CONECT 2024

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RIGA TECHNICAL UNIVERSITY

XVII International Scientific Conference of Environmental and Climate Technologies

BOOK OF ABSTRACTS

15–17 May 2024 | Riga, Latvia

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Environmental and Climate Technologies

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RIGA TECHNICAL UNIVERSITY

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CONECT 2024

XVII International Scientific Conference of Environmental and Climate Technologies

Welcome to CONECT 2024 – an international scientific conference that has been held since 2008 and annually brings together scientists, researchers, PhD students and professionals from all over the world.

The conference`s purpose is to acquaint with achievements in the area of energy systems and environmental engineering and to give an opportunity to exchange and share experiences and publish research results.

The three-day event will feature an impressive line-up of speakers from around the world in Plenary and Panel sessions on the following topics:

- Bioresources
- Biotechnologies
- District Heating
- Energy Efficiency
- Environmental and Energy Policies and Frameworks
- Low Carbon Development and Bioeconomy
- Renewable Energy Technologies
- Sustainability and Resilience

The conference papers are published in the international scientific journal "Environmental and Climate Technologies" (ISSN: 2255-8837) indexed in SCOPUS and Web of Science.

The conference is organized by the Institute of Energy Systems and Environment (IESE) of Riga Technical University

WE WISH YOU ALL A FRUITFUL CONFERENCE!

CONECT 2024 Conference Organising Committee

FIND MORE INFORMATION ABOUT THE CONECT CONFERENCE HERE: www.conect.rtu.lv

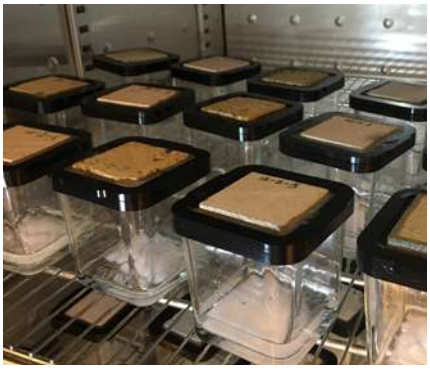
RTU IESE

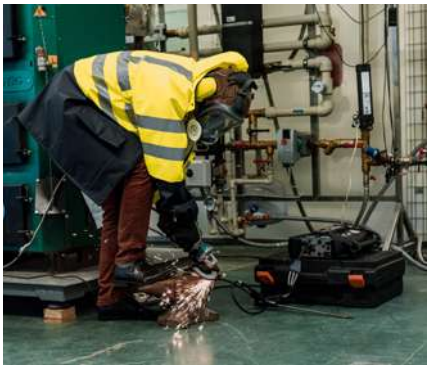
IESE is gradually becoming a leader in Environmental Science and engineering science in Latvia.

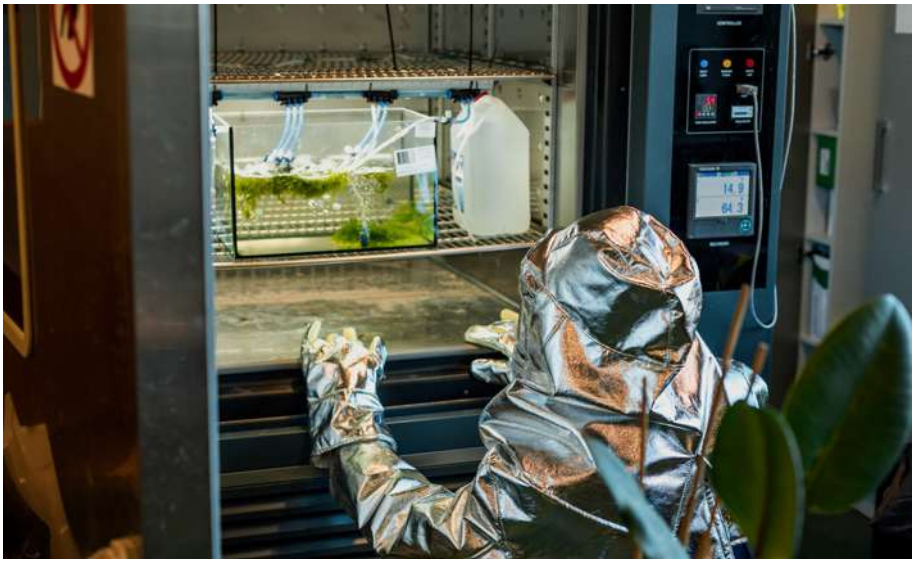
This is testified by our partners' unwavering interest in cooperation with us both in research sectors well-balanced in climate technologies and resilience, energy and environmental policy, environmental governance and energy management and resolution of engineering-technical issues in industrial, agricultural, energy and waste management companies.

IESE commitment to sustainability fosters innovation and subsequently supports future projects.

The balanced advancement in the IESE scientific research capacities is made sustainable through cooperation with partners in Latvia, the European Union member states, Norway, the USA, Colombia, Canada, Taiwan, India, and other countries. We participate in joint projects within the Baltic Sea Region, HORIZON and the Nordic Energy Research programmes. Our commitment to collaboration and our international focus has been the key factors in attracting investment and facilitated the resolution of several environmental and engineering issues.







JOURNAL OF ENVIRONMENTAL AND CLIMATE TECHNOLOGIES

The Journal of Environmental and Climate Technologies, published by RTU IESE, is an international scientific journal that offers global exposure for original research and innovations.

It covers a variety of topics for all aspects of Environmental science:

- Renewable Energy Technologies,
- Cleaner Production and Industrial Symbiosis,
- Ecodesign and Life Cycle Assessment,
- Climate Technologies,
- Climate Change and Resilience,
- Circular Economy,
- Environmental Monitoring and Remediation.

The electronic version of the journal is published by De Gruyter Open (formerly Versita). The papers are indexed in Scopus and Web of Science data bases.

Scopus WEB OF SCIENCE

You can easily find a journal paper on your topic in Thematic Distribution of Articles section on https://conect.rtu.lv/ect-journal/

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We express gratitude to the sponsors for their support towards this year's conference.

The French Institute in Latvia is a structural unit of the French Embassy in Latvia and, together with other services of the Embassy, is actively involved in the diplomacy of French influence. Its aim is to present French excellence in various fields (new technologies, cultural and creative industries, digital sphere, cultural heritage, climate for debate on societal issues, etc.) to a wide range of stakeholders through an innovative and interdisciplinary approach. It also offers French language courses and internationally recognised French proficiency tests. To achieve its objectives, the French Institute in Latvia works closely with the French Institute in Paris, the implementing agency for French cultural diplomacy abroad.

The Embassy of Italy in Riga primarily facilitates diplomatic relations between Latvia and Italy by promoting trade and investment, stimulating the exchange and cooperation of research Institutes and Universities, and providing assistance to home country citizens living or travelling abroad. The Embassy of Italy in Riga actively promotes economic ties between Latvia and Italy by organizing trade missions, business and scientific conferences, and other events to connect businesses, entrepreneurs, and scientists from both countries. At the same time, the Embassy promotes cultural and educational exchanges between the two countries by facilitating study-abroad programs, hosting exhibitions, and encouraging other cultural and educational events.

Latvian-Italian Cooperation Centre of Riga Technical University (RTU) promotes EU common values, inclusive education, the European dimension of teaching, as well as provides a sense of community for the Italian students and scientists at RTU. The Centre fosters the cultural and scientific relations between Italy and Latvia, with particular regard to the teaching of the Italian language and the coordination of RTU activities with Italian higher education institutions, research centres, institutions and business companies.

The accommodation of CONECT 2024 participants is taken care of by the Mogotel hotel group.

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ATTRACTING CUSTOMERS TO DISTRICT HEAT SUPPLY: THE CASE OF RIGA

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Abstract – District heating is important in achieving future climate goals. Possibilities of using waste heat from different sources, e.g. subways, hospitals, shops, data centers, rivers are often discussed. Many district heating companies face the challenge of sufficient coverage of connected consumers in a city or region. To expand the operating area, companies should initially attract objects which are close to heat networks to lower the connection costs. The research question is how to attract existing buildings under construction to the district heating system. The present work uses system dynamics modeling for studying the possibilities of the Riga district heat supply company to increase consumer network. Modeling is based on historical data of residential buildings. The results show that old buildings choose to connect to the district heat supply when these are being renovated, or the individual heat supply equipment is out of order. The older the buildings, the more likely these will be connected to the district heating, however, this decision may take at least 70 years. Renovation increases the probability of connection to the district heating, so the impact of subsidies for renovation is important. Regulation that requires connection to the district heating as a priority choice in case of renovation is also important.

Keywords – Buildings; energy efficiency; district heating; system dynamics