



World Utilities  
Congress



9 - 11 SEPTEMBER 2024 | ABU DHABI, UNITED ARAB EMIRATES

# TECHNICAL CONFERENCE CALL FOR PAPERS

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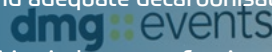
# TECHNICAL CONFERENCE

## INTRODUCTION

The utilities sector is going through an immense transformation and keeping pace with technological advancements is important to ensure profitability, competitiveness and adequate decarbonisation efforts.

The Technical Conference at the World Utilities Congress provides utilities industry professionals with unparalleled opportunities to access cutting-edge industry knowledge, the latest in innovative research findings, technical proficiency, advanced project developments, state-of-the-art technologies, industry-standard best practices, and groundbreaking ideas for future technological advancements

The conference will cover all aspects of the utilities industry's value chain, encompassing technological innovations in power generation, transmission, distribution, storage, water management, energy transition, health, safety, and environmental (HSE) practices, along with a focus on operational excellence.



## WHY SUBMIT ABSTRACTS?



Step into the spotlight before prominent industry leaders and top experts



Validate your concepts and collect input through interactive Q&A sessions



Acquire industry-leading insights and foster your professional development



Network face-to-face with engineers and technical experts



Elevate your company's standing within the industry

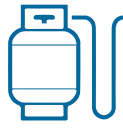


Attain international recognition and global exposure

# 12 TECHNICAL CONFERENCE CATEGORIES



Power Generation



Alternative Fuels



Water Desalination



Water Management, Supply and Distribution Network



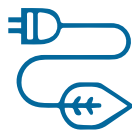
Wastewater Recycling, Reusing or Reclaiming



District Cooling



Digital Transformation



Energy Transition, Decarbonisation, ESG & Sustainability



Power Transmission, Distribution & Storage



Smart Cities & Communities



Health, Safety & Security Across the Utilities Industry



Operational Excellence & Workforce Development



# CALL FOR PAPERS GUIDELINES

All submitted technical abstracts will be reviewed by the World Utilities Congress 2024 Technical Committee. Early submission is important to ensure the Committee members have ample time to review the abstracts. Authors are strongly encouraged to submit their abstracts online at:

SUBMIT YOUR ABSTRACTS ONLINE  
BEFORE FRIDAY 19 FEBRUARY 2024



[www.worldutilitiescongress.com/cfp](http://www.worldutilitiescongress.com/cfp)

## ABSTRACT SUBMISSION

- Abstracts should be **no more than 500 words** and should be written in English. Any entry submitted in a different language will not be considered
- You are welcome to include additional information, such as illustrations, graphs or tables, as attachments
- Please **do not** submit the same abstract more than once. If you believe your abstract is relevant to multiple categories, please select one that is the best fit
- One person can submit **multiple abstracts** within the same category or across multiple categories. However, please do not submit the same or slightly modified abstracts multiple times, as they will be deleted
- Prior to abstract submissions – management clearance must be obtained. Any issues concerning clearance should be outlined when the abstract is submitted
- If you have presented your abstract previously, you can still submit but you will need to provide details of when and where it was presented before

## GRADING CRITERIA

Your abstracts will be evaluated by the Technical Committee members according to the following grading criteria:

**Impact:** what industry or organisational impact does your work have? Please include relevant results and/or case studies

**Novelty:** your abstract should demonstrate innovation and originality, and contain significant new knowledge, technical results or experience

**Interest & Relevance:** how relevant is your submission to the current state of the utilities industry? How interesting is the subject matter to the audience and the industry overall? Will it grab their attention?

## ABSTRACT CONTENT

A proper review of your abstract requires that it contains adequate information for the Technical Committee to make a judgment. Written in English and containing no more than 500 words, abstracts should include the following:

**Description:** summarise the scope and nature of the work on which the abstract is based, e.g. project description, why it was undertaken, data description, the technology used, etc.

**Applications:** describe the possible application of the information provided in the abstract

**Results and Conclusions:** summarise the results and major conclusions to be presented, explain how these differ from previous work on the same subject

**Technical Contributions:** describe the significance of the subject matter in the abstract by listing technical contributions or additions to the technical knowledge relevant to the utilities industry

# GUIDELINES FOR ACCEPTED ABSTRACTS

- You will be notified in April 2024 if your abstract has been accepted. All authors who submitted their abstracts will receive an email stating if their abstracts have been accepted or not
- Authors of accepted abstracts will be required to prepare PowerPoint presentations, detailed instructions on the preparation will be sent to all authors once acceptance to speak has been received
- World Utilities Congress does not require authors to submit their technical papers, as we do not publish these
- All the presenters will receive complimentary access to all three days of the Technical Conference. However, all the co-authors are required to purchase a pass if they would like to attend
- The organiser assumes no obligation for expenses by authors for travel and accommodation to attend and speak at the event
- In the event that confirmed presenters are unable to present at the conference, they must nominate a substitute to present the abstract.



## TECHNICAL CATEGORIES

There is a choice of **12 different technical categories**, all of which have multiple subcategories. Please have a thorough read through all of them, and select one category that describes your abstract best. Please do not submit the same abstract more than once, as duplicates will be deleted.

## COMMERCIALISM

Your abstract should not use language that is commercial in tone in the title, text or slides. The use of such terms will result in careful scrutiny by the Technical Committee and may result in exclusion from the evaluation process.

## IMPORTANT DATES

- 
**24 SEPTEMBER 2023**  
**CALL FOR PAPERS OPEN**
- 
**19 FEBRUARY 2024**  
**ABSTRACT SUBMISSION DEADLINE**
- 
**25 MARCH 2024**  
**TECHNICAL COMMITTEE MEETING**
- 
**1 APRIL 2024**  
**AUTHOR NOTIFICATIONS**
- 
**9 SEPTEMBER 2024**  
**WORLD UTILITIES CONGRESS OPENS**



## CATEGORY 1 POWER GENERATION

- Advancements in photovoltaic (PV) panels, organic photovoltaic cells (OPVs), concentrator photovoltaics (CPV) systems, product integrated photovoltaics (PIPVs), floatovoltaics
- Concentrated solar power technologies, power tower systems
- Advancements in solar trackers, inverters, and hybrid solar systems
- Using solar energy to power desalination plants
- Wind power generation
- Advancements in wind turbines and electric generators
- Developments in plant operation and maintenance, ageing management programmes (AMPs)
- Developments in nuclear reactors and nuclear fuels, SMRs
- Engineering, procurement, and construction of nuclear plants
- Advancements in R&D in nuclear sector
- Storage & supply chain capabilities
- Radioactive waste management
- Decommissioning and disposal, effective solutions for long-term nuclear waste disposal
- Ensuring power plant safety, protecting reactors from natural disasters and external accidents
- Policies and regulations
- Finance and Investments
- Project showcases



## CATEGORY 2 ALTERNATIVE FUELS

- Advances in hydrogen production
- Advances in methanol and ammonia production
- Auto-Thermal Reforming (ATR)
- Coal and oil gasification to hydrogen
- Methane pyrolysis
- Hydrogen infrastructure, upgrading gas infrastructure for the use of hydrogen
- Technology for storage, liquid organic hydrogen carriers (LOHCs)
- Strategies to scale up hydrogen production and usage
- Hydrogen and ammonia applications and uses in the utilities sector
- Export of hydrogen and ammonia
- Thermal hydrogen production from nuclear
- Advancements in biomass production
- Bio-chemicals & biomaterials
- Biofuels technology innovations: BECCUS, waste-to-energy
- Bio-hubs: processing, storage, and transportation of biofuels
- Industrial Biofuels Development
- Agro-biomass as feedstock for power generation
- Biomass feedstocks in bio-methanol and rDME production
- Finance, investment & policy governance
- Project showcases

**ABSTRACT SUBMISSION DEADLINE: 19 FEBRUARY 2024**



### CATEGORY 3 WATER DESALINATION

- Water pretreatment
- Reverse osmosis technologies, solar distillation, electrodialysis, nanofiltration, ultrafiltration, microfiltration
- Post-treatment remineralisation
- Storage & brine management
- Seawater desalination
- Optimum utilisation of post desalination recovery metals
- Chemicals for water treatment
- Low-carbon desalination
- Advancements in membranes, pumps, pipes, valves, and other equipment
- Advancements in multistage flash evaporation (MSF) methods and technologies
- Developments in multiple effect distillation (MED) methods and technologies
- Successful integration of various water desalination techniques
- Cost-effective strategies for water quality improvement
- Water post-treatment methods
- Water-energy-food nexus
- Project showcases



### CATEGORY 4 WATER MANAGEMENT, SUPPLY AND DISTRIBUTION NETWORK

- Integrated water resources management
- Hydrology and water resources
- Watershed management and protection
- Water use efficiency and optimisation
- Efficient solutions in district cooling
- Water demands for energy generation and vice-versa
- Modern Irrigation Technologies (Smart irrigation, precision agriculture, etc.)
- Water-energy-food nexus in irrigation
- Sustainable land and water management practices
- Water infrastructure, engineering & policy
- Water and network security
- Climate change and resilience
- Water conservation and efficiency
- Finance and Investment

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#### CATEGORY 5

### WASTEWATER RECYCLING, REUSING OR RECLAIMING

- Construction of wastewater treatment plants
- Decentralised wastewater systems
- Waste-to-energy
- Sanitary engineering, advancements in equipment and technologies
- Wastewater filtration systems and technology
- Optimisation of wastewater collection
- Advancements in wastewater treatment methods
- Usage of recycled wastewater
- Safe disposal of treated wastewater, sludge management
- Policies and regulations related to wastewater treatment



#### CATEGORY 6

### DISTRICT COOLING

- Designing, owning, building, and operating district cooling plants
- Advancements in refrigerants, heat rejection methods and dehumidifying technologies; energy transfer systems
- Developments in meters, valves, and pumps
- New materials used in district cooling, the use of nanomaterials
- Integrating the alignment of analytics platform to existing building automation system (BAS), incorporating of variable frequency drives (VFDs)
- Leak detection: distributed temperature sensing (DTS) fibre optic cables, multimode leak detectors
- Adiabatic cooling & technology
- Optimising district cooling water and energy supplies
- Cooling grid management, energy storage, integration of renewable energy
- Distribution network
- Improving energy efficiency, advancements in technologies and R&D
- Preventative maintenance and operational excellence

**ABSTRACT SUBMISSION DEADLINE: 19 FEBRUARY 2024**





### CATEGORY 7 DIGITAL TRANSFORMATION

- Digital twin, Industrial Internet of Things (IoT), connected performance
- Climate digital technologies
- Cyber, Information security & data privacy
- Drones deployment and 5G
- AI and data analytics in utilities
- Robotics, virtual reality (VR), augmented reality (AR), mixed reality
- Blockchain, Metaverse, cloud computing, enterprise mobility solutions
- Network optimisation, IT & OT convergence



### CATEGORY 8 SMART CITIES & COMMUNITIES

- Data space for smart communities
- Smart Meters, sensors, data mining, solar instrumentation, and user engagement
- Scaling e-mobility solutions
- Sustainable smart infrastructure solutions
- Battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), fuel cell electric vehicles (FCEVs)
- EV supply equipment, 3D printing, micromobility
- Electric mobility as a service
- EV to grids, buildings, houses, other energy consuming destinations
- Smart heating and cooling systems, air quality monitors, weather sensors
- Reducing carbon emissions with sustainable transportation
- Electrotechnical systems, equipment and applications used to build and maintain smart cities and green buildings
- New energy systems - small-scale Combined Heat and Power (CHP) with heat storage, PV-driven heat pumps, bio-methane
- Integration of renewable energy and energy efficient intelligent building technologies
- Developments in transparent solar panels
- Customer engagement

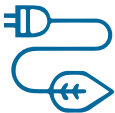
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#### CATEGORY 9

### POWER TRANSMISSION, DISTRIBUTION & STORAGE

- Smart grid distribution management, grid balancing, ensuring load management flexibility, load shed strategies, integration of renewable energy into the grid, microgrids
- Substation automation technologies
- HVDC and FACTS technologies
- Off-grid renewable power generation supply
- Smart power and water grid network management, ensuring data interoperability, SCADA
- Integration, programmable logic controllers (PLCs), systems scalability
- Developing wireless communication infrastructure, M2M communication, sensors
- Wired communication, advancements in cabling solutions and transmission lines
- Strategies to ensure economic, secure, and stable power and water supply
- Lithium-ion batteries in the grid storage market
- Alternative battery solutions - flow batteries, zinc batteries, lithium-sulphur batteries, sodium ion batteries, liquid metal batteries
- Storage implementation strategies, deriving utmost value from storage solutions
- Grid modernisation
- Advancements in smart grid technologies & grid security
- Substation automation, remote intelligent switch, battery storage
- Phasor Measurement Units (PMUs), grid stability, advanced meters, re-routing power
- Solid-state transformers and power flow controllers, adaptive networks
- Advancements in backup power, UPS systems, generators, and automated solutions
- Industrial power supply
- Tackling commercial and residential power outages
- Power backups
- Sustainability efforts in backup power generation



#### CATEGORY 10

### ENERGY TRANSITION, DECARBONISATION, ESG & SUSTAINABILITY

- Decarbonisation and carbon capture solutions in the utilities industry
- CO2 emission reduction, utilisation, carbon credit, and carbon market (supply and demand)
- Power plant emission and pollution control systems, reducing carbon footprint
- Management of brine discharge and sludge disposal
- Circular Economy: Reduce, Reuse, Recycle, Renew
- UN sustainable development goals
- Biodiversity and ecosystem conservation
- Decarbonisation and energy transition, energy mix, clean energy business models
- Carbon credits
- Tackling land and water contamination
- Environmental impact assessment (EIA)
- Sustainable procurement

**ABSTRACT SUBMISSION DEADLINE: 19 FEBRUARY 2024**



## CATEGORY 11

## HEALTH, SAFETY &amp; SECURITY ACROSS THE UTILITIES INDUSTRY

- Occupational safety
- Safety culture and safety management systems, security systems, human factors, and performance
- Role of leadership within health and safety
- Process safety
- Mental health and wellbeing, occupational health
- Innovation and digital technologies to improve health and safety, wearable technology
- Protecting power and water assets against natural disasters and unwanted intrusions; storm damage assessment and restoration; vegetation management; wildfire mitigation
- Ensuring fire safety, explosion protection
- Contingency plans, emergency preparedness and response, crisis management
- Assessing, managing, and mitigating safety and security risks
- The role of partnerships and regional cooperation in ensuring safety and security



## CATEGORY 12

## OPERATIONAL EXCELLENCE &amp; WORKFORCE DEVELOPMENT

- Improving utilisation of resources
- Intelligent automation and the role of technology to achieve operational excellence
- Resilient workforce technologies and strategies
- Business process and re-engineering
- Operations excellence 4.0: challenges, innovative solutions, and best practices
- Improving asset integrity
- Challenges, technologies, and innovative practices
- Energy optimisation and transition
- Cost optimisation
- Advancements in asset maintenance strategies, managing asset life extension, improving reliability
- Six sigma methods and applications
- Intelligent automation and technology's role to achieve operational excellence
- Lean operations
- Autonomous and remote operations
- Maintenance 4.0 challenges, technologies, and innovative practices
- Asset performance 4.0 and facility management
- Improving operating efficiency
- People development and mobilisation
- Workforce of the future

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