
- **Optimized Energy Management of a Photovoltaic-Heat Pump Sector Coupling System with Electrical And Thermal Energy Storages in an Office Building**
  **L. Strobel**, B. Schwarz, N. Munzke, M. Hiller (Karlsruhe Institute of Technology – KIT, Germany) (Submission-ID HYB24_081)
- **Design Drivers for the Storage System of Baseload Hybrid Power Plants**
  **J. Iori**, M. Zaaijer, D. von Terzi, S. Watson (TU Delft, Netherlands) (Submission-ID HYB24_020)

**10:20 – 10:40 Discussions**

## 10:40 – 11:10 COFFEE BREAK & POSTER SESSION

**11:10 – 12:50 SESSION 6A – EDF HYBRID POWER SYSTEMS EXPERIENCE**

**07:10 New York | 08:10 Rio de Janeiro | 13:10 Berlin | 16:40 New Delhi | 18:10 Jakarta | 19:10 Beijing | 20:10 Tokyo | 21:10 Sydney**

**> Session Chair Anubhav Jain (Vestas, Portugal)**

**11:10 – 12:30 Presentations (15-20 min. each)**

- **General Introduction – Glimpse on the Energy Transition in the French Islands**
  G. Prime (EDF, France)
- **Renewable Powered Microgrids: What Future for their Thermal Plants?**
  **M. Chiodetti** (EDF R&D, France), C. Huet (EDF SEI, France) (Submission-ID HYB24_015)
- **Dealing with Unintentional Islanding - A Complex Issue in Developing Decentralized Energy Resources which Directly Relates to the Safety of People and Assets**
  V. Gabrion, B. Deneuville (EDF R&D, France), L. Capely, G. Prime (EDF SEI, France) (Submission-ID HYB24_040)
- **Determining the Maximum Blinding of Overcurrent Protections in a Distribution System With Inverter-Based DER : First Static Formulation and Resolution**
  **M. Velay**, R. Zorgati, B. Deneuville (EDF, France) (Submission-ID HYB24_034)
- **On the Verification of Full Potential of Grid-Forming BESS During Major Grid Events in Insular Power Grids**
  J. Freytes, J. His (EDF R&D, France), **G. Prime** (EDF SEI, France), Q. Ferreira (EDF R&D, France) (Submission-ID HYB24_037)

**12:30 – 12:50 Discussions**

**11:10 – 12:50 SESSION 6B – HYBRID POWER PLANTS III**

**07:10 New York | 08:10 Rio de Janeiro | 13:10 Berlin | 16:40 New Delhi | 18:10 Jakarta | 19:10 Beijing | 20:10 Tokyo | 21:10 Sydney**

**> Session Chair Ulrike Gunnemann (BayWa r.e., Germany)**

**11:10 – 12:30 Presentations (20 min. each)**

- **Identifying Wind Power Plants Suitable for Being Retrofit With PV Capacity Into PV-Wind Hybrids**
  **Ø. Klyve** (Institute for Energy Technology – IFE | University of Oslo, Norway), V. Olkkonen, M. Nygård (Institute for Energy Technology – IFE, Norway), D. Lingfors (Uppsala University, Sweden), E. Marstein (Institute for Energy Technology – IFE | University of Oslo, Norway), O. Lindberg (Uppsala University, Sweden) (Submission-ID HYB24_048)
- **Optimization of Hybrid Power System with On Site Meteo Station with Integrated Prediction Methods**
  **J. Liguš** (KYBERNETES, Slovakia), T. A. Murajda, S. Filip (MS THERM, Slovakia) (Submission-ID HYB24_087)
- **A Mathematical Modelling Framework for the Optimal Design and Operational Management of a Wind/Solar Photovoltaic Hybrid System.**
  **D. T. Mpassi Mahinga**, J. Van Vuuren (Stellenbosch University, South Africa) (Submission-ID HYB24_002)
- **Techno-Economical Comprehensive Study of Hybrid Wind-Solar Systems in South India**
  V. Cheluva Nagaraju, A. Kroggel, **R. Saiju** (Flensburg University of Applied Sciences, Germany) (Submission-ID HYB24_071)

**12:30 – 12:50 Discussions**

**11:10 – 12:50 SESSION 6C – LOCAL MARKETS AND LOCAL ENERGY COMMUNITIES**

**07:10 New York | 08:10 Rio de Janeiro | 13:10 Berlin | 16:40 New Delhi | 18:10 Jakarta | 19:10 Beijing | 20:10 Tokyo | 21:10 Sydney**

**> Session Chair Eckard Quitmann (Enercon, Germany)**

**11:10 – 12:30 Presentations (20 min. each)**

- **T5.2 - Local Energy Communities: Enhancing Collective Investments and Profitability of DERs**
  **N. Chrysanthopoulos**, D. Qiu, G. Strbac (Imperial College London, United Kingdom) (Submission-ID HYB24_076)
- **An Optimized Probabilistic Forecasting Approach for Hybridized Wind Power Plants**
  **A. Couto**, H. Algarvio, A. Estanqueiro (LNEG – Laboratório Nacional de Energia e Geologia, Portugal) (Submission-ID HYB24_060)
- **Energy Management in Energy Communities with Participation in MIBEL**
  M. Khojasteh, **B. Canizes**, G. Santos, P. Faria, Z. Vale (Polytechnic of Porto, Portugal) (Submission-ID HYB24_057)
- **The Rise of Localized Distributed Energy and the Evolution of the Bulk Power Systems: From "Central" to "Residual"**
  **F. Sioshansi** (Menlo Energy Economics, USA) (Submission-ID HYB24_001)

**12:30 – 12:50 Discussions**

## 12:50 – 13:50 LUNCH BREAK

**13:50 – 15:30 SESSION 7A – HYBRID POWER SYSTEMS COUNTRY EXPERIENCE III**

**09:50 New York | 10:50 Rio de Janeiro | 15:50 Berlin | 19:20 New Delhi | 20:50 Jakarta | 21:50 Beijing | 22:50 Tokyo | 23:50 Sydney**

**> Session Chair Daniel Vazquez Pombo (EPRI, Ireland)**

**13:50 – 15:10 Presentations (20 min. each)**

- **Comparison of HOMER Grid and PyPSA Capabilities for Modelling Capacity Expansion to Meet High Renewable Energy Targets on Island Grids: Case Study of 100% Renewable Energy for Vanuatu's Efate Grid**
  **J. Prasad**, A. Bruce, I. Macgill (University of New South Wales, Australia), N. Verma (UL Business Services India LLP, India) (Submission-ID HYB24_069)
- **Hybridization of Diesel Small Grids in Papua New Guinea**
  **T. Diani** (Trama TecnoAmbiental, Spain) (Submission-ID HYB24_023)
- **Pilot Project for Off-Grid Renewable Hybrid Energy Systems in the Arctic**
  **M. O. Sellevold** (Store Norske Energi, Norway) (Submission-ID HYB24_030)
- **Initial Perspective of Hybrid Energy Storage in Zero Carbon Energy Systems of a Remote Community of Northern Canada**
  **H. Knowles** (Dalhousie University, Canada), A. Swingler (University of Prince Edward Island, Canada), L. Swan (Dalhousie University, Canada) (Submission-ID HYB24_031)

**15:10 – 15:30 Discussions**

**13:50 – 15:30 SESSION 7B – TECHNICAL ASPECTS**

**09:50 New York | 10:50 Rio de Janeiro | 15:50 Berlin | 19:20 New Delhi | 20:50 Jakarta | 21:50 Beijing | 22:50 Tokyo | 23:50 Sydney**

**> Session Chair Björn Andresen (Aarhus University, Denmark)**

**13:50 – 15:10 Presentations (20 min. each)**

- **Towards Grid Code Compliance of Hybrid Power Plants with Power Management Systems**
  **J. Martinez-Rico** (Tekniker – Basque Research and Technology Alliance, Spain), F. Iov (Aalborg University, Denmark), J. L. Azpeitia, I. Ruiz de Argandoña, M. Armendia (Tekniker – Basque Research and Technology Alliance, Spain) (Submission-ID HYB24_058)
- **Review of Grid Code Requirements for Cost Optimization of Offshore Energy Hubs**
  **D. Pagnani** (Ørsted, Denmark), D. Müller (Technical University of Denmark – DTU, Denmark), L. Huang (Aalborg University, Denmark), L. P. Mahat, F. Skøtt (Siemens Gamesa Renewable Energy, Denmark) (Submission-ID HYB24_070)
- **Elevating Offshore Renewable Energy: A Study on Integrating Wind, Solar, and Storage Systems**
  **M. Mihajlovic**, S. J. Stark, V. Bonnin, H. F. van der Zant, A. B. Schaap (Dutch Marine Energy Centre, Netherlands) (Submission-ID HYB24_055)
- **Solar Radiation Forecasting for a Hybrid PV-CSP System in a Desert, Coastal City**
  **C. Fountoukis**, D. Perez-Astudillo, D. Bachour (QEERI – Qatar Environment and Energy Research Institute, Hamad Bin Khalifa University, Qatar) (Submission-ID HYB24_009)

**15:10 – 15:30 Discussions**

**13:50 – 15:30 SESSION 7C – GENERATION ASPECTS**

**09:50 New York | 10:50 Rio de Janeiro | 15:50 Berlin | 19:20 New Delhi | 20:50 Jakarta | 21:50 Beijing | 22:50 Tokyo | 23:50 Sydney**

**> Session Chair David Quirk (DTU, Denmark)**

**13:50 – 15:10 Presentations (20 min. each)**

- **Optimization of a Hybrid Electricity System in the Canary Islands Including Marine Renewable Energies.**
  **S. Ramos-Marin** (University of Lisbon, Portugal), A. Caio (MOCEAN Energy, United Kingdom), C. Guedes Soares (University of Lisbon, Portugal) (Submission-ID HYB24_016)
- **Onshore Wind and Solar Power Plant with Benefits of Hydropower Infrastructure**
  **T. A. Murajda,** S. Filip (MS THERM, Slovakia), S. Berezňanin (MS THERM | Technical University in Košice, Slovakia) (Submission-ID HYB24_082)
- **Design and Creating of Gravity Power Plants**
  **G. Saleh** (Saleh Research Centre, Netherlands) (Submission-ID HYB24_029)
- **Airborne Wind Energy Accelerates the Global Energy Transition**
  **N. Taphorn** (SkySails Power GmbH, Germany) (Submission-ID HYB24_010)

**15:10 – 15:30 Discussions**

## 15:30 – 15:50 COFFEE BREAK

| 15:50 – 16:50 | SESSION 8 – CLOSING SESSION |
|---|---|
| 11:50 New York \| 12:50 Rio de Janeiro \| 17:50 Berlin \| 21:20 New Delhi \| 22:50 Jakarta \| 23:50 Beijing \| 00:50 Tokyo \| 01:50 Sydney | |
| > Session Chair | Paulo Jorge da Costa André, President of the Board of Directors of EDA (Autonomous Region of the Azores, Portugal) |
| 15:50 – 16:20 | Panel discussion |

**Topics addressed:** Solutions for integrating renewable energy towards a safe energy transition on the islands (e.g. storage systems, synchronous condensers, energy management systems, smart controls, green fuels).

**Panelists:**

- Hamideh Bitaraf (Hitachi Energy, USA)
- Benjamin Kroposki (NREL, USA)
- Johan Ågren (Wärtsilä, Finland)
- Eckard Quitmann (Enercon, Germany)
- NN (Siemens, Portugal)

| | |
|---|---|
| 16:20 – 16:40 | Discussions |
| 16:40 – 16:50 | Closing Remarks |

## POSTER PRESENTATIONS

- **Sensitivity-based Control for HUB Substation Considering Multiple Distribution Networks**
  S. Kang (Korea University, South Korea), **S. Jung** (Hanbat National University, South Korea) (Submission-ID HYB24_06)
- **Development of an Experimental Environment to Investigate the Integration of Energy-Flexible Facilities into a Future Smart Grid**
  **C. Kondzialka**, C. Schewe (University of Applied Sciences Ulm, Germany) (Submission-ID HYB24_022)
- **Evaluation of the Ability of a Battery Energy Storage System with a Grid Forming Inverter to Provide Instantaneous Reserve Regarding the Limitations of the Dynamic Behaviour of Battery Cells**
  **T. Garn**, D. A. Nguyen, B. Engel (TU Braunschweig – elenia, Germany) (Submission-ID HYB24_041)
- **Comparative Modeling and Scenario Analysis of Sector-Coupled Island-Energy System Optimization**
  V. Breburda (Energynautics | TU Darmstadt, Germany), **P.-P. Schierhorn** (Energynautics, Germany), S. Massat, B. Blat Belmonte (TU Darmstadt, Germany), E. Tröster (Energynautics, Germany), S. Rinderknecht (TU Darmstadt, Germany) (Submission-ID HYB24_042)
- **Investigating the Impact of Nonlinearities on the Response of Spar-Integrated Oscillating Water Column Systems**
  **B. Fenu**, M. Bonfanti, B. Paduano (Politecnico di Torino, Italy) (Submission-ID HYB24_045)
- **PEM-Electrolyzer Modelling and Control Strategies in the Extended Node Method for Hybrid Power System Modelling**
  **D. Vorwerk**, M. Schumann, D. Schulz (Helmut Schmidt University / University of the Bundeswehr Hamburg, Germany) (Submission-ID HYB24_073)
- **PEM Fuel Cell Cooling System for the Effective Use of Waste Heat**
  **D. Hamann**, M. Schifferdecker, A. Nosrat, M. Schumann (Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Germany), J. A. Puszkiel, E. S. Wienken, P. S. Krause, J. Warfsmann, T. Klassen, J. Jepsen (Helmut Schmidt University / University of the Federal Armed Forces Hamburg | Helmholtz-Zentrum Hereon, Germany), D. Schulz (Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Germany) (Submission-ID HYB24_074)
- **Ecological Accumulation Energy for Hybrid Energy Systems**
  T. Murajda, **S. Filip** (MS THERM, Slovakia), S. Berezňanin (MS THERM, Slovakia | Technical University in Košice, Slovakia) (Submission-ID HYB24_091)