



PROGRAM

3rd International Congress on Environmental Science, Technology and Engineering (ICESTE-2026)



Let us together take action in support of achieving the United Nations Sustainable Development Goals to promote prosperity while protecting the planet



**7-9 October 2026
Tashkent, Uzbekistan**



ABOUT TIAME NATIONAL RESEARCH UNIVERSITY



TIAME
NATIONAL RESEARCH UNIVERSITY
THE TASHKENT INSTITUTE OF IRRIGATION AND AGRICULTURAL MECHANIZATION ENGINEERS



ICESTE
INTERNATIONAL CONGRESS ON ENVIRONMENTAL SCIENCE, TECHNOLOGY AND ENGINEERING





ESTABLISHED IN 1934
OVER 90 YEARS OF ACADEMIC EXCELLENCE



NATIONAL RESEARCH UNIVERSITY STATUS SINCE 2021



#1 UNIVERSITY IN UZBEKISTAN IN INTERNATIONAL RANKINGS



LEADING INNOVATION FOR SUSTAINABLE DEVELOPMENT

ABOUT UNIVERSITY

Established in 1934, TIAME National Research University is Uzbekistan's premier institution for engineering, agriculture, and environmental sciences. Designated as a national research university in 2021, TIAME has become a regional hub for academic excellence, technological innovation, and global scientific cooperation. With over **90 years** of academic legacy, the university plays a vital role in preparing highly qualified professionals and advancing research to address global challenges related to water, food, climate, and sustainable development.



GLOBAL RANKINGS 2026



WORLD UNIVERSITY RANKINGS 2026
#458
IN THE WORLD



ASIA UNIVERSITY RANKINGS 2026
#103
IN ASIA

4th
IN CENTRAL ASIA



WORLD UNIVERSITY RANKINGS 2026
#551-600
IN THE WORLD

QS SUBJECT RANKINGS 2026

Engineering and Technology	501-550
Environmental Sciences	451-500
Electrical and Electronic Engineering	501-550
Agriculture	451-500

THE SUBJECT RANKINGS 2026

Engineering	501-600
Natural Sciences, Mathematics & Statistics	301-400

THE IMPACT RANKINGS 2026

OVERALL	201-300
SDG 13 Climate Action	101-200
SDG 6 Clean Water	101-200
SDG 2 Zero Hunger	#10

MISSION AND VISION



OUR MISSION
To train top-tier specialists and advance research in water management, agricultural mechanization, digital technologies, and environmental protection.



OUR VISION 2030
To become a world-class research center, enter the top 300 global universities, and lead in digital transformation, smart agriculture, and sustainable development in Central Asia.

ACADEMIC AND RESEARCH EXCELLENCE

- More than 40 bachelor's, 36 master's, 21 doctoral programs and 15 professional development courses
- 9 academic programs **internationally accredited** by ASIIN (5 years)
- 24+ advanced laboratories
- 38 scientific projects in 2024 (national and international grants)
- Twinning partnerships with leading global universities
- Pioneer in digital technologies, AI, water diplomacy and inclusive education




TIAME AT A GLANCE

ACADEMIC PROGRAMS & FACILITIES	STUDENT BODY	ACADEMIC STAFF	INTERNATIONAL COLLABORATION
40 Bachelor's Programs 36 Master's Programs 22 PhD Programs 7 Faculties 36 Departments	13,000+ Total Enrollment ~10,256 Undergraduate Students 276+ Master's Students 5,000+ International Students	650+ Total Faculty Members 2 Academicians 81 Doctors of Science (Professors) 218 PhD Holders (Associate Professors) 241 Senior Lecturers	80+ Partner Institutions 26+ Countries Erasmus+ Erasmus Mundus USAID BMBF

INFRASTRUCTURE AND INNOVATION

5 Main Buildings	24 Research Laboratories	2 Student Dormitories	Digital Library	Smart Classrooms	IT Incubation Labs	Modern Sports Complexes
-------------------------	---------------------------------	------------------------------	------------------------	-------------------------	---------------------------	--------------------------------

INNOVATIVE DEVELOPMENTS

- Uzbekistan's first mini electric tractor (own brand)
- Agri-drone prototypes (own brand)
- 25+ Industry-based department branches
- 100+ Students receive employer-funded scholarships annually
- 16 Sponsored classrooms

INTERNATIONAL PRESENCE

- 30+** International collaborations
- 20+** Countries with students and scholars



FUTURE OUTLOOK – STRATEGY 2030

- Enter the **top 300** global universities
- Expand dual-degree programs with EU and Asian institutions
- Fully digitize university operations with AI and Meta-Verse tools
- Achieve international accreditation across all programs
- Launch international journal indexing for in-house publications
- Become the Central Asian hub for water diplomacy, food systems, and digital agriculture

TIAME National Research University –
At a Glance: Science • Innovation • Sustainability

Tashkent, Uzbekistan
Qori Niyoziy Street 39

+998 71 237 19 45

www.tiame.uz

info@tiame.uz



VENUE MAP



Day 1: October 7, 2026

Event	Time (Tashkent time zone – GMT+5)	Venue
Opening Session	8.30a.m. – 12:00a.m.	Conference hall in the Rector's building, TIAME NRU
Lunch	12:00a.m. – 13:00p.m.	Main Canteen of TIAME NRU
Plenary Session	13:00p.m. – 18:00p.m.	Conference hall in the Rector's building, TIAME NRU

Day 2: October 8, 2026

DEBSEUZ final conference	09:00 p.m. – 18:00 p.m.	Building V, Faculty of Energy, TIAME NRU
--------------------------	-------------------------	--

Day 3: October 9, 2026

DEBSEUZ - Technical Visits, Future Cooperation and Closing Programme	09:00p.m. – 17:00p.m.	Site Visits
--	-----------------------	-------------



Day 1, TIAME National Research University, Tashkent

Date: October 7, 2026

OPENING SESSION

[mode: hybrid]

VENUE: Conference hall, Rector's building, TIAME NRU

**9:00 a.m. – 12:00 a.m. (Tashkent time zone – GMT+5)
(Moderator: Mr. Islom Karimov)**

Time	Speech titles	Speakers
9:00a.m. – 10:00a.m.	Welcoming & Registration	
10:00a.m. – 10:05a.m.	ICESTE Promotion Video	
10:05a.m. – 10:10a.m.	Opening speeches	Prof. Dr. Bakhadir Mirzaev <i>Rector of the “Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, (Uzbekistan)</i>
10:10a.m. – 10:20a.m.	Opening speeches	Prof. Abdushukur Khamzayev <i>Chairman of the Executive Committee of the Central Council of the Ecological Party of Uzbekistan (Uzbekistan)</i>
10:20a.m. – 10:25a.m.	Opening speeches	Prof. Dr. Obid Tursunov <i>ICESTE Founder & Scientific Chairman Professor of the TIAME National Research University – Uzbekistan Honorary Professor of the National Center for International Research of BioEnergy Science and Technology (iBEST) in China Agricultural University in China (Uzbekistan)</i>



10:25a.m. – 10:30a.m.	Launching <i>Postdoctoral Development, Senior Visiting Scholar and Visiting Professor Programmes</i> between TTIAME National Research University & Beijing Talent Technology Co., Ltd	
10:30a.m. – 10:40a.m.	Opening speeches	Prof. Dr. İsmail Rakıp KARAS <i>Vice rector of the Karabuk University (Türkiye)</i>
10:40a.m. – 10:50a.m.	Opening speeches	Mr. Muzaffar Khakimov <i>Advisor to the Minister of Energy Inspection for Control in Electric Power Industry, Oil Products, and Gas Usage at the Cabinet of Ministers of the Republic of Uzbekistan (Uzbekistan)</i>
10:50a.m. – 11:00a.m.	Opening speeches	Mr. Ali Djuraev <i>Deputy Director ABREST Energy Engineering (Uzbekistan)</i>
Honorable Speakers		
11:00a.m. – 11:20a.m.	Biogas energy for methane emission reduction in agriculture	Professor Renjie Dong <i>Professor at China Agricultural University Director General, National Center for International Research of BioEnergy Science and Technology (iBEST) Executive Director, MoA Key Lab of Clean Production and Utilization of Renewable Energy (CPURE) (P.R. China)</i>
11:20a.m. – 11:40a.m.	Environmental sustainability through research and changing mindsets of next generation citizens	Professor Sadhan Kumar Ghosh <i>Director General, Sustainable Development & Circular Economy Research Centre, ISWMAW & Founder and President, International Society of Waste Management, Air and Water (ISWMAW) (India)</i>
END OF OPENING SESSION		
Group Photo in front of Rector's Building		



12:00 – 13:00	Lunch: - Main Canteen of TIAME NRU	
PLENARY SESSION - KEYNOTE SPEAKERS [mode: hybrid] VENUE: Conference hall, Rector’s building, TIAME NRU 13:00 p.m. – 12:00 a.m. (Tashkent time zone – GMT+5) Chair/Moderator: Prof. Ghosh Sadhan Kumar and Assoc. Prof. Jurabek Izzatillaev		
Time	Speech titles	Speakers
13.00-13.20 (on-site)	Medium and high-temperature solar applications – part I	Dr. Diogo Canavarro University of Évora, Évora (Portugal)
13.20-13.40 (on-site)	Medium and high-temperature solar applications – part II	Dr. Radia Ait El Cadi University of Évora, Évora (Portugal)
13.40-14.00 (on-site)	Integration of Renewable Energy with Charging Infrastructure for Sustainable Electrification of Road Transportation	Assoc. Prof. Shuo Wang National Engineering Research Center of Electric Vehicles, Beijing Institute of Technology, (P.R. China)
14:00-14.20 (on-site)	Energy system and transport sector in Uzbekistan in view of future hydrogen uptake	Prof. Pierluigi Leone The Polytechnic University of Torino, (Italy)
14.20-14.40 (on-site)	Malaysian biomass valorization via torrefaction and pyrolysis processes	Assoc. Prof. Alina Rahayu Mohamed University Malaysia Perlis (UniMAP), (Malaysia)
14.40-15.00 (online)	Biomass Valorisation for a Sustainable Future: From Bioenergy to Advanced Materials	Ts. Dr. Ahmad Anas Nagoor Gunny University Malaysia Perlis (UniMAP), (Malaysia)
15.00-15.20	Coffee break	
15.20-15.40 (online)	Pathways to Sustainable Energy Systems: Aligning Investment, Policy, Infrastructure,	Assoc. Prof. Mohamed Khaleel Karabük University, (Turkiye)



	and Demand-Side Integration	
15.40-16.00 (online)	Innovative Strengthening of Masonry Structures to Resist Catastrophic Blast Effects using Ultra High Performance Concrete and Embedded Steel Mesh	Dr. S. M. Anas <i>School of Planning and Architecture Delhi, (India)</i>
16.00-16.20 (online)	Development of a Sensor-Controlled PlantWall Platform for Precision Irrigation, Fertigation, and Water-Quality Monitoring	Prof. Pavel Navitskiy <i>Oral Roberts University Tulsa, (USA)</i>
16.20-16.40 (online)	From Programming Marathons to Solar Energy Education: PREPARE-SOLAR as a Challenge-Based Learning Analytics Framework	Prof. Slobodan Bojanic and Prof. Diego Ivan Oliveros Acosta <i>Technical University of Madrid Madrid, (Spain)</i>
16.40-17.00 (online)	Agri-PV in Central Asia: A Innovative Solution for Water-Energy-Food Nexus	Prof. Kedar Mehta <i>Professor and Scientific Director at Deggendorf Institute of Technology, (Germany)</i>
ORAL PRESENTATIONS [mode: hybrid]		
17.00-17.15 (on-site)	Selective Removal of Chloroform from CO ₂ Rich Gas Streams Using Sustainable Zeolite-Activated Carbon Composites	Imen Amri, Asma Noura, Aymen Amine Assadi, Nouredine Hamdi and Diogo Canavarro
17.15-17.30 (on-site)	Adsorptive Removal of Methylene Blue Using KOH-Activated Carbon	A Noura, I P P Cansado, P A M Mourão, I Amri, D Canavarro and I Bekri-Abbes



	Derived from Polyethylene Terephthalate Waste	
17.30-17.45 (online)	Influence of Spirulina platensis Biomass Filler Composition on the Biodegradability, Mechanical Properties, and Water Resistance of Chitosan-Based Bioplastics	Meutia Nurfahasdi, Rizka Azzahra, Amir Husin, Adri Huda and Novrida Harpah Hasibuan
17.45-18.00 (online)	Sequencing Batch Reactor (SBR)-Based Communal Sewage Treatment Plant Design for 500 Population Equivalent: Pollutant Removal Performance and Effluent Compliance in Terjun, Medan Marelan, North Sumatra	Meutia Nurfahasdi, Mhd Azmy Vizzyansjah Lubis, Ivan Indrawan, Adri Huda and Hafnida Hasan
18.00-18.10	Closing Speech: Prof. Obid Tursunov & Prof. Dilshod Kodirov	
19:00	Gala Dinner for Invited Guests	

Please use the ZOOM MEETING link below to join ICESTE 2026 congress:



<https://us06web.zoom.us/j/83304521197?pwd=ITAeal7aGQpCpXNBbbm8Bvbr0QFJ2H.1>

Congress ID: 833-0452-1197

Password: 383339

All presenters will have access to demonstrate their presentations (pdf or ppt files) on their PC screen. Regarding the time, to be sure of the time in the agenda is correct, please keep in mind that Conference starts:

7th October 2026 at 10:00 a.m. (Time Zones – Tashkent, Uzbekistan, GMT+5)



A BRIEF BIOGRAPHY OF SPEAKERS



Prof. Dr. Renjie Dong

*Professor at China
Agricultural University*

*Director General, National
Center for International
Research of BioEnergy
Science and Technology
(iBEST)*

*Executive Director, MoA Key
Lab of Clean Production and
Utilization of Renewable
Energy (CPURE)*

P.R. CHINA

Prof. Renjie Dong received his B.Sc. in Agricultural Mechanization from Shandong Agricultural University, M.Sc. in Agricultural Bio-Environmental Engineering from Beijing Agricultural Engineering University, and Ph.D. in Agricultural Bio-Environmental Engineering from China Agricultural University, China. He is a Professor and PhD Supervisor at China Agricultural University and Director of the National Center for International Research of BioEnergy Science and Technology (iBEST). He also serves as Executive Director of the MoA Key Laboratory of Clean Production and Utilization of Renewable Energy (CPURE).

His research interests include biomass energy, biogas and anaerobic digestion, agricultural and livestock waste valorization, biomass combustion, rural clean energy, carbon emission reduction, and circular utilization of agricultural wastes. He has participated in or led 45 national, ministerial, provincial, and international research projects and has published more than 300 scientific papers. He holds 33 authorized invention patents and has contributed to the development of three national and industrial standards. He has received several major scientific awards and has represented China in international initiatives including IEA Bioenergy Task 37 and ISO technical committees. He has 346 indexed documents in Scopus, more than 13,800 citations, and an h-index of 64.



Prof. Dr. Ghosh Sadhan

Director General, Sustainable Development & Circular Economy Research Centre, ISWMAW & Founder and President, International Society of Waste Management, Air and Water (ISWMAW)

INDIA

Prof. Dr. Sadhan Kumar Ghosh received his B.E. in Mechanical Engineering in 1980, M.M.E. in Production Engineering in 1983, and Ph.D. in Engineering in 2001 from Jadavpur University, India. He served as Professor and Head of the Department of Mechanical Engineering and Dean of the Faculty of Engineering and Technology at Jadavpur University, and currently serves as Director General of the Sustainable Development & Circular Economy Research Centre, ISWMAW, and Founder Advisor of the Centre for Sustainable Development & Resource Efficiency Management at Jadavpur University.

His research interests include waste management, circular economy, waste-to-energy, recycling, green manufacturing, sustainable supply chains, co-processing of municipal and hazardous waste, plastics and e-waste management, and environmental management systems. He has led numerous national and international research projects and collaborated with organizations including UNCRD/UN DESA, Asian Productivity Organization, and international research institutions. He has authored books and more than 260 scientific articles and book chapters, and holds patents related to waste recycling technologies. According to Scopus, he has 170 indexed documents, over 2,100 citations, and an h-index of 22. He is a recipient of several national and international recognitions, including the Royal Academy of Engineering Distinguished Visiting Fellowship.



**Assoc. Prof. Alina Rahayu
Mohamed**
*Universiti Malaysia Perlis
(UniMAP)*
MALAYSIA

Dr Alina Rahayu Mohamed is currently an Associate Professor at the Faculty of Chemical Engineering & Technology, Universiti Malaysia Perlis (UniMAP), Perlis, Malaysia. She obtained her Phd in Bioprocess Engineering from UniMAP in 2015, MSc (Chemistry) from University Teknologi Malaysia (UTM) in 2003 and BSc (Chemistry) with honours from the University of Sheffield, UK in 1998.

Her research interest is in the area of biomass thermochemical processing such as pyrolysis and torrefaction, non-isothermal thermogravimetric pyrolysis kinetics of biomass via Kissinger, Ozawa and Coats-Redfern methods, isothermal torrefaction of biomass in a reactor and pyrolysis of torrefied biomass. She has acquired about thirteen (13) research grants, both as lead and co-researcher.



**Ts. Dr. Ahmad Anas Nagoor
Gunny**
*Faculty of Chemical
Engineering and Technology,
Universiti Malaysia Perlis
(UniMAP)*

Dr. Ahmad Anas holds a PhD and MSc in Bioprocess Engineering and a Bachelor of Engineering in Biochemical Biotechnology Engineering from the International Islamic University Malaysia. He began his professional career as a Bioprocess Engineer at Inno Biologics and joined academia in 2008. He currently serves as Head of CoEBU at Universiti Malaysia Perlis (UniMAP), where his research focuses on biomass and agricultural residue valorization, bioenergy, biomass pretreatment, deep eutectic solvents, nanocellulose, sustainable packaging, and advanced materials for food preservation.



*Head, Centre of Excellence
for Biomass Utilization
(CoEBU)*
MALAYSIA

He has published more than 40 indexed journal papers as first or corresponding author, including over 15 in Q1/Q2 journals, and has led eight funded research projects as principal investigator. He has supervised PhD and MSc students and postdoctoral researchers, and serves as a reviewer for international journals. His research and innovation have received national and international awards. He has also contributed to international conferences, biotechnology policy discussions, technical advisory activities, and TVET outreach.



Prof. Shuo Wang
*Beijing Institute of
Technology (BIT),*
P.R. CHINA

Shuo Wang received his BE in 2009 from Shandong University of Science and Technology, ME degree from China University of Mining and Technology Beijing, and Ph.D degree from University of Technology, Sydney, Australia, all in Electrical Engineering.

He was with Beijing Institute of Technology since 2017 and he is now an associate professor at National Engineering Research Center of Electric Vehicle at BIT. He is also vice director of the Beijing Key Laboratory of Digital-Intelligent Energy Technology for Commercial Vehicles. His research interests include energy conversion, charging facility optimization and control, electric vehicle big data applications.



Dr. Diogo Canavarro
University of Évora, Évora
PORTUGAL

Dr. Diogo Canavarro is a Physics Engineer (Instituto Superior Técnico, Lisbon, Portugal), with a Ph.D. in Physics (University of Évora, Évora, Portugal). He is currently a Principal Researcher at SOL4R R&D center of University of Évora and leader of the thematic unit “Advanced Optics and Solar Thermal Applications”. He has a strong background in NonImaging Optics and solar concentrators and their applications to medium and high-temperature processes, and he is currently especially focused on solar-driven thermochemical processes and system integration.

Dr. Diogo Canavarro is actively involved in many national and international R&D projects (including the coordination of Horizon Europe projects), responsible for the course Solar Concentration Technologies of M. Sc. in Solar Energy Engineering (University of Évora) and supervision of MSc. and PhD. Students.



Dr. Radia El Cadi
*Renewable Energies Chair
 (CER-UÉ), University of
 Évora,*
PORTUGAL

Dr. Radia El Cadi is an Auxiliary Researcher at the Renewable Energies Chair of the University of Évora. She received her PhD in Thermodynamics and Energetics in 2020, with research focused on linear concentrating solar power technologies integrated with cogeneration systems for waste heat recovery.

Her current research focuses on high and medium temperature solar thermal applications, with expertise spanning Concentrated Solar Power (CSP), Thermal Energy Storage (TES), and



	hybrid energy storage systems. Her work covers energy system modelling, integration, commissioning, and operation of thermal systems, with particular expertise in molten salt technologies. She is actively involved in several European research and innovation projects supporting the integration of renewable energy and the energy transition.
Prof. Dr. Pavel Navitski <i>School of Engineering at Oral Roberts University</i> USA	Dr. Pavel Navitski received his B.S. in 2004, M.S. in 2005, and Ph.D. in 2010 from the Belarusian State Agricultural Academy. He served as Head of the Department of Agricultural Machines and Associate Professor at the Belarusian State Agricultural Academy before joining Oral Roberts University (ORU) in 2020. He is currently an Associate Professor of Engineering at the School of Engineering at ORU. His research interests include modern agricultural machinery, precision agriculture, agricultural chemical protection technologies, renewable energy, and bioenergy. He has also conducted research on sensor-based detection systems for agricultural spraying as a Fulbright Visiting Scholar at Oklahoma State University. His recent work includes interdisciplinary projects integrating engineering, sensing, automation, and sustainable agriculture.



Prof. Pierluigi Leone
Politecnico di Torino
ITALY

Prof. Pierluigi Leone received his M.Sc. in Mechanical Engineering in 2004 and Ph.D. in Energetics in 2008 from Politecnico di Torino, Italy. He is currently a Full Professor at the Department of Energy (DENERG), Politecnico di Torino. His research interests include hydrogen and biomethane production, fuel cells, renewable gases, power-to-gas systems, energy networks, sector coupling, and industrial decarbonization.

Prof. Leone has led and contributed to several national, international, and industry-funded research projects. He has served as Principal Investigator of projects on renewable gas production and hydrogen integration into gas networks, including the EU-funded SHIMMER project. His research has resulted in more than 100 scientific publications. He has also been involved in research and teaching activities related to sustainable energy systems and global energy trends.



Prof. Slobodan Bojanic
Universidad Politecnica de Madrid, **SPAIN**

Prof. Slobodan Bojanic received his M.Sc. and Ph.D. degrees in Electrical Engineering from the University of Belgrade, Serbia. He worked as a researcher at the Mihailo Pupin Institute before joining Universidad Politécnica de Madrid (UPM), where he is currently a Professor in the Department of Electronic Engineering and a member of the Integrated Systems Laboratory (LSI).

His research interests include information security, electronic systems, reconfigurable computing, FPGA-based architectures,



	telecommunications, and materials science. He has participated in international Erasmus+ Capacity Building projects in areas including digital broadcasting, broadband technologies, and electronic systems.
 Prof. Kedar Mehta <i>Professor and Scientific Director at Deggendorf Institute of Technology, GERMANY</i>	Prof. Dr. Kedar Mehta is a Professor of Sustainable Building Energy Technology for the Global Energy Transition at Deggendorf Institute of Technology (DIT), Germany, and Scientific Director of Technology Campus Mainburg. Prior to joining DIT, he led International Energy Research at the Institute of new Energy Systems (InES), Technische Hochschule Ingolstadt. His research focuses on sustainable building energy systems, renewable energy integration, energy system modelling and simulation, agrivoltaics, decentralized and off-grid energy systems, and global energy transition. Prof. Mehta has contributed to international research projects on energy access, sustainable buildings, solar energy, mini-grids, and energy systems in developing and rural regions. His recent research includes agrivoltaic systems, building energy performance, AI-based energy management, and renewable energy solutions for rural communities. He has published more than 50 scientific works, with research appearing in journals published by Elsevier, Springer Nature, MDPI, and other international publishers.



Dr. S. M. Anas

*School of Planning and
Architecture, New Delhi*

INDIA

Dr. S. M. Anas is currently serving as Assistant Professor (on Contract) at the School of Planning and Architecture, New Delhi, India. He holds a Ph.D. in Civil Engineering with specialization in Structural Engineering, advanced construction materials, and computational modelling.

He is a Member of the American Society of Civil Engineers (ASCE) and an Associate Fellow of the Society for Energy, Materials & Sustainability (SEMS). With more than eight years of active research experience, his work focuses on advanced and sustainable construction materials, composites and polymer materials, computational structural dynamics, finite element modelling, computational fluid dynamics, and the behaviour of structures under extreme and complex loading conditions, including nonlinear structural response and performance-based structural assessment.

Dr. Anas has extensive expertise in numerical simulation, high-fidelity modelling, and advanced nonlinear analysis for structural performance evaluation and material behaviour characterization. He also has substantial editorial experience, serving in Associate, Academic, Advisory, and Guest Editor roles, as well as on the editorial boards of several SCI- and Scopus-indexed journals. He has also completed more than 750 peer reviews for international journals.



**Assoc. Prof. Mohamed
Khaleel**
Karabük University,
TÜRKIYE

Mohamed Khaleel received his bachelor's degree in technical electrical engineering from the Higher Institute of Science and Technology, Misrata, Libya, in 2011; his master's degree in electrical engineering with a focus on renewable energy from Sebelas Maret University, Indonesia; and his Ph.D. in electrical and electronics engineering from Karabuk University, Türkiye. He serves as a consultant at the Libyan Center for Sustainable Development Research, Al-Khums, Libya, and as an assistant professor in the Department of Electrical and Electronics Engineering at Karabuk University, Karabuk, Türkiye. He has authored or co-authored more than 100 scholarly publications in academic journals and conference proceedings. His research interests include modern power and energy systems, power quality analysis, power system stability, renewable energy integration, sustainable power infrastructure, energy storage and battery technologies, electric vehicles, hydrogen fuel cells, and photovoltaic systems.



Day 2, “TIIAME” National Research University, Tashkent
Special Session: DEBSEUz Final Conference

[mode: on-site]

VENUE: Building V, Faculty of Energy

Time: 09:00 p.m. – 18:00 p.m.

Date 8.10.2026		
Session I - Solar Energy Research and Innovation in Uzbekistan		
Time	Title of activity	Speakers
09:00-09:30	Solar Energy - The Foundation of Humanity's Future Energy Development	Prof. E.Z. Imamov TUIT
09:30-10:00	Development of Silicon-Based Solar Panels through Joint Research with Scientists and Students	Prof. M. Anarbaev Jizzakh Polytechnic Institute
10:00-10:30	Modelling of Field-Effect Transistors with Quantum Dot Arrays	Prof. Kanatbay A. Ismaylov Karakalpak State University
10:30-11:00	Approaches to Improving the Efficiency of Solar Power Plants: Technological and Operational Measures	Dr. Bakhodir Narimanov Jizzakh Polytechnic Institute
11:00-11:20	Coffee Break	
11:20-11:50	Methods for Improving the Quality Indicators of Electricity Produced by Photovoltaic Stations	Prof. Ilkhomjon Siddikov TIIAME NRU
11:50-12:20	Development of Postgraduate Education in Renewable Energy Sources	Prof. Sirojiddin Ergashev Fergana State Technical University
12:20-12:50	The Evolution of Silicon Photovoltaics: From Al-BSF Designs to High-Efficiency Tandem Configurations	Assoc. Prof. Abdurasul Yarbekov Turin Polytechnic University
12:50-13:00	Discussion and Conclusions of the Scientific Session	
13:00-14:00	Lunch Break	
Session II - DEBSEUz Final Results and Institutional Impact		



14:00-14:20	WP1 - Project Management, Reporting and Project Closure	TUIT / POLITO
14:20-14:40	WP2 - Needs Analysis, Competence Framework and Staff Capacity-Building Results	UEVORA / TIIAME
14:40-15:10	WP3 - Academic Modernisation: Bachelor Programmes, 12 Courses / 72 ECTS and Short-Term Training	UPM / FSTU
15:10-15:40	WP4 - Laboratories, Training Centres and Engineering Society	POLITO / ASU
15:40-16:00	Coffee Break	
16:00-16:25	WP5 - Quality Assurance, Monitoring, External Evaluation and Lessons Learned	TTPU / POLITO
16:25-16:50	WP6 - Dissemination, Impact, Sustainability and the DEBSEUz Legacy	FSTU / KSU
16:50-17:15	Project Impact and Sustainability Beyond Erasmus+ Funding	
17:15-18:00	Final Steering Committee Meeting - Decisions, Remaining Actions and Project Closure	
Final Steering Committee Meeting		
17:00-17:50	Final Steering Committee Meeting ▪ Review of project objectives, outputs and indicators Status of completed and remaining deliverables Final quality-control and external-evaluation actions Final dissemination evidence and documentation ▪ Sustainability of curricula, laboratories, training activities and Engineering Society Final technical and financial reporting responsibilities ▪ Responsibilities, deadlines and remaining actions ▪ Post-project cooperation between EU and Uzbek partners	
17:50-18:00	Adoption of Final Conclusions and Action Points	
18:30	Networking Dinner	



Day 3, “TIIAME” National Research University, Tashkent
Special Session: DEBSEUZ - Technical Visits, Future Cooperation and
Closing Programme

Time: 09:00 p.m. – 17:00 p.m.

Date: 9.10.2026	
Time	Title of activity
09:00-09:30	Briefing for Technical Visits and Departure
10:00-12:00	Technical Visit I - National Scientific Research Institute of Renewable Energy Sources under the Ministry of Energy of the Republic of Uzbekistan Presentation of research facilities and current renewable-energy activities
12:00-12:30	Expert Exchange: Research, Education and Future University-Industry Cooperation
12:30-13:30	Lunch
13:30-14:30	Transfer to Parkent District
14:30-16:30	Technical Visit II - "Big Solar Furnace" Overview of solar research infrastructure, technologies and research opportunities
16:30-17:00	Final Reflections, Future Cooperation and Closing of the DEBSEUZ National Conference III & Final Conference

CLOSING CEREMONY:

Closing Speech:

ICESTE & ICECAE Founder & Scientific Chairman – Prof. Dr. Obid Tursunov

END OF ICESTE 2026 CONGRESS



ICESTE 2026 POSTER PRESENTATIONS

All posters will be displayed on the ICESTE website

POSTERS	
Paper ID 001	I Siddikov¹, M Abdujalilov^{1*} <i>¹Tashkent Institute of Irrigation and Agricultural Mechanization Engineers – National Research University, Kori Niyaziy Street 39, Tashkent, 100000, Tashkent, Uzbekistan</i> Title of presentation: Study of quality indicators in a power supply system with a high share of solar panels in the matlab/simulink environment Abstract: This article systematically studies the impact of solar photovoltaic (PV) systems on the quality indicators of power supply networks. Against the backdrop of the rapid development of solar energy (global PV capacity is expected to exceed 1 TW by 2024), the high penetration level is causing voltage fluctuations, harmonic distortions, flicker, frequency failures, and other problems in the grid. The article studies the impact of a three-phase grid-connected power supply system with a high share of solar photovoltaic (PV) panels on the power quality indicators through modeling in the MATLAB/Simulink environment. The model includes a PV array, a DC-DC boost converter with MPPT control, an IGBT-based inverter, PI control loops in dq0 coordinates, a transformer, and a load. Frequency, voltage stability, total harmonic distortion (THD), individual harmonics, phase-to-phase unbalance, and power factor are analyzed and compared with IEEE 519, IEC 61000, and GOST 32144-2013 standards. The results show that properly configured control and filtration processes are the main factors influencing the quality indicators.
	A.M Denmukhammadiev^{1*}, A.I Pardaev², K.Z Nazirova³ <i>¹National Research University “Tashkent institute of irrigation and agricultural mechanization engineers”, 100000 Tashkent Uzbekistan</i> <i>²National Research University “Tashkent institute of irrigation and agricultural mechanization engineers”, 100000 Tashkent Uzbekistan</i> <i>³Tashkent State Technical University named after Islam Karimov, 100095 Tashkent Uzbekistan</i> Title of presentation: A Modern Concept of Electrotechnological Pre-Sowing Treatment of Vegetable Seeds Using Onion Seeds as an Example Abstract: Since the early years of independence, the Republic of Uzbekistan has paid special attention to growing legumes and vegetables on large tracts of land cleared from cotton fields. To ensure efficient use of land resources, the practice of harvesting from the same area two or three times a year, i.e., multiple



	cropping, has also been introduced. This article examines the advantages of using electro-technological seed treatment for vegetable crops (in particular, onion seeds) before planting and presents an analysis based on the results of scientific and practical research conducted by Professor A. Mukhammadiev, Associate Professor A.M. Denmukhammadiev, and others between 1995 and 2026. The article also examines the electro-technological treatment of onion seeds during the initial vegetative stage of plant cultivation, ensuring healthy and early germination of seedlings, eliminating the use of harmful chemicals, and introducing innovative technical solutions in an environmentally friendly manner that does not negatively impact the environment. In particular, exposure of moistened vegetable seeds to alternating current at industrial frequency allows for the disinfection of infections on the surface of the seed coat, which makes the seeds healthier, leads to uniform germination of seedlings and, as a result, to the ripening of the crop 7-10 days earlier.
Paper ID 003	Nizomjon Usmonov¹ and Musobek Obidjanov ¹<i>Tashkent international university of financial management and technologies, Tashkent, Uzbekistan</i> ²<i>Namangan state technical university, Namangan, Uzbekistan</i> Title of presentation: Development of a Mathematical Model for a Rotary Regenerative Heat Recovery Unit and a Methodology for Evaluating Its Thermal and Aerodynamic Performance Abstract: This study presents the development of a mathematical model and a computational methodology for assessing the thermal and aerodynamic performance of a rotary regenerative heat recovery unit intended for supply and exhaust ventilation systems. The proposed model describes the heat exchange processes occurring between the incoming and exhaust air streams while accounting for the effects of rotor rotational speed, the geometric characteristics of the heat-transfer matrix, and aerodynamic resistance. The developed calculation procedure enables the determination of key performance parameters, including heat transfer coefficients, heat recovery efficiency, and pressure losses. These parameters provide a basis for optimizing the design and operating conditions of rotary heat recovery equipment. The results obtained can contribute to the development of energy-efficient ventilation systems, reduction of operational energy consumption, and improvement of overall building energy performance, particularly under hot and dry climatic conditions.
Paper ID 004	Izzatillaev Jurabek Olimjonovich^{1*}, Akhrorova Munajat Oqnazarqizi², Xurramov Bobir Sobir ug‘li³ ¹<i>National Research University “TIAME”</i> ²<i>Tashkent International University of Financial Management and Technologies</i> ³<i>Academy of Sciences of the Republic of Uzbekistan Design Bureau and Experimental Production Scientific and Technical Center</i>



	Title of presentation: Evaluation of the Performance Efficiency of a Recirculating Cooling System at a Thermal Power Plant Abstract: Assessing the performance of a recirculating cooling system (RCS) at a thermal power plant (TPP) is an important engineering and operational task, as the reliability and efficiency of this system have a direct impact on the overall performance and economic efficiency of the power unit. This study proposes improved criteria for evaluating the concentration ratio of circulating water and for determining the limiting conditions associated with the formation of carbonate and silicate deposits. The analysis demonstrates that the values predicted by the Krushel criterion are considerably higher than those observed under actual operating conditions. Based on experimental investigations, the annual accumulation rates of calcium carbonate, silicic acid, and iron-containing deposits were determined, together with the copper corrosion rate. The obtained results also revealed a distinct seasonal variation in the deposition and corrosion processes. The findings indicate the need to improve chemical monitoring procedures and enhance the operational reliability of recirculating cooling systems.
Paper ID 005	Izzatillaev Jurabek Olimjonovich^{1*}, Yakubov Gulomjon Umurzakovich², Xurramov Bobir Sobir ug‘li³ <i>¹National Research University “TIAME”</i> <i>²Tashkent international university of financial management and technologies</i> <i>³Academy of Sciences of the Republic of Uzbekistan Design Bureau and Experimental Production Scientific and Technical Center</i> Title of presentation: Experimental Facility Simulating the Operation of a Recirculating Cooling System Abstract: This study presents the results of laboratory investigations into the physicochemical processes occurring in water within a recirculating cooling system (RCS), with particular emphasis on determining permissible evaporation concentration factors and mitigating the formation of mineral deposits. The effects of the initial water composition, temperature, and concentration level on the precipitation of calcium carbonate and silicic acid were experimentally investigated. The results demonstrate that the intensity of deposit formation is primarily governed by carbonate hardness, water temperature, and the non-steady-state nature of the hydraulic regime. Maximum permissible concentration factors were established for different seasonal operating conditions. The findings provide a scientific basis for selecting optimal operating conditions for recirculating cooling systems, reducing the risk of mineral scaling, improving the operational reliability of cooling equipment, and enhancing the efficiency of water utilization.
Paper ID 006	Usmonov N.O. <i>Tashkent international university of financial management and technologies, Tashkent, Uzbekistan</i>



	Title of presentation: Geometric Parameter Analysis of a Rotary Regenerative Heat Recovery Unit Abstract: This study presents a computational investigation of the geometric parameters of the regenerative matrix of a rotary regenerative heat recovery unit designed for heat recovery from exhaust air in ventilation and air-conditioning systems. Based on the L–R method, which represents a modification of the ϵ–NTU approach adapted to periodic rotary regenerators, a systematic procedure is developed for determining the required number of heat transfer units, heat-transfer surface area, specific surface area, and matrix volume, as well as the rotor diameter, matrix depth, and rotational speed. A representative design case is considered for typical operating conditions of a supply and exhaust ventilation system, including an assessment of the aerodynamic resistance of the regenerative matrix. A parametric analysis is performed to evaluate the effects of channel hydraulic diameter, matrix porosity, and sheet thickness on thermal effectiveness and the energy consumption associated with air movement through the matrix. The obtained results provide a basis for the design and geometric optimization of rotary regenerative heat recovery units.
Paper ID 007	J Sherbaev^{1*} and A Abdumalikov¹ <i>¹Jizzakh branch of the National University of Uzbekistan named after Mirzo Ulugbek, Jizzakh, Uzbekistan</i> Title of presentation: A low-cost voltage-phasor node for measuring negative- and zero-sequence unbalance at photovoltaic sites: design, calibration and metrological position Abstract: GOST 32144-2013 limits the negative- and zero-sequence voltage unbalance factors K_2U and K_0U, yet the instruments that measure them are priced for utilities, not for the dispersed photovoltaic (PV) and telecommunication sites where unbalance now occurs. Meters that read only the three phase-to-neutral magnitudes cannot help: equal 220 V magnitudes at 0°, -110° and $+125^\circ$ carry $K_2U = 5.17\%$ and read 0.00%. This paper describes the second-generation K_2U-Node, an open-hardware node that measures the three voltage phasors with a poly-phase metering IC (M90E36A, register-compatible with the M90E32AS) and computes K_2U, K_0U and the negative-sequence argument φ_2. We give the zero-crossing principle behind the angle registers and the distinction between the voltage-angle and power-angle registers, a transformer front end that preserves ratio and relative timing, an angle-zero calibration with a statement of what it does not correct, a synthetic three-phase source for bench checks, and a bill of materials of about 66 USD. A provisional Type B budget, dominated by the datasheet angle term and with two assumed transformer terms, bounds the expanded uncertainty at not better than about 1.0 percentage point ($k = 2$), so the node is positioned as an indicative instrument below IEC 61000-4-30 Class S; that position is the hypothesis the announced bench campaign will test. No bench or field measurement is reported; the prototype is being assembled and the design is public.
Paper ID 008	M Bakiev, D Uzakov, K Yakubov, A Khalimbetov



	<i>TIAME” National Research University, 100000 Tashkent, Uzbekistan</i> Title of presentation: Experience in Mechanical Cleaning of Sediments in the Upstream Pool of the Takhiatash Hydroelectric Complex on the Amu Darya River in the Republic of Karakalpakstan, Uzbekistan Abstract: The acute shortage of water resources in the Aral Sea region, especially in recent years, has necessitated the operation of intake hydro-complexes in a closed regime. Water flow for hydraulic flushing, as prescribed by the operational rules of low-head hydro-complexes, was unavailable. This led to intense sedimentation and overgrowth in the upstream pool of the Takhiatash hydro-complex. To remove the sediments, a project was developed for cleaning the upstream pool using methods of hydraulic flushing through sluice slots, mechanical cleaning, and a combination of both. A plane-table survey was carried out along the entire length of the upstream pool—from the sluice dam to the intake structures of the Kizketken and Joint Canals. Based on the survey data, cross-sectional profiles were created, and the sediment volumes were calculated. Machinery and equipment were selected for earthmoving operations, including excavators, dredgers, and bulldozers. The work began with the widening of the right-side sluice, while a dredger operated to expand a second central sluice in the middle of the pool. A backhoe excavator was used for loading, and the sediment was transported to disposal sites by dump trucks. Since the sediments primarily consisted of fine sand with silt inclusions, they can be used, after appropriate treatment, as construction material or as fertilizer for agricultural fields.
Paper ID 009	S Mansurov^{1*}, F Gapparov¹, N Sarmonov², and F Ochildiye¹ ¹“Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, 39 Kari Niyazi, 100000 Tashkent, Uzbekistan. ²Karshi State Technical University. Xonobod shosse, 19. 180100, Qashqadaryo viloyati, Qarshi, Uzbekistan Title of presentation: Sedimentation and active volume change of South Surkhan reservoir of Uzbekistan (in the case of the South Surkhan reservoir) Abstract: In the world, water and mudflood reservoirs are being built for the purpose of efficient use of water resources, regulating of riverflow, and special importance is attached to their safe and effective usage, operational reliability of structures, and extending their service lifetime. For this purpose, reliable and effective exploitation of existing water and flood reservoirs, development of the most optimal operating modes, provision of water to consumers at the same time during the growing season, based on the quick assessment and modeling of the intensity and change of useful volume of sediment filling with the help of geo-information technologies it is necessary to pay special attention to increase operational efficiency. In the article, the change of the active volume of the reservoir under the influence of turbidity-sedimentation is examined taking into account the hydrological regime of the turbid discharges entering the reservoir, and a method of calculation is proposed. Field research was conducted in the South Surkhan reservoir (Sukhandarya region, Uzbekistan).



Based on the data collected from the field research, a DEM of the reservoir bowl was created and morphometric indicators were evaluated with formation of muddy sediments in the reservoir. The advantage of these calculations is that it is possible to know exactly what change has occurred in each isobath interval in the bowl of the reservoir, compared to the design, and in which part of the reservoir the turbidity sediments have been deposited the most. In the calculation, the following expression was obtained, which expresses the relative turbidity volume in the reservoir as a function of its relative depth calculated size and field observations conducted in the reservoir basin are compared. According to results, when the water level of the water reservoir is 415 meters above sea level, the design water surface area is 65 km², the full volume is 800 mln. m³, and according to the results of the field research, the full volume of the water reservoir at the level of normal humidity is 491.2 mln. m³, the water surface was 72.45 km². It showed that the full volume of the reservoir was reduced by 38.6 percent compared to the design volume during the operation period, and the water surface area increased by 7.45 km². The results of the research allow to determine the change of the useful volume of the reservoir under the influence of turbidity and sediments, to determine the morphometric indicators, and to operate the water reserve effectively.

I. Ibragimov¹, M. Mirzaev^{1*}, D. Inomov¹, F. Khaydarova¹ and Ya. Chulliyev²

¹*Bukhara State Technical University, 15 K. Murtazoev Street, Bukhara 200117, Uzbekistan*

²*“Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, 39 Kari Niyaziy Street, Tashkent 100000, Uzbekistan*

Paper ID 010

Title of presentation: Method for Estimating Hydraulic Resistance of the Lower Amu Darya River Under Regulated Flow Conditions

Abstract: Regulation of river flow by hydraulic structures, reservoirs, and river training works significantly modifies the hydraulic and morphodynamic characteristics of natural channels. Under regulated flow conditions, hydraulic resistance and Manning roughness coefficients become dynamically dependent on discharge, channel deformation, and flow regime. This study investigates the relationship between river discharge and hydraulic roughness in the lower reach of the Amu Darya River using long-term field observation data obtained from the Tuyamuyun, Qipchoq, Nietbaytas, Samanbay, and Qiziljar gauging stations. Regression analysis showed that the Manning roughness coefficient decreases with increasing discharge and can be reliably approximated using empirical power-law relationships. Based on field observations and classical hydraulic equations, a semi-empirical method for estimating hydraulic resistance under regulated flow conditions was developed. The proposed approach integrates discharge-dependent roughness variation into the hydraulic resistance equation and improves the accuracy of hydraulic calculations compared with conventional methods using constant roughness coefficients. The developed



	methodology can be applied in river regulation, bank protection, channel stabilization, and water resources management for regulated alluvial rivers.
Paper ID 011	U Mukhtorov^{1*}, A Davlatov¹, Z.Khafizova¹, M Muminova¹ and K Ismaylov² ¹<i>“TIAME” National Research university Kary Niyoziy str. 39, Tashkent, Uzbekistan</i> ²<i>Karakalpak State University named After Berdak, Nukus, Uzbekistan</i> Title of presentation: Using remote sensing and GIS technologies to determine vegetation index (A case study of Kashkadarya region) Abstract: This study investigates the application of remote sensing and GIS technologies to determine vegetation indices and analyze their relationship with key environmental factors in the Qashqadaryo region of Uzbekistan for the year 2024. Using satellite imagery from Sentinel-2 and MODIS, the Normalized Difference Vegetation Index (NDVI) was calculated to assess vegetation health and density. Land Surface Temperature (LST) data were extracted from MODIS, while Digital Elevation Model (DEM) data and rainfall records were integrated to explore topographic and climatic influences on vegetation dynamics. GIS tools were used to spatially analyze and visualize the correlations between NDVI, LST, elevation, and precipitation. The analysis revealed a clear inverse relationship between LST and NDVI, indicating that areas with higher temperatures tend to have lower vegetation cover. Furthermore, higher elevations and regions with greater rainfall demonstrated healthier vegetation patterns. This multidimensional analysis helps in understanding the spatial interactions of ecological and climatic variables, offering critical insights into land degradation and vegetation stress in arid and semi-arid environments. The findings underscore the value of combining remote sensing and GIS for environmental monitoring and resource management, and can support sustainable land-use planning and climate adaptation strategies in Qashqadaryo and similar regions.
Paper ID 012	Gurbanguly Shukurov^{1*}, Gurbanmyrat Garayev¹, Ilkhom Begmatov², Shemshat Kerimgulyyeva¹ and Gulnabat Saparova¹ ¹<i>Turkmen State Institute of Economics and Management, Ashgabat, 744000, Turkmenistan.</i> ²<i>“Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, Tashkent, 100000, Uzbekistan</i> Title of presentation: Assessing Agricultural Sustainability in Turkmenistan: A Dual Indicator Analysis of Environmental and Economic Metrics Abstract: This study assesses agricultural sustainability in Turkmenistan, focusing on Ahal Province, through a dual indicator analysis of environmental and economic metrics. The research integrates environmental indicators, revealing challenges such as varying greenhouse gas emissions across farming systems, inefficient nitrogen management, and regional productivity disparities influenced by aridity and soil quality. Economic sustainability is analyzed using



	Taylor's theorem and integral indicators to understand factors affecting profitability. Results highlight the need for a holistic approach integrating environmental protection with economic resilience. Recommendations include promoting water-saving technologies, optimizing planting techniques through conservation agriculture, strengthening agricultural cooperatives, and adopting digital land management. This study provides insights for informed policy-making in Turkmenistan and offers a framework applicable to other arid regions striving for sustainable agricultural development, food security, and environmental stewardship.
Paper ID 013	Dilshod Kodirov^{1*}, Alisher Davirov¹, Rakhimjon Kobilov¹, Umid Khudoyberdiev^{1,2}, Aziz Babaev¹, Saltanat Kasimbetova¹, Yakub Chulliyev¹, <i>¹TIAME” National Research University, 100000 Tashkent, Uzbekistan</i> <i>²Jizzakh Polytechnic Institute, Jizzakh, Uzbekistan</i> Title of presentation: A Hybrid Decision-Support Framework for Intelligent Planning of Renewable-Integrated EV Charging Infrastructure Using Analytic Hierarchy Process (AHP) Abstract: The increasing global energy demand and environmental concerns arising from fossil fuel-based electricity generation have necessitated a shift towards renewable energy integration and sustainable transportation solutions. Electric vehicles (EVs), when powered by renewable energy sources, represent a vital component of decarbonized energy systems. However, the rapid proliferation of EVs presents new challenges for electricity grids, especially in terms of charging infrastructure optimization and energy management. This paper presents a comprehensive evaluation of decision-making models for the optimal placement and management of EV charging stations (EVCSS), utilizing Analytic Hierarchy Process (AHP) for multi-criteria analysis. Real-time data from 30 charging stations across Tashkent were analyzed under different user preference scenarios, such as travel distance, cost, and waiting time. The proposed AHP-based recommendation framework significantly enhances user satisfaction and operational reliability by minimizing ranking anomalies and aligning station selection with dynamic preferences. Moreover, the study underscores the importance of integrating distributed renewable energy and battery energy storage systems (BESS) in EVCSSs to improve grid flexibility and reduce peak demand. The findings contribute to the advancement of intelligent, user-centered energy systems that align with Sustainable Development Goals (SDGs) and carbon neutrality ambitions.
Paper ID 014	Sherzod Toshev^{1*}, Shaxnoza Tosheva² <i>¹Department of Power Supply and Renewable Energy Sources, “Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, 100000 Tashkent, Uzbekistan</i> <i>²Joint-Stock Company «Uzenergyengineering», 100076 Tashkent, Uzbekistan</i> Title of presentation: A micro-hydroelectric power station designed for efficient production of electricity from free-flowing water



	Abstract: In this article, at a time when the environment is deteriorating and there is a shortage of electricity all over the world, the improvement of the micro-hydroelectric power plant designed for the efficient production of electricity from free-flowing water, the use of a small speed synchronous generator and the research are presented. A micro-hydroelectric power plant physical experimental device designed for a low-speed synchronous generator was made. The improvement of the structure of the physical experimental device of the micro-hydroelectric power station for the efficient production of electricity in free-flowing waters has been considered. The micro-hydroelectric power station physical experiment device, efficient electricity production processes in free-flowing waters were researched.
Paper ID 015	Dilshod Kodirov^{1*}, Alisher Davirov¹, Rakhimjon Kobilov¹, Azamat Tabaev¹, Gulnoza Tashxadjayeva¹, Umida Tasheva¹, Gayrat Shertaylaqov² ¹<i>“Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, 100000 Tashkent, Uzbekistan</i> ²<i>Jizzakh Polytechnic Institute, Jizzakh 130100, Uzbekistan</i> Title of presentation: Advanced approaches for optimizing electric vehicle charging stations: Smart management and renewable integration Abstract: The widespread adoption of electric vehicles (EVs) necessitates the development of efficient and intelligent charging infrastructure to ensure sustainability and user satisfaction. This paper presents a comprehensive review of modern optimization techniques for electric vehicle charging stations (EVCS), including their optimal placement, integration with renewable energy sources, and intelligent management strategies. Key technologies discussed include metaheuristic algorithms, two-stage planning models, and online scheduling approaches. The integration of renewable sources such as solar and wind, combined with power electronics (e.g., Landsman converters), enables energy-efficient solutions. Furthermore, we propose an Analytical Hierarchy Process (AHP)-based multi-criteria decision-making model tailored to user preferences, which demonstrates up to 96% accuracy across varying operational scenarios. The presented methods enhance grid resilience, minimize energy cost, and improve user experience — contributing to the sustainable evolution of EV infrastructure.
Paper ID 016	Sirojiddin Khushiev^{1*}, Humoyun Mamadiev¹ ¹<i>TIAME National Research University, Tashkent, 100000, Uzbekistan</i> Title of presentation: Bibliometric analysis of wos-based documents from 2013 to 2023: importance of load unbalance in the power grid Abstract: Unbalance of load in electricity supply is causing serious consequences. Research on load unbalance among single-phase consumers in low-voltage power supply has become a hot topic in this field. One of the important consequences of load imbalance is a large amount of inconvenience to single-phase consumers in areas of voltage imbalance, including densely



	populated consumers. This article provides a comprehensive overview to understand re-search trends in the field of power supply load imbalance. In this study, it is aimed to ana-lyze scientific articles and publications related to load imbalance in electricity supply in the countries of the world from 2013 to 2023. For this purpose, 460 publications meeting the selection criteria were collected in the Web Of Science database during this period. During the years 2013-2023, the highest number of articles on the topic of load imbalance in elec-tricity supply were published. The year these articles received the most citations was ana-lyzed, along with top authors, top institutes, top countries, top cited publications, the list of top journals, the network map of top co-authorships, and the network map of main keywords. The study showed that international research on load imbalance in electricity supply is nec-essary to expand scientific information on this topic. In addition, it emphasizes the im-portance of long-term, continuous, sustainable development for the integration of electricity supply without additional waste in the future electricity supply and hybrid electricity net-work. This study contributes to the development of electricity supply by emphasizing effi-ciency in electric energy transmission and the high-level organization of hybrid electric sys-tems. The research findings help define new directions in the advancement of energy sys-tems, enhancing their reliability and sustainability.
Paper ID 017	Dilshod Kodirov¹, Otajon Uktamov¹, Gulmurod Kushakov², Shakir Nurov³, Ibrokhim Israilov⁴ <i>¹Department of Power Supply and Renewable Energy Sources, National Research University TIIAME, 100000 Tashkent, Uzbekistan</i> <i>²Jizzakh Polytechnic Institute, Jizzakh, Uzbekistan</i> <i>³Karshi State University, 180117 Karshi, Uzbekistan</i> <i>⁴Department of Ecology and Water Resources Management, National Research University TIIAME, 100000 Tashkent, Uzbekistan</i> Title of presentation: Determining the conditions for efficient use of micro hydropower plants Abstract: Micro hydropower plants (Micro HPPs) are small-scale, environmentally friendly energy sources that play an important role in meeting global energy demand. In this study, the interaction of hydraulic, mechanical, and electrical systems was analyzed in depth theoretically and practically to increase the efficiency of Micro HPPs. Factors such as the impact of water quality on turbine efficiency (5-10% loss), high efficiency of permanent magnet generators (88-95%), reduction of mechanical losses (12-18%), and real-time optimization through the SCADA system were studied. Fundamental theoretical foundations such as the Bernoulli equation, Stokes' law, the Darcy-Weisbach model, and the Euler equation were used to analyze water flow dynamics, cavitation, and energy conversion. The research results showed the stability of Crossflow and Archimedes Screw turbines in muddy water conditions (efficiency decrease of 3-5%), the high efficiency of PMSG generators (95%), and the possibility of increasing the overall system efficiency up to 70%. These results emphasize the need to integrate advanced materials

	(FRP, carbon fiber) and automation technologies in Micro HPP design, which serves to optimize energy production and minimize environmental impact.
Paper ID 018	Dilshod Kodirov^{1*}, Alisher Davirov¹, Rakhimjon Kobilov¹, Saidikrom Azamov², Charos Temirova³, Golib Kholikov³, Aziza Ollaberganova⁴ ¹Department of Power Supply and Renewable Energy Sources , TIIAME, National Research University, 100000 Tashkent, Uzbekistan ²Andijan State Technical Institute, Andijan, Uzbekistan ³University of Information Technology and Management, 180212 Karshi, Uzbekistan ⁴Urgench State University, Urgench 220100, Uzbekistan Title of presentation: Integration of renewable energy sources into the intelligent planning and management of electric vehicle charging stations: innovative approaches and feasibility assessment Abstract: The article analyzes modern scientific research on optimizing charging stations for electric vehicles, their placement, and increasing energy efficiency. Metanetwork and two-stage models, improved service quality based on online reviews, the use of renewable energy sources, and technologies such as the new Landsman converter are considered. In addition, the article describes a proposed system based on the analytic hierarchy process (AHP) for selecting charging stations, taking into account the preferences of electric vehicle owners. The solutions presented in the article contribute to the sustainable development of electric vehicle infrastructure.
Paper ID 019	Khusniddin T. Boymurodov¹, ¹Samarkand State University of Veterinary Medicine, Livestock and Biotechnologies, 77 Mirzo Ulug`Bek, Samarkand City, Republic of Uzbekistan Title of presentation: Investigation on the development of two vertical water wheel hydro turbines Abstract: researches
Paper ID 020	Dilshod Kodirov^{1*}, Gulmurod Kushakov², Abror Shukuraliev³, Bakhodir Erkinov⁴, Saodat Namozova⁵, Sanobar Achilova⁶ ¹Department of Power Supply and Renewable Energy Sources, National Research University TIIAME, 100000 Tashkent, Uzbekistan ²Jizzakh Polytechnic Institute, Jizzakh, Uzbekistan ³Andijan State Technical University, Andijan, Uzbekistan ⁴Energy Problems Institute, Academy of Sciences of Uzbekistan, Tashkent, Uzbekistan ⁵Karshi State University, 180117 Karshi, Uzbekistan ⁶Urgench State University, Urgench 220100, Uzbekistan Title of presentation: Species Abstract: This article presents the analysis of the created double-wheel water turbine. As a result of the analysis, the technical and economic indicators of the



	two-wheel hydro turbine were evaluated. A 3D model of a twin-wheel hydro turbine was also created. Based on the created 3D model, a laboratory-test prototype was created.
Paper ID 021	Dilshod Kodirov^{1*}, Aygira Eskuatova¹, Abror Shukuraliev², Fazilat Ochilova³, Robiya Rakhmonova³, Elza Tursunova⁴, Charos Temirova⁵, Golib Kholikov⁵ <i>¹Department of Power Supply and Renewable Energy Sources, National Research University TIIAME, 100000 Tashkent, Uzbekistan</i> <i>²Andijan State Technical Institute, 170119 Andijan, Uzbekistan</i> <i>³Samarkand branch of Tashkent University of Information Technologies, Ibn Sino 2A, Samarkand, Uzbekistan</i> <i>⁴Jizzakh Polytechnic Institute, 130100 Jizzakh, Uzbekistan</i> <i>⁵University of Information Technology and Management, 180212 Karshi, Uzbekistan</i> Title of presentation: Optimization and performance analysis of hybrid solar-wind systems in karakalpakstan: a case study using homer pro Abstract: Based on research findings, implementing a hybrid solar and wind energy system in Qong'iro't District, Karakalpakstan, is both technically feasible and economically viable. The district experiences an average annual solar irradiance of 4.8 kWh/m²/day, indicating a high potential for solar energy. The average wind speed is 15.2 km/h (4.2 m/s), with higher speeds observed during spring and autumn. Solar Panels: 40 LONGi LR4-72HPH 450W monocrystalline panels, totaling 18 kW. Wind Turbine: 1 Bergey Excel 10 with a capacity of 10 kW. Battery Bank: 8 Pylontech US 3000 C units, providing a total capacity of 28.4 kWh. Inverters: 3 Victron Multiplus 48/5000 units, offering a combined capacity of 15 kW. Control System: 1 Victron Cerbo GX. Charge Controllers: 2 Victron MPPT 250/100 units. The estimated total cost of this system is approximately \$61,300. Energy Production and Economic Efficiency: Annual Energy Output: Approximately 40,000 kWh. Levelized Cost of Energy (LCOE): Estimated at \$0.116 per kWh. Payback Period: Projected between 10 to 15 years. Implementing such a hybrid system in Qong'iro't District can provide a sustainable, environmentally friendly, and economically efficient energy source. This approach not only enhances the region's energy independence but also contributes to environmental conservation efforts.
Paper ID 022	Akmal Vokhidov^{1*}, Diydon Abdukhamidov², Fakhriddin Kasimov² <i>¹Department of Power Supply and Renewable Energy Sources, TIIAME National Research University, 100000 Tashkent, Uzbekistan</i> <i>²Solar Thermal and Energy Installations laboratory, Physical-technical Institute of the Academy of Sciences of the Republic of Uzbekistan</i> Title of presentation: Research of low temperature harmonized solar heating systems for buildings and structures Abstract: In the world, special attention has recently been paid to increasing the scale of practical use of renewable energy sources, as well as saving



	hydrocarbon fuel and energy resources and rational use of energy resources by increasing the efficiency of heat generating equipment. Currently, in developed countries, “the production of thermal energy based on renewable energy sources is growing by 6% per year, of which the share of solar energy is 58%. From the point of view of achieving these indicators in the implementation of energy saving programs in the field of construction of buildings and structures, the development of engineering approaches aimed at rational use of energy, as well as the transition to renewable energy sources, becomes an important task.
Paper ID 023	Dilshod Kodirov^{1*}, Aygira Eskuatova¹, Abror Shukuraliev², Barno Daminova³, Muzaffar Rakhmataliev⁴, Avazjon Khomidov⁵, Jahongirbek Ungarov⁶ <i>¹Department of Power Supply and Renewable Energy Sources, National Research University TIIAME, 100000 Tashkent, Uzbekistan</i> <i>²Andijan State Technical Institute, Andijan, Uzbekistan</i> <i>³Department of Algorithms and Programming Technologies, Karshi State University, 180117 Karshi, Uzbekistan</i> <i>⁴Department of Economic Statistics, Tashkent State University of Economics, 100066 Tashkent, Uzbekistan</i> <i>⁵Department of Ecology and Water Resources Management, National Research University TIIAME, 100000 Tashkent, Uzbekistan</i> <i>⁶Jizzakh Polytechnic Institute, Jizzakh 130100, Uzbekistan</i> Title of presentation: Supplying residential buildings with electricity through a hybrid system in the climatic conditions of Karakalpakstan Abstract: The depletion of fossil fuels and escalating environmental concerns have accelerated the shift toward renewable energy integration. Hybrid systems that combine solar and wind power offer a sustainable alternative for regions with challenging climatic conditions - such as Karakalpakstan. This study evaluates the technical feasibility, energy efficiency, and economic viability of a hybrid solar-wind power system for residential electricity supply in this region. Using simulation-based modeling via the HOMER Pro software alongside empirical data analysis, our findings indicate that a properly optimized system not only ensures a stable power supply but also minimizes environmental impact and reduces overall energy costs. The results underscore the potential of hybrid renewable systems in enhancing energy security and promoting sustainable development.
Paper ID 024	Ilkhomjon Siddikov^{1*}, Dilshod Kodirov¹, Ganisher Mustofoev¹ <i>¹Department of Power Supply and Renewable Energy Sources, National Research University TIIAME, 39, Kari Niyazov, Tashkent 100000, Uzbekistan</i> Title of presentation: The assessment possibilities of application of solar power sources in single-phases asynchronous motors Abstract: Energy from solar panels is a very widely form of the renewable energy, and conversion from photovoltaic and thermal power to electricity is important processes during assessment possibilities of solar panels for power



	supply development monitoring of quality of produced and consumed electricity. Implementation of solar panels and analysis of quality energy, production them for power supply of one and three phases transducing devices of single-phases asynchronous motors, which are consumers more than 30% of all producing power are very difficult problems of modern power supply systems, monitoring and control them.
Paper ID 025	Ilkhomjon Siddikov^{1*}, Azizjan Abubakirov², Timur Kurbaniyazov³ ¹<i>National Research University, Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, 100000, 39 Kori Niyoziy street, Tashkent, Uzbekistan</i> ²<i>Deputy director for Scientific works and Innovations, Nukus mining institute at Navoi state university of mining and technologies, 181 Nukus-Tortkol highway street, Nukus, 230112 Republic of Karakalpakstan, Uzbekistan</i> ³<i>Senior teacher of the Department of Electrical Power Engineering and Automation, Nukus mining institute at Navoi state university of mining and technologies, 181 Nukus-Tortkol highway street, Nukus, 230112 Republic of Karakalpakstan, Uzbekistan</i> Title of presentation: The three-phases electromagnetic current transducers for control of reactive power of electricity consumption Abstract: As known, in the world more than 60-70% of generated electricity is consumed by three-phases induction electric devices - asynchronous motors. In induction electric devices as asynchronous machines, converters, transformers and ets, reactive power consume for creation of magneto moving force (m.m.f.) and magnetic flux. The control of reactive power of electricity depend from values and parameters of current transducers, which use in processes of control power consumptions. Modern control systems of values and parameters of electricity request developing and implementation of new types digital technologies and devices. In article given results of research of new three-phases current transducers, which use in processes of control of reactive power supply of induction devices and have possibilities transform asymmetrical and non-sinusoidal values of reactive power, principle of constructing three-phases electromagnetic current transducers, which answers for requirements of compactness, reliability, speed, use modern digital technologies and devises for monitoring reactive power consumption.
Paper ID 026	Dilshod Kodirov^{1*}, Alisher Davirov¹, Rakhimjon Kobilov¹, Umidjon Xudoyberdiyev¹, Gavkhar Muminova², Abdugani Rakhmatov¹, Irina Allenova³ ¹<i>Department of Power Supply and Renewable Energy Sources, TIIAME National Research University, 100000 Tashkent, Uzbekistan</i> ²<i>Karshi State University, 180119 Karshi, Uzbekistan</i> ³<i>“Tashkent Institute of Irrigation and Agricultural Mechanization Engineers” National Research University, 100000 Tashkent, Uzbekistan</i>



	Title of presentation: Use of renewable energy sources in powering electric vehicle charging stations. Abstract: In order to reduce climate change and environmental impacts, the production and use of electric vehicles as an environmentally friendly vehicle has become an international trend. Charging electric vehicles and providing them with constant power is one of the main problems. However, on the other hand, the increase in the number of electric vehicles creates a potential load for any energy network, and also creates an energy problem in the supply of charging slots located far from decentralized energy supply. The use of renewable energy sources such as solar and wind energy can be an acceptable solution, first of all, to reduce the network load, and on the other hand, to supply electricity to charging stations located far from centralized energy supply. In recent years, the increase in the number of electric vehicles in Uzbekistan, especially in the Bukhara region, requires the use of renewable energy sources in solving the above-mentioned issues. Considering that the Bukhara region has a great potential for renewable energy sources, the use of renewable energy sources in charging electric vehicles is also effective for energy and charging systems. The research work presents the potential of renewable energy sources in the Bukhara region, and the issues of using renewable energy sources in charging electric vehicles.
Paper ID 027	Bakhodir Erkinov^{1*}, Bakhodir Tagaev¹, Anvar Djalilov², Azimjon Saidov¹, Fakhriyor Tolipov¹, Abdimannof Mukhammadiev¹, Ma'murjon Akhmedov¹, Mohichehra Abdukarimova³ ¹<i>Institute of Energy Problems, Academy of Sciences of the Republic of Uzbekistan, 100125, Uzbekistan</i> ²<i>"Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University, 100000, Uzbekistan</i> ³<i>Tashkent State Agrarian University, 111218, Uzbekistan</i> Title of presentation: Technical Assessment of Multi-Node Photovoltaic Integration for Improving Voltage Regulation and Energy Efficiency in Low-Voltage Networks. Abstract: Distributed photovoltaic (PV) generation can improve low-voltage feeder performance, but the magnitude of the benefit depends on both installed penetration and the spatial distribution of generation. This study develops a controlled scenario-based assessment for a practical 10/0.4 kV radial network supplied by a 250 kVA transformer and serving sixteen residential consumers, a school, and a kindergarten. The maximum loads listed for the eighteen consumers sum to 157 kW. Three PV units rated at 25 kW, 25 kW, and 20 kW are represented in DIGSILENT PowerFactory. Three operating cases are compared using the same feeder and load representation: no PV, one 25 kW PV unit (15.9% nameplate penetration), and three distributed PV units totaling 70 kW (44.6% penetration). The methodological framework jointly evaluates weakest-node voltage recovery, active-power-loss reduction, and a normalized voltage-deficit reduction metric. The representative low-voltage condition improves from approximately 0.91 p.u. in the base case to about 0.93-0.94 p.u.



with one PV and 0.96 p.u. with three PVs, while active power losses fall from 2.70 kW to 1.36 kW and 0.42 kW, respectively. The three-PV case therefore reduces active losses by 84.4% and the base-case voltage deficit by approximately 55.6%. The contribution of the study is a transparent, penetration-normalized comparison of voltage and loss performance for an existing mixed-load feeder, while explicitly avoiding attribution of the entire improvement to PV siting alone.

Please use the ZOOM MEETING link below to join ICESTE 2026 congress:



<https://us06web.zoom.us/j/83304521197?pwd=ITAeal7aGQpCpXNBbbm8Bvbr0QFJ2H.1>

Congress ID: 833-0452-1197

Password: 383339

All presenters will have access to demonstrate their presentations (pdf or ppt files) on their PC screen.

Regarding the time, to be sure of the time in the agenda is correct, please keep in mind that Conference starts:

7th October 2026 at 10:00 a.m. (Time Zones – Tashkent, Uzbekistan, GMT+5)

For poster presenters!

Please use the link below to prepare your poster:

<https://www.posterpresentations.com/free-poster-templates.html>

All posters will be uploaded on the ICESTE 2026 website.

Posters should be sent to iceste@mail.ru **before October 6, 2026**

ICESTE 2026 – Tashkent, Uzbekistan