

XVIII International Scientific Conference of Environmental and Climate Technologies CONECT 2025

14–16 May 2025 | Riga, Latvia

14.05.				
8.15 - 9.00	Registration and coffee			
Conference opening / Moderator – Gatis Bazbauers				
9.00 – 9.30	Kaspars	Melnis	Minister for Climate and Energy, Latvia	
	Maira	Indrikova	Vice-Rector for Research, RTU, Latvia	
	Maris	Turks	Dean of the Faculty of Natural Sciences and Technology, RTU, Latvia	
Plenary Session – I / Moderator – Gatis Bazbauers				
9.30 – 10.00	Peter	Lund	Finland	Energy transition encountering new challenges with increasing scale
10.00 – 10.30	Dagnija	Blumberga	Latvia	Research Impact of VASSI Through Years
10.30 – 11.00	Audrius	Sabunas	Japan	Climate Diplomacy of Estonia, Latvia, and Lithuania: Where Do They Compare in Climate Action, Based on Their Involvement in the UN Climate Conferences
11.00 - 11.30	Break			
Panel Session I - Renewable Energy Technologies / Moderator – Vladimirs Kirsanovs				
11.30 - 11.45	Signe	Allena Ozoliņa	Latvia	Optimal pathway to a climate-neutral energy sector in Latvia
11.45 - 12.00	Kudzanayi	Chiteka	South Africa	Techno-Economic Optimization of Solar Panel Installations: Balancing Thermal Performance and Economic Viability
12.00 - 12.15	Giovanni	Brumana	Italy	Design and optimization of a fully renewable-based energy mix
12.15 - 12.30	Gerald	Steinmaurer	Austria	Modelling and evaluation of photovoltaic systems combined with charging stations for electric vehicles
12.30 - 12.45	Armand	Pellja	Estonia	Advanced Welded Structures for Adaptive Mobile Power Stations: Design and Analysis
12.45 - 13.45	Lunch break			
Panel Session II - Biotechnologies, Bioresources / Moderator – Ilze Vamza				
13.45 - 14.00	Riccardo	Paoli	Latvia	Social Life Cycle Assessment framework: the F. lumbicalis macroalgae valorization case study
14.00 - 14.15	Zane	Kusnere	Latvia	Innovations in Syngas Biomethanation
14.15 - 14.30	Mariam lyabo	Adeoba	South Africa	Review of Biogas production and bio-methane potential of fish solid waste and fish waste
14.30 - 14.45	Valeria	Mezzanotte	Italy	Cultivation of Euglena gracilis on residues from a food industry
14.45 - 15.00	Marcis	Mezulis	Latvia	Sustainable Extraction of Bioactive Compounds from Spruce and Pine Greenery: Antioxidant and Antimicrobial Potential

15.00 - 15.15	Fosca	Conti	Italy	Lipid extraction and transesterification process for microalgal biodiesel
15.15 - 15.45	Break			
Panel Session III - Energy Efficiency / Moderator – Francesco Romagnoli				
15.45 - 16.00	Markel	Arbulu	Spain	Overheating Risk Assessment in Passive Energy Renovations in Spain
16.00 - 16.15	Saulius	Pakalka	Lithuania	Thermal performance analysis of phase change material based thermal energy storage
16.15 - 16.30	Shumani	Ramuhaheli	South Africa	Comparative Experimental Study on the Effects of Biodiesel Mixture with Ethanol and Butanol Blends on Performance and Emission Characteristics of a Diesel Engine Generator
16.30 - 16.45	Jorge	Otaegi	Spain	Heat Recovery Ventilation in Spanish Apartments: Costs, Benefits, and Feasibility
16.45 - 17.00	Break			
17.00 - 18.30	Poster session – I / Moderator – Maksims Feofilovs			
19.30	Social Dinner			

15.05.				
8.15 - 9.00	Registration and coffee			
Conference opening / Moderator – Ruta Vanaga				
9.00 – 9.15	Dagnija	Blumberga	Latvia	Best paper announcement
	Dace	Lauka	Latvia	
Plenary Session – II / Moderator – Ruta Vanaga				
9.15 – 9.45	Olayinka	S. Ohunakin	Nigeria	Implications of Climate Models on Renewable Energy Systems
9.45 – 10.15	Andra	Blumberga	Latvia	CircleUp: 100 households, 100 circular stories to inspire sustainable living in Europe
10.15 – 10.45	Anna	Volkova	Estonia	Integrating Science and Education: The TalTech Model for Innovation and Impact
10.45 - 11.15	Break			
Panel Session IV -District Heating / Moderator – Edgars Vigants				
11.15 - 11.30	Vladimirs	Kirsanovs	Latvia	Biomass for district heating: the tango between sustainable biomass criteria and heat production vitality
11.30 - 11.45	Pakdad	Langroudi	Germany	Developing an Algorithmic Framework for Sustainable Asset Management of District Heating Networks: A Scenario-Based Approach
11.45 - 12.00	Vivita	Priedniece	Latvia	Energy security index for district heating resilience assessment
12.00 - 12.15	Stefan	Dollhopf	Germany	Thermal Behavior of piggyback laid District Heating and District Cooling Pipes
12.15 - 12.30	Stanislav	Chicherin	Belgium	GIS-Based Assessment of 5th Generation District Heating and Cooling (5GDHC) Systems with Seasonal Thermal Energy Storage
12.30 - 12.45	Sreenath	Sukumaran	Estonia	Feasibility Analysis of District Cooling Technologies in Cold Climate: A Comparative Study
12.45 - 13.00	Jignesh	Mehta	India	Investigations on Passive Solar Liquid Desiccant Regenerator in Indoor Simulated Summer Ambient Conditions
13.00 – 14.00	Lunch break			
Panel Session V - Sustainability and Carbon-Neutral Transitions / Moderator – Anna Kubule				
14.00 - 14.15	Francesco	Romagnoli	Latvia	Advancing Biorefinery Sustainability in the Baltic Sea Region – Part II: LCC and S-LCA Perspectives from the TACO ALGAE Project

14.15 - 14.30	Ieva	Siksnane	Latvia	Evaluation of long-term nitrogen and phosphorus concentrations in drainage field research scale monitoring sites in Latvia
14.30 - 14.45	Nuushuun Archie	Gboe	Lithuania	Assessment of Potential Environmental Impact: Synthetic and Natural Binders
14.45 - 15.00	Jelena	Pubule	Latvia	Agriculture sector towards sustainability
15.00 - 15.30	Break			
Panel Session VI - Circular Economy and Environmental policies / Moderator – Julija Gusca				
15.30 - 15.45	Quang Khanh	Tran	Norway	Hydrothermal carbonization of sludge – Optimization for Dewaterability
15.45 - 16.00	Anda	Fridrihsone	Latvia	From waste to polyurethanes: environmental assessment of bio-polyols based on used cooking oil
16.00 - 16.15	Liga	Rozentale	Latvia	Toward an Integrated Approach - a Conceptual Framework for Interdisciplinary Biomethane Development
16.15 - 16.30	Alessandra	Colocci	Italy	Advancing local climate action: Insights from the Piedmont region, Italy
16.30 - 16.45	Alīna	Safronova	Latvia	Local-Level Challenges in Sustainable Mobility: Survey Results from the Baltic Sea Region
16.45 - 17.00	Break			
17.00 -	Poster session – II / Moderator – Maksims Feofilovs			

16.05.	
8.15 – 9.00	Registration and coffee
Energy Equilibrium Workshop / Moderator – Dace Lauka	
9.00 – 11.00	<p>Test the platform. Try the new user guide. Help make it accessible to everyone! Step into the future of energy planning with our interactive workshop! This year, in addition to testing the simulation platform, participants will also have the unique opportunity to try out the brand-new User Manual – a crucial step in making the platform more understandable and accessible to a broader audience. Your feedback will help shape the final version! During the workshop, you'll explore the development of renewable energy infrastructure through hands-on simulations and real-life scenarios. Test and evaluate future energy system configurations at national, regional, community, and company levels. For the best experience, we recommend bringing your laptop! This workshop is organized as part of the Interreg BSR project Energy Equilibrium, #C027.</p>
11.00 – 11.15	Break
Envision Change Workshop / Moderator – Ruta Vanaga	
11.15 – 13.00	<p>Join our interactive workshop and help shape the future! The energy transition isn't just about technology — it's about people, places, and the way we live. This workshop invites you to explore how urban transformation and energy planning can go hand in hand to create more sustainable, livable cities. Explore a 3D model of a real case study block undergoing energy transition. This is your chance to step into the planner's seat and envision meaningful change in how we could power and shape our communities.</p>
13.00-14.00	Lunch break

14.05. POSTER SESSION - I

Anete Kalnina, Maksims Feofilovs, Francesco Romagnoli	Blockchain Technology Applications For Decarbonization: A Bibliometric Review
Madara Rieksta, Giovanni Brumana, Edgars Vigants, Gatis Bazbauers	Heat Demand In Non-Residential Buildings
Romi VISKAR, Kertu LEPIKSAAR	Dimensioning Of Equipment In The Heating Substation
Megija Valtere, Tereza Bezrucko, Veronika Liberova, Dagnija Blumberga	Recycling Of Mixed Post-Consumer Textiles
Agnese Eizenberga , Liga Proskina	Climate Change Effects On Aquaculture: A Case Study Of Latvia
Violina Kabamba Ilunga	The Trends Of Photocatalytic Application On Water Treatment: A Bibliometric Analysis
Vaida Paliuliene, Saulius Vasarevicius	Parameters Regulating Microorganisms' Bioremediation Potential In Soil
Robert Kusiorowski, Anna Gerle, Magdalena Kujawa, Valentin Antonovic, Renata Boris	Comparative Analysis Of The Thermal Decomposition Process Of Asbestos Wastes From Different Regions
Laura Kristiana Vicmane, Girts Bohvalovs, Dagnija Blumberga	Baltic Dimension Of Electricity Storage Systems
Ricards Stivrins, Claudio Rochas, Agris Kamenders	Multi-Energy Carrier System Management
Girts BOHVALOVS, Andra BLUMBERGA, Vivita PRIEDNIECE, Tereza BEZRUCKO, Veronika LIBEROVA, Anna KUBULE, Dagnija BLUMBERGA	Policy Analysis Of Latvia's Waste Sector: A System Dynamics Approach
Oskars SVEDOVŠ, Haralds SIKTARS, Vladimirs KIRSANOVŠ	Application Of Aspen Plus Software For Research Into Sustainable Biomass Utilisation Topics
Anda Fridrihsone, Arnis Abolins	Screening life cycle assessment of bio-based vitrimer component synthesis
Yurii SKOB, Sergiy YAKOVLEV, Oksana PICHUGINA, Oleksii KARTASHOV et al.	Computational Estimation Of Wall Height Impact On Explosion Consequences
Andrew Saleeb, Raimondas Grubliauskas	How Can Tilt Angle Can Affect Energy Yields For A Photovoltaic Noise Barrier?
Krista LAKTUKA, Ilze LUKSTA, Dagnija BLUMBERGA	Carbon Farming In The EU: A Policy Tool Or A Business Opportunity?
Aivars Rubenis, Jelena Tonova, Vadims Morozovs	The Road To Zero-Emission Fleets: The Role Of Data-Driven Decision-Making
V. Liberova, E.Kapleite, D. Paule, J. Pubule, D. Blumberga	Transforming Energy Use in Agriculture: Pathways to Sustainability and Climate Neutrality in Latvia
Taisija Gricenko, Alise Zommere, Jorens Kviesis, Linards Klavins	Effect Of Drying Temperature On The Anthocyanin Profile Of Selected Berry Press Residues
Zamira Kazizova, Alvydas Zagorskis	Enhancing Methanogenesis In Anaerobic Bioreactors Using Phragmites Australis And Additives – A Review

15.05. POSTER SESSION - II

Anastasija Treimane, Dagnija Blumberga	Potential Of Wind-Hydrogen (Power2X) Energy Systems In Latvia
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E. Meikulane, I. Balode, V. Iiberova, T. Bezrucko, I. Vistarte, V. Kostevica, J. Pubule	Multi-Criteria Assessment Of Carbon Farming: Evaluating Key Performance Indicators
Beate Zlaugotne, Marja Lena Bostrom, Mats Larsson, Anders Lareke, Ieva Mockeviciene, Julija Gusca	Challenges, Best Practices and Solutions for Sustainable Local Food Supply Chains in Latvia, Lithuania and Sweden
Ilze Luksta, Ilze Vamza, Dagnija Blumberga	Mycelium Thermal Insulation Material
Norbertas EIGELIS, Ilze VAMZA, Saulius VASAREVIČIUS	Assessment Of Biofuel Ash Impact On Soil Quality Changes
Oksana HALYCH, Petr NOWAK, Eva BILKOVA, Oleksandr RIABENKO	Hydraulic Modelling For Environmentally Friendly Small Hydropower: Innovations And Applications
Evelīna Behmane, Dagnija Blumberga, Līga Rozentāle	Potential Of Onshore Wind Power Plants In Latvia
Liva Snitko, Liga Rozentale, Andra Blumberga, Dagnija Blumberga	The Role Of Household Income In Identifying Energy Poverty
Ismayil Jabiyev	Supply chain GHG emissions: Example of crude oil upstream
Dita Kazmere, Maksims Feofilovs, Francesco Romagnoli	Recultivation Strategies For Peat Extraction Fields: A Case Study In Latvia
Viktorija Terjanika, Krista Laktuka, Jelena Pubule, Dagnija Blumberga	Tangled Threads of Opportunity: A CO2 Valorisation Roadmap for Regional Decarbonisation
Elena Collina, Marco Mantovani, Elena Passalacqua, Marina Lasagni, Valeria Mezzanotte	Anaerobic Digestion Of Solid Lubricant Waste From Steel Wire Drawing
Liva GURTINA, Vladimirs KIRSANOVS, Oskars SVEDOVŠ	Economic Evaluation Of Different Pellet Qualities For Individual Heating
Valerija KOSTEVICA, Anna KUBULE, Ilze VAMZA, Dagnija BLUMBERGA	Latvia's Biochar Potential: Tech, Feedstock & Climate Synergy
Nidhiben PATEL, Francesco ROMAGNOLI, Riccardo PAOLI, Nicola GIRELLI, Giuseppe TOMASONI	Sustainable Fire Retardants For Wood: Bridging The Gap Between Safety And Sustainability
Aivis KLAVINS, Vladimirs KIRSANOVS, Maksims FEOFILOVS	Sustainable Development of Ports: Analysis of Climate Neutrality Strategies for Case of Latvia
Francesco ROMAGNOLI, Nidhiben PATEL, Riccardo PAOLI, Uno MÄEORG, Lauri VARES, Artur KALJO, Nicola GIRELLI, Giuseppe TOMASONI	Sustainability Assessment of Fire-Retardant Chemicals: The Critical Role of Functional Unit Selection in an LCA-based study
Aleksandrs Scedrovs, Maksims Feofilovs, Francesco Romagnoli	Charging Station Development in the Context of Transport Electrification in Latvia: Systems Thinking Approach
Inguna BREMANE, Veronika LIBEROVA, Alise Egija BEZRUCKO, Dagnija BLUMBERGA, Andra BLUMBERGA	Mind Over Waste: Decoding the Mental Models of Hard-to-Reach in Household Waste Practice
Guido Soosaar, Tormi Lillerand	An Energy-Efficient Battery Monitoring And Logging System For Agricultural Robotics With CAN Bus Integration
Janis Narbutis, Ruta Vanaga	Comparative Study Of The Thermal Properties Of Nanoparticle-Enhanced Phase Change Materials For Building Envelope Applications

Jelizaveta Palcevska, Kushan Pasantha Gamini Gamage Akuratiya, Krista Laktuka, Valdis Vitolins, Ilze Vamza, Dagnija Blumberga	Policy Analysis On Microbial Biomass Value Chains
Lauris Arbidans, Marcis Mezulis, Uldis Grinfelds, Maris Klavins	Hydrothermal Humification of Spruce Greenery as an Environmentally Friendly Tool for Production of Synthetic Humic Substances
Līga Puzule, Māris Sinka, Anatolijs Borodinacs	Life Cycle Assessment As A Tool For Advancing Positive Energy Districts: A Systematic Literature Review
Mariam Iyabo Adeoba, Thanyani PANDELANI, Harry NGWANGWA, Tracy MASEBE	The Role Of AI Technology In Biogas Production To Fulfill SDG Goals: Systematic Review
Gayaneh Issayan	Modeling and Experimental Characterization of an Ice Storage for State of Charge Determination
Dalia Ali	Applying AI to HVAC Systems: A Critical Analysis Of Data-Related Challenges
Karina Zvirbule	The role of Hard-to-reach users
Madara Treimane, Ance Ansone, Līga Rozentale	Sustainable Biomethane Integration into Latvia's Natural Gas Network
Alise Sapata, Māris ŠINKA, Līga PUZULE, Ernests PLŪMIŅŠ, Pēteris ŠLOSBERGS, Diāna BAJĀRE	Developing Low-CO ₂ , 3D-Printable Concrete with Waste Ash and Recycled Aggregates
Ulla Milbreta, Beate Zlaugotne, Dace Jansone-Vevere, Silvija Nora Kalnins, Julija Gusca	First Insights into the Efficiency of Latvia's Beverage Packaging Deposit Refund System
Aigars Laizans, Aivars Rubenis, Leslie Adrian	Towards Introduction of Electric Buses: Public Attitudes in Context of Temperature Comfort Level

Online – Virtual Poster exhibition 14.05.-15.05.

Ance Erdmane, Dace Lauka	Marine CO ₂ Storage And Sequestration Pathways
Beatrice Benetti, Fosca Conti, Piet Dimitriadis	Mycelium-Based Leather: A Focus On Post-Processing Treatments
Kamyab Mohammadi, Rasa Vaiskunaite	Evaluating Biofilters with Waste-Derived Packing Materials for Hydrogen Sulfide Removal from Biogas
Ketevan Tskhakaia	The Caloric Value of Municipal Solid Waste Generated in Georgia for Energy Recovery
Olga Miryuk	Corrosion Resistance Of Magnesia Binders In Aggressive Liquids
Girls Aleksans, Aivars Rubenis, Aigars Laizans	Optimizing Energy Balancing and Fleet Electrification Through Intelligent Charging Systems: A Data-Driven Approach for Small-Scale Energy Storage Aggregators
Aiman Albatayneh	Implications of Climate Change on PV Generation in Semi-Arid Zones