



27 - 29 MAY 2025 | ABU DHABI, UNITED ARAB EMIRATES

TECHNICAL CONFERENCE CALL FOR PAPERS

SUBMISSION DEADLINE: 29 NOVEMBER 2024

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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, industrystandard 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





Network face-to-face with engineers and technical experts



Elevate your company's standing within the industry



Attain international recognition and global exposure

20 | TECHNICAL CONFERENCE CATEGORIES

CATEGORY 1



Power generation

CATEGORY 2



Energy storage and management

CATEGORY 3



Grid modernisation and smart grids

CATEGORY 4



Low carbon, alternative fuels, and renewable energy

CATEGORY 5



Hydrogen

CATEGORY 6



Nuclear Energy **CATEGORY 7**



Energy transition, decarbonisation and environmental sustainability **CATEGORY 8**



Water supply and treatment

CATEGORY 9



Water infrastructure and sustainability

CATEGORY 10



District energy Systems **CATEGORY 11**



Gas: processing, operations and technology

CATEGORY 12



Energy markets, strategies and finance

CATEGORY 13



Project management in utilities

CATEGORY 14



Logistics and supply chain in utilities

CATEGORY 15



Critical minerals and rare earth

CATEGORY 16



Future mobility and smart communities

CATEGORY 17



Digital transformation and emerging technologies CATEGORY 18



Operational excellence and asset maintenance

CATEGORY 19



Health, safety, and risk management

CATEGORY 20



ESG (Environmental, Social, and Governance) in utilities

CALL FOR PAPERS GUIDELINES

All submitted technical abstracts will be reviewed by the World Utilities Congress 2025 Technical Committee. Early submission is important to ensure the Committee members have ample time to review the abstracts.

SUBMIT YOUR ABSTRACTS ONLINE BEFORE FRIDAY, 29 NOVEMBER 2024

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 bu listing technical contributions or additions to the technical knowledge relevant to the utilities industry

IMPORTANT DATES

GUIDELINES FOR ACCEPTED ABSTRACTS

- You will be notified in January 2025 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



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29 NOVEMBER 2024
ABSTRACT SUBMISSION
DEADLINE



13 DECEMBER 2024
COMMITTEE EVALUATION
COMMENCES



21 JANUARY 2025
TECHNICAL COMMITTEE
MEETING COMMENCES



24 JANUARY 2025 AUTHOR NOTIFICATIONS



27 MAY 2025
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TECHNICAL CATEGORIES

There is a choice of 20 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.



POWER GENERATION

- Conventional power generation (coal, natural gas, oil)
- Combined heat and power (CHP) systems
- Emerging power generation technologies (fuel cells, microturbines, waste heat recovery)
- Advanced ultra-supercritical (A-USC) power plants
- Advancements in photovoltaic (PV) panels, organic photovoltaic cells (OPVs), concentrator photovoltaics (CPV) systems, product integrated photovoltaics (PIPVs), floatovoltaics
- Supercritical CO2 power cycles
- Waste-to-energy technologies
- Concentrated solar power technologies, power tower sustems
- Advancements in solar trackers, inverters, and hybrid solar systems
- Integrated gasification combined cycle (IGCC)
- Hybrid power generation systems
- Energy generation from ocean sources (tidal, wave)
- Engineering, procurement, and construction of nuclear plants
- Geothermal power generation
- Distributed generation technologies
- Nuclear power generation
- Small modular reactors (SMRS)
- Biomass power generation
- Solar thermal power plants
- Wind power generation
- Hydropower generation
- Carbon capture and storage (ccs) in power plants
- Decentralised power systems
- Policies and regulations
- Finance and Investments
- Project showcases

ENERGY STORAGE AND MANAGEMENT

- Battery storage technologies (lithium-ion, flow batteries, sodium-sulfur)
- Pumped hydro storage
- Thermal energy storage (sensible heat, latent heat, thermochemical)
- Grid integration of storage solutions (energy management systems, dispatch optimisation)
- Compressed air energy storage (CAES)
- Flywheel energy storage
- Supercapacitor energy storage
- Cryogenic energy storage
- Virtual power plants and aggregated storage
- Second-life batteries for energy storage
- Electric vehicle battery integration
- Residential energy storage solutions
- Commercial and industrial energy storage
- Energy storage as a service (eSaaS))
- Energy storage for microgrids
- Integration of renewable energy with storage
- Regulatory and policy frameworks for energy storage
- Financial models for energy storage projects
- Energy storage safety and standards



AND SMART GRIDS

- Smart metering and demand response
- Digital twins and grid management
- Cybersecurity in smart grids
- Innovations in transmission and distribution systems (HVDC, FACTS)
- Microgrids and islanded systems
- Distributed energy resources management systems
- Voltage and frequency control in smart grids
- Interoperability and standards in smart grids
- Grid resilience and disaster recovery
- Advanced distribution management systems (ADMS)
- Automated fault detection and recovery
- Real-time grid monitoring and analytics
- Integration of renewable energy into smart grids
- Energy management systems (EMS) for smart grids
- Vehicle-to-grid (V2G) integration
- Smart grid communication networks
- Regulatory and policy frameworks for smart grids
- Financial models for grid modernisation
- Smart grid pilot projects and case studies
- Stakeholder engagement in smart grid development

AND RENEWABLE ENERGY

- Solar energy technologies (photovoltaics, concentrated) solar power) - electricity generation, grid integration, operations, and technology advancements
- Advancements in photovoltaic (PV) panels, organic photovoltaic cells (OPVs), concentrator photovoltaics (CPV) systems, product integrated photovoltaics (PIPVs), floatovoltaics
- Wind: electricity generation, grid integration, operations, and technology advancements
- Biofuels technology innovations: BECCUS, waste-to-
- Biomass energy (direct combustion, anaerobic digestion)
- Hydropower (run-of-river, pumped storage)
- Synthetic fuels and end use: ethanol blending, biodiesel, biomethane, sustainable aviation fuels
- Geothermal energy systems
- Ocean energy (tidal, wave energy conversion)
- Sustainable biofuels (biodiesel, bioethanol, algal fuels)
- Energy from waste (refuse-derived fuel, biogas)
- Policy and incentives for renewable energy adoption
- Community and utility scale renewable projects
- Renewable energy integration in urban planning
- Renewable energy storage solutions
- Decarbonising hard-to-abate industries
- Off-grid renewable energy systems
- Hybrid renewable energy systems
- Innovations in renewable energy technologies
- Renewable energy financing and investment
- Environmental impact assessments for renewable projects
- Social acceptance of renewable energy
- Renewable energy education and training



HYDROGEN

- Advances in hydrogen production methods
- Innovative technologies in hydrogen generation
- Electrolyser technology advancements
- Development of hydrogen storage solutions
- Upgrading existing gas infrastructure for hydrogen use
- Strategies for building hydrogen refueling stations
- Utilisation of hydrogen in power generation and energy storage
- Hydrogen as a fuel for transportation
- Applications of hydrogen in industrial processes
- Green hydrogen power generation
- Hydrogen storage for power generation
- Renewable hydrogen production
- Hydrogen as an enabler of decarbonisation
- Hydrogen blending in natural gas systems
- Hydrogen trade and economy dynamics
- Hydrogen certification
- Role of government & amp; regulatory frameworks
- Impact of carbon pricing and subsidies on projects
- Financing models for hydrogen projects
- Cost analysis of production and infrastructure development
- Market dynamics and demand forecasting for lowcarbon hydrogen

NUCLEAR

ENERGY

- Advanced nuclear reactor designs (small modular reactors, generation iv)
- Nuclear fuel cycle (uranium mining, fuel fabrication, waste management)
- Safety and risk management in nuclear operations
- Nuclear waste disposal and management strategies
- Public perception and acceptance of nuclear energy
- Innovations in nuclear technology (fusion, molten salt reactors)
- International regulations and standards for nuclear energy
- Nuclear energy's role in decarbonisation
- Economic viability and financing of nuclear projects
- Nuclear research and development initiatives
- Nuclear power plant decommissioning
- Regulatory frameworks for nuclear energy
- Nuclear non-proliferation and security
- Small modular reactor (SMR) deployment strategies
- Nuclear energy workforce development
- Nuclear power plant digitalisation and automation
- Public-private partnerships in nuclear projects
- Nuclear power plant performance optimisation
- International collaboration in nuclear energy
- Environmental impacts of nuclear energy



CATEGORY 7

ENERGY TRANSITION, DECARBONISATION AND ENVIRONMENTAL SUSTAINABILITY

- Pathways to net-zero emissions
- Carbon capture, utilisation, and storage (CCUS)
- Electrification and sector coupling
- CO2 emissions reduction in hydrocarbons exploration, production, and operations
- Methane monitoring and reduction
- Offsets and carbon trading mechanisms
- Negative emissions technologies (direct air capture)
- Decarbonisation roadmaps for utilities
- Biodiversity and ecosystem conservation
- Circular economy initiative
- Policy frameworks for decarbonisation
- International collaboration on decarbonisation
- Socio-economic impacts of energy transition
- Environmental impact assessments
- Circular economy principles in energy systems
- Sustainable water management in utilities
- Biodiversity conservation and ecosystem services
- Sustainable supply chain management
- Sustainability reporting and disclosure
- Stakeholder engagement for sustainability
- Social responsibility and community development
- Climate change adaptation strategies
- Water stewardship and conservation

WATER SUPPLY AND TREATMENT

- Water supply and distribution systems
- Wastewater treatment technologies
- Desalination technologies and innovations
- Water quality monitoring and management
- Integrated water resources management (IWRM)
- Water-energy nexus and efficiency
- Policy and regulation in water management
- Community engagement in water resource management
- Industrial water treatment solutions
- Emerging contaminants in water supply
- Advanced oxidation processes for water treatment
- Decentralised water treatment systems
- Water reuse and recycling technologies
- Innovations in membrane technologies
- Digital water management solutions
- Public-private partnerships in water management
- Financial models for water infrastructure projects
- Resilience of water systems to climate change
- Capacity building and knowledge sharing in water management
- Water scarcity and conservation strategies

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WATER INFRASTRUCTURE AND SUSTAINABILITY

- Stormwater management and urban drainage
- Sustainable water uses in agriculture
- Green infrastructure for water management
- Water asset management and rehabilitation
- Water conservation and efficiency measures
- Water reuse and recycling technologies
- Resilience of water infrastructure to climate change
- Innovative financing for water infrastructure
- Public-private partnerships in water projects
- Capacity building and knowledge sharing in water management
- Integrated water resources management (IWRM)
- Advanced metering infrastructure (AMI) for water
- Water infrastructure maintenance and upgrades
- Smart water grids and IOT solutions
- Water loss management and leak detection
- Policy and regulation for sustainable water management
- Community-based water management
- Sustainable urban water management
- River basin management
- Water resource planning and allocation

DISTRICT ENERGY SYSTEMS

- District heating solutions
- District cooling solutions
- Integration of renewable energy in district systems
- Efficiency improvements in district energy networks
- Thermal energy storage in district systems
- Digitalisation and smart controls in district energy
- Business models for district energy projects
- Regulatory frameworks for district energy
- Case studies of successful district energy projects
- Community engagement in district energy planning
- Combined heat and power (CHP) integration
- District energy system design and optimisation
- Financing and investment in district energy
- District energy for sustainable cities
- Resilience and reliability of district energy systems
- District energy in urban planning
- Innovations in district energy technologies
- Energy management systems for district energy
- Renewable energy integration in district heating and cooling
- Policy and incentives for district energy development



GAS: PROCESSING, OPERATIONS AND TECHNOLOGY

- Innovations in LNG processing and transportation
- Gas, LNG processing: extraction, removals, separation, liquefaction, regasification, FLNG
- LPG: processing, and end use case studies
- CNG: processing, case studies
- Advancements in natural gas extraction and refining
- Operational efficiency in gas processing plants
- Emerging technologies in gas utilities
- Gas storage and flexibility solutions
- Pipeline integrity management
- Gas flaring: effective use, advancements, safety measures
- Sour gas field developments, sulphur disposal
- Compressor station optimisation
- Gas quality management
- City gas distribution
- Gas-to-market strategies
- Decarbonising gas grid and gas assets
- Selection and deployment of regasification facilities
- Renewable natural gas production
- Flare minimisation and methane emission reduction
- Digital transformation in gas utilities
- Regulatory compliance and safety in gas operations
- Environmental impact of gas operations
- Carbon capture and storage in gas utilities
- Natural gas vehicle (NGV) infrastructure
- Market dynamics in the gas industry
- Gas processing equipment and technologies
- Workforce training and development in gas utilities
- Future trends in the gas industry

ENERGY MARKETS, STRATEGIES AND FINANCE

- Trends in energy commodity trading
- Energy markets, supply and demand economics
- Carbon markets and trading mechanisms
- Risk management in energy markets
- Financing models for energy projects
- Current concession agreements and contracts
- Project finance: IPOs, cryptocurrencies, smart financing, mergers and acquisitions, joint ventures, portfolio diversification
- Financing energy transition and alternative energy projects, green finance, ESG financing
- Mergers, acquisitions, and divestitures in utilities
- Wholesale and retail market structures
- Capacity markets and resource adequacy
- Renewable energy auctions and PPA structures
- Ancillary services and flexibility markets
- Energy derivatives and hedging strategies
- Economic impacts of energy policies
- Investment strategies in renewable energy
- Corporate power purchase agreements (PPAS)
- Energy market design and regulation
- Financial risk management in energy markets
- Energy market forecasting and analysis
- Energy efficiency financing
- Innovations in energy market platforms
- Strategic planning for utilities
- Public-private partnerships in energy projects

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PROJECT MANAGEMENT IN UTILITIES

- Best practices in utility project management
- Risk assessment and mitigation in utility projects
- Stakeholder engagement and communication
- Project scheduling and resource allocation
- Performance metrics and KPI's for utility projects
- Regulatory compliance in utility projects
- Contract management and procurement strategies
- Project contract management
- Cost/benefit analysis, cost estimation, cost control
- Project financing and budgeting
- Early production project approach
- Claims, disputes and arbitrations
- Quality management in utility projects
- Technology integration in utility project management
- Sustainable project management practices
- Risks and challenges of brownfield projects
- Innovations in project management tools and techniques
- Workforce training and development
- Project management methodologies (agile, waterfall)
- Project management case studies in utilities
- Collaboration and team management in utility projects
- Change management in utility projects
- Environmental and social impact assessments
- Project closure and post-implementation reviews
- Digital transformation in project management

LOGISTICS AND SUPPLY CHAIN IN UTILITIES

- Supply chain optimisation in utilities
- Inventory management and demand forecasting
- Procurement strategies for utility projects
- Transportation and logistics in utility operations
- Supplier relationship management
- Risk management in utility supply chains
- Sustainable supply chain practices
- Innovations in utility supply chain management
- Digital transformation in supply chain
- Regulatory compliance in utility supply chains
- Contract management in supply chain
- Quality assurance in supply chain management
- Lean and agile supply chain practices
- Workforce training and development
- Case studies in utility supply chain management
- Technology integration in supply chain management
- Environmental impact of utility supply chains
- Strategic sourcing and supplier selection
- Supply chain resilience and disruption management
- Financial management in supply chain operations

ABSTRACT SUBMISSION DEADLINE: 29 NOVEMBER 2024



CRITICAL MINERALS AND RARE EARTH

- Extraction and processing of critical minerals
- Recycling and reuse of critical minerals
- Supply chain management for rare earth elements
- Innovations in critical mineral processing
- Regulatory frameworks for critical minerals
- Environmental impact of critical mineral extraction
- Strategic sourcing and procurement of rare earth
- Market dynamics and pricing of critical minerals
- Technological applications of rare earth elements
- Sustainable practices in critical mineral mining
- Workforce development in critical mineral industry
- Investment opportunities in rare earth and critical minerals
- Risk management in critical mineral supply chains
- International collaboration on critical minerals
- Research and development in rare earth technologies
- Case studies in critical mineral management
- Policy and regulation for critical minerals
- Critical minerals in renewable energy technologies
- Advanced materials from rare earth elements
- Future trends in critical mineral industry

FUTURE MOBILITY AND SMART COMMUNITIES

- Electric and autonomous vehicles
- Charging infrastructure for EVs
- Shared mobility solutions
- Smart transportation systems
- Integration of renewable energy in mobility
- Policy and regulation for future mobility
- Innovations in urban mobility
- Mobility-as-a-service (MaaS) models
- Public transportation solutions
- Smart city planning and development
- lot and digital solutions for smart communities
- Sustainable mobility practices
- Case studies in smart mobility and communities
- Financing and investment in future mobility
- Community engagement in smart city planning
- Workforce development for smart mobility
- Environmental impact of future mobility solutions
- Smart building technologies
- Data management and security in smart communities
- Future trends in mobility and smart communities



DIGITAL TRANSFORMATION AND EMERGING TECHNOLOGIES

- Leveraging technology for low carbon, sustainable energy
- Artificial intelligence and machine learning in utilities
- Blockchain applications in energy sector
- Internet of things (IOT) for smart grids
- Big data analytics for utilities
- Cybersecurity in digital utilities
- Cloud computing solutions for energy sector
- Digital twins in utility operations
- Advanced metering infrastructure (AMI)
- Smart contracts and decentralised energy markets
- Digital customer engagement platforms
- Innovations in utility management software
- Augmented and virtual reality in utility training
- 5g and its impact on utility operations
- Predictive maintenance and asset management
- Applications of computer vision and NLP applications in
- Data governance, privacy and data protection
- 4.0 innovative use case, successful digitally transformed businesses
- Digital workforce development
- Case studies in digital transformation
- Regulatory and policy frameworks for digital utilities
- Digitalisation in renewable energy management
- climate technologies and sustainable energy
- field mobility and connected worker solutions
- Digital transformation initiatives and best practices leading to performance and efficiency enhancement
- Future trends in utility digitalisation

OPERATIONAL EXCELLENCE AND ASSET MAINTENANCE

- Lean and six sigma in utility operations
- Asset management and optimisation
- Reliability centered maintenance (RCM)
- Performance management and KPI's
- Safety management systems in utilities
- Operational risk management
- Workforce training and development
- Innovations in operational excellence
- Continuous improvement strategies
- Digital tools for operational excellence
- Case studies in utility operations
- Quality management systems
- Regulatory compliance in utility operations
- Customer service excellence
- Operational cost reduction strategies
- Sustainable practices in utility operations
- Technology integration in operational management
- Supply chain optimisation
- Energy efficiency in utility operations
- Future trends in utility operations



RISK MANAGEMENT

- Occupational health and safety in utilities
- Safety culture and leadership
- Emergency response planning
- Risk assessment and hazard identification
- Regulatory compliance in safety management
- Innovations in safety technologies
- Incident investigation and root cause analysis
- Safety training and workforce development
- Environmental health and safety (EHS) management
- Safety performance metrics and reporting
- Case studies in utility safety management
- Behavioral safety programs
- Contractor safety management
- Ergonomics and human factors in utilities
- Safety management systems (SMS)
- Risk mitigation strategies
- Health and Wellness Programs
- Safety audits and inspections
- Public safety and community engagement
- Future trends in utility safety

AND GOVERNANCE) IN UTILITIES

- Environmental impact assessments
- Sustainable practices and reporting
- Social responsibility and community engagement
- Governance and ethical practices
- ESG performance metrics and reporting
- Innovations in ESG management
- Regulatory compliance in ESG
- Stakeholder engagement in ESG
- Climate change mitigation and adaptation
- Biodiversity and habitat conservation
- Sustainable supply chain management
- Diversity and inclusion in utilities
- Workforce development and training
- Corporate social responsibility (CSR) initiatives
- Sustainable finance and investment
- ESG risk management
- Transparency and accountability in ESG reporting
- Community development programs
- Green certifications and standards
- Future trends in ESG for utilities





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FOR MORE INFORMATION

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