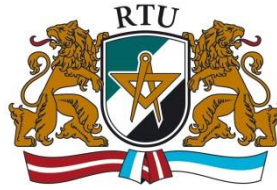




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International Scientific Conference of Environmental
and Climate Technologies

Programme

October 14-15, 2014

Supported by:



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Tuesday, 14 October

*Faculty of Power and Electrical Engineering,
12/1 Āzenes iela, room 115*

14.00 – 14.20 *Keynote Speaker*

ENVIRONMENTAL IMPACTS AND ENERGY EFFICIENCY OF ELECTRICITY FROM AGRICULTURAL AND FOREST BIOMASS

Sylvestre Njakou Djomo, University of Hasselt, Belgium

14.20 – 14.40

MULTI-CRITERIA ANALYSIS OF SUSTAINABLE USE OF MACRO-ALGAE FOR BIOGAS PRODUCTION IN LATVIAN CONDITIONS: A PRELIMINARY STUDY

Pastare L., Romagnoli F., Lauka (Eihvalde) D., Dzene I., Riga Technical University, Latvia

14.40 – 15.00

HOW TO ASSESS INVOLVEMENT OF ELECTRICITY END USER IN ENERGY EFFICIENCY IMPROVEMENT. ANALYSIS OF SURVEY RESULTS

Bariss U., Dandens A., Timma L., Blumberga A., Blumberga D., Riga Technical University, Latvia

15.00 – 15.15 Coffee break

15.15 – 15.35

MATHEMATICAL MODEL OF PACKED BED SOLAR THERMAL ENERGY STORAGE SIMULATION

Dzikevics M., Zandeckis A., Riga Technical University, Latvia

15.35 – 15.55

COST-BENEFIT ANALYSIS OF PLASMA-BASED FLUE GAS TREATMENT TECHNOLOGIES

Blumberga A., Blumberga D., Pubule J., Romagnoli F., Riga Technical University, Latvia

15.55 – 16.15

A PRELIMINARY STUDY OF BIOREFINERY CONCEPT TO OBTAIN FURFURAL AND BINDER-LESS PANELS FROM HEMP (CANNABIS SATIVA L.) SHIVES

Brazdausks P., Tupciauskas R., Andzs M., Rizikovs J., Puke M., Paze A., Meile K., Vedernikovs N., Latvian State Institute of Wood Chemistry, Latvia

16.15 – 16.35

CONVERSION OF POLYMER AND PERFORATED METALLIC RESIDUES INTO NEW VALUE-ADDED COMPOSITE BUILDING MATERIAL

Lisicins M., Lapkovskis V., Shishkin A., Mironovs V., Zemcenkovs V., Riga Technical University, Latvia

16.55– 17.30 Discussions



Wednesday, 15 October

*Faculty of Power and Electrical Engineering,
12/1 Āzenes iela, room 518*

9.00 – 9.20

APPLICATION OF LOW-CARBON TECHNOLOGIES FOR CUTTING HOUSEHOLD GREENHOUSE GAS EMISSIONS

Barisa A., Rosa M., Laicane I., Sarmins R., Riga Technical University, Latvia

9.20 – 9.40

INCREASING OF FOOD AND BIOENERGY POTATO RESOURCES BY MICROBIAL INFLUENCE ON TUBERS PHYTOHORMONAL STATUS

Kiprushkina E., Baranenko D., ITMO University, Russia

9.40 – 10.00

ANALYSIS OF MECHANICAL VENTILATION SYSTEM WITH HEAT RECOVERY IN RENOVATED APARTMENT BUILDING

Kamendere E., Zogla G., Kamenders A., Ikaunieks J., Rochas C., Riga Technical University, Latvia

10.00 – 10.20

ECONOMIC ASSESSMENT OF BIOMETHANE SUPPLY SYSTEM BASED ON NATURAL GAS INFRASTRUCTURE

Paturska A., Repele M., Bazbauers G., Riga Technical University, Latvia

10.20 – 10.35 Coffee break

10.35 – 13.00

Poster presentations

13.00 – 14.00 Lunch

14.00 – 14.20

ENERGY EFFICIENCY IN MULTI-FAMILY RESIDENTIAL BUILDINGS IN LATVIA. COSTS BENEFIT ANALYSIS COMPARING DIFFERENT BUSINESS MODELS

Zvaigznitis K., Rochas C., Zogla G., Kamenders A., Riga Technical University, Latvia

14.20 – 14.40

REDUCING HOUSEHOLD ELECTRICITY CONSUMPTION: THE ROLE OF HOME APPLIANCE SCHEDULING, IMPROVED ENERGY PERFORMANCE AND USER BEHAVIOURAL CHANGE

Laicane I., Blumberga D., Blumberga A., Marika Rosa M., Riga Technical University, Latvia

14.40 – 15.00

THE DIRECT MICROBIAL SYNTHESIS OF COMPLEX BIOACTIVE COMPOUNDS AS PERSPECTIVE WAY OF MILK WHEY UTILIZATION

Shershenkov B., Suchkova E., ITMO University, Russia

15.00 – 15.20

ANALYSIS OF THE IMPACT OF DECREASING DISTRICT HEATING SUPPLY TEMPERATURE ON COMBINED HEAT AND POWER PLANT OPERATION

Bolonina A., Bolonins G., Blumberga D., Riga Technical University, Latvia

15.20 – 15.40

CO-DIGESTION OF MACROLALGAE FOR BIOGAS PRODUCTION: AN LCA-BASED ENVIRONMENTAL EVALUATION

Cappelli A., Palermo M., Guerriero E., Simoni S., La Sapienza - University of Rome, Italy

Gigli E., Consorzio Nazionale Interuniversitario per le Scienze del Mare, Italy

Romagnoli F., Blumberga D., Riga Technical University, Latvia

15.40 – 16.00 Discussions

POSTER SESSION

1. OPTIMIZATION OF THE NEW GENERATION MULTICHANNEL CYCLONE CLEANING EFFICIENCY

Baltrenas P., Pranskevicius M., Venslovas A., Vilnius Gediminas Technical University, Lithuania

2. EXPERIMENTAL RESEARCH INTO ODOURS ARISING DURING THE PROCESS OF BIOFILTRATION

Baltrenas P., Miskevicius A., Macaitis K., Tekoriene R., Vilnius Gediminas Technical University, Lithuania

3. EXPERIMENTAL STUDY ON THE EFFECTS OF AIR VELOCITY, TEMPERATURE AND DEPTH IN LOW-TEMPERATURE BED DRYING OF FOREST BIOMASS RESIDUES

Klavina K., Cinis A., Zandeckis A., Riga Technical University, Latvia

4. ANALYSIS OF BORDER PHENOMEN INFLUENCE TO REGIONAL DEVELOPMENT

Bozhko L., Khabdullina Z., Khabdullin A., Rudny Industrial Institute, Kazakhstan

5. MODELLING OF ENERGY MANAGEMENT IN INDUSTRY

Khabdullina Z., Khabdullin A., Bozhko L., Rudny Industrial Institute, Kazakhstan

6. A SWOT ANALYSIS APPROACH FOR ADVANCEMENT OF WASTE-TO-ENERGY CLUSTER IN LATVIA

Beloborodko A., Romagnoli F., Rosa M., Blumberga D. Riga Technical University, Latvia

Disanto C., Salimbeni R., Euroimpresa Legnano, Italy

Karlsen E.N., Reime M., OREEC, Norway

Schwab T., ECO WORLD STYRIA Umwelttechnik Cluster GmbH, Austria

Mortensen J., Clean Cluster, Denmark

Ibarra M., Aclima, Spain

7. SUSTAINABILITY ANALYSIS OF SHALE OIL PRODUCTION INDUSTRY

Gusca J., Siirde A., Eldermann M., Tallinn University of Technology, Estonia



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- 8. INNOVATIONS IN RENEWABLE ENERGY RESOURCES TRAINING IN UNIVERSITY**
Koshkin I., A.Baitursynov Kostanai State University, Kazakhstan,
Dace E., Blumberga D. Riga Technical University, Latvia
- 9. THERMAL CONDUCTIVITY OF FREELY PATTERNED PINE AND SPRUCE NEEDLES**
Muizniece I., Lauka D., Blumberga D., Riga Technical University, Latvia
- 10. ENVIRONMENTAL IMPACTS OF SHALE OIL PRODUCTION. SENSITIVITY ANALYSIS**
Gusca J., Siirde A., Eldermann M., Tallinn University of Technology, Estonia
- 11. EVALUATION OF BIOWASTE TREATMENT SCENARIOS IN LATVIA: A LIFE CYCLE ASSESSMENT BASED APPROACH**
Kreslina A., Pubule J., Romagnoli F., Riga Technical University, Latvia
- 12. ECONOMY OF HEAT COST ALLOCATION IN APARTMENT BUILDINGS**
Ziemele J., Pakere I., Blumberga D., Zogla G., Riga Technical University, Latvia
- 13. ANALYSIS OF ELECTRICITY USER BEHAVIOR: CASE STUDY BASED ON RESULTS FROM EXTENDED HOUSEHOLD SURVEY**
Poznaka L., Laicane I., Blumberga D., Blumberga A., Rosa M., Riga Technical University, Latvia
- 14. TRIPPLE HELIX APPROACH IN WASTE MANAGEMENT SYSTEM ANALYSIS**
Vilgerts J., Blumberga D. Riga Technical University, Latvia
- 15. METHODOLOGICAL APPROACH FOR RESILIENCE ASSESSMENT OF URBAN ENERGY METABOLIC SYSTEMS: SELECTION OF INDICATORS**
Kuznecova T., Romagnoli F., Rochas C., Riga Technical University, Latvia
- 16. ANALYSIS OF CONIFEROUS WOOD WASTE IN BALTIC STATES**
Muizniece I., Blumberga D., Riga Technical University, Latvia
- 17. AN ALGORITHM FOR THE SELECTION OF STRUCTURE FOR ARTIFICIAL NEURAL NETWORKS. CASE STUDY: SOLAR THERMAL ENERGY SYSTEMS**
Timma L., Blumberga D., Riga Technical University, Latvia
- 18. PRELIMINARY ANALYSIS OF ANAEROBIC DIGESTION PROCESS USING CERATOPHYLLUM DEMERSUM AND LOW CARBON CONTENT ADDITIVES: A BATCH TEST STUDY**
Lauka D., Pastare L., Blumberga D., Romagnoli F., Riga Technical University, Latvia
- 19. GOVERNMENT AND MUNICIPALITY OWNED BUILDING ENERGY EFFICIENCY SYSTEM DYNAMICS MODELLING**
Asere L., Blumberga A., Riga Technical University, Latvia
- 20. PROCESS BENCHMARK FOR EVALUATION ENERGY PERFORMANCE IN BREWERIES**
Zogla L., Zogla G., Beloborodko A., Rosa M., Riga Technical University, Latvia
- 21. COMPARATIVE MULTIPLE REGRESSION ANALYSIS OF HOUSEHOLDS' ELECTRICITY USE IN LATVIA: USING SMART METER DATA TO EXAMINE THE EFFECT OF DIFFERENT HOUSEHOLDS' CHARACTERISTICS**
Laicane I., Blumberga D., Blumberga A., Rosa M., Riga Technical University, Latvia
- 22. THE USE OF PERFORMANCE INDICATORS FOR ANALYSIS OF RESOURCE EFFICIENCY MEASURES**
Beloborodko A., Rosa M., Riga Technical University, Latvia
- 23. EFFICIENCY DIAGRAM FOR DISTRICT HEATING SYSTEM WITH GAS CONDENSING UNIT**



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- Galindoms G., Vigants G., Veidenbergs I., Vigants E., Blumberga D., Riga Technical University, Latvia
- 24. DEMAND SIDE MANAGEMENT IN PELLET PRODUCTION: INTERNAL AND EXTERNAL FACTORS**
Vigants H., Blumberga D., Veidenbergs I., Riga Technical University, Latvia
- 25. MODELLING OF BIOMASS GASIFICATION. FUEL MOISTURE EFFECT ON THE MASS AND ENERGY BALANCE**
Kirsanovs V., Zandeckis A., Riga Technical University, Latvia
- 26. ENERGY PERFORMANCE OF HISTORICAL BUILDINGS IN NORTHERN CLIMATE ZONE**
Kass K., Blumberga A., Zogla G., Riga Technical University, Latvia
- 27. FOOD WASTE COLLECTION AND TREATMENT – PROBLEMS AND ITS POSSIBLE SOLUTIONS IN LATVIA**
Arina D., Teibe I., Sudars R., Bendere R., Latvia University of Agriculture, Latvia
- 28. COMBINED AND MIXED METHODS RESEARCH IN ENVIRONMENTAL ENGINEERING: WHEN TWO IS BETTER THAN ONE**
Timmer L., Blumberga A., Žandeckis A., Blumberga D., Riga Technical University, Latvia
- 29. LIFE CYCLE ASSESSMENT OF LANDFILL MINING PROJECT**
Gusca J., Fainzilbergs M., Muizniece I., Riga Technical University, Latvia
- 30. THE GRANULOMETRIC COMPOSITION INFLUENCE ON CONIFEROUS NEEDLE THERMAL CONDUCTIVITY**
Muizniece I., Blumberga D., Riga Technical University, Latvia
- 31. CLEANER PRODUCTION. DRIED APPLE VITAMIN BARS**
Slisane D., Blumberga D., Riga Technical University, Latvia
- 32. LIFE CYCLE ASSESSMENT OF RENEWABLE ENERGY ALTERNATIVES FOR REPLACEMENT OF NATURAL GAS IN BUILDING MATERIAL INDUSTRY**
Repele M., Bazbauers G., Riga Technical University, Latvia
- 33. METHODOLOGY OF PRACTICAL WORK IN DEMAND SIDE MANAGEMENT STUDY COURSE**
Prodanuks T., Blumberga D., Riga Technical University, Latvia
- 34. USE OF CONIFEROUS GREENERY FOR PRODUCTION OF HEAT INSULATION MATERIAL**
Muizniece I., Blumberga D., Ansona A., Riga Technical University, Latvia
- 35. ELECTROLYSIS PROCESS ANALYSIS BY USING LOW CARBON CONTENT ADDITIVES: A BATCH TEST STUDY**
Lauka D., Blumberga D., Riga Technical University, Latvia
- 36. COMBINED METHODOLOGY TO EVALUATE TRANSITION TO LOW CARBON SOCIETY**
Kalnins S.N., Blumberga D., Gusca J., Riga Technical University, Latvia
- 37. HOW ISO 50001 CAN ASSIST IN IMPLEMENTATION OF SUSTAINABLE ENERGY ACTION PLANS?**
Dzene I., Polikarpova I., Ozolina L., Rosa M., Riga Technical University, Latvia
- 38. ROLE OF VEHICLE-TO-GRID SYSTEMS FOR ELECTRIC LOAD SHIFTING AND INTEGRATION OF INTERMITTENT SOURCES IN LATVIAN POWER SYSTEM**
Udrene L., Bazbauers G., Riga Technical University, Latvia
- 39. SIMULATION OF POWER SYSTEM WITH STOCHASTIC ENERGY RESOURCES AND COMPRESSED AIR ENERGY STORAGE**
Zoss T., Blumberga D., Kengis A., Riga Technical University, Latvia



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- 40. SOLAR ENERGY USE IN LANDFILL**
Klavenieks K., Feofilovs M., Blumberga D., Riga Technical University, Latvia
- 41. WHY WOOD FUEL CHP IS SUSTAINABLE SOLUTION. ANALYSIS OF OPERATION EXPERIENCE**
Cimdina G., Blumberga D., Veidenbergs I., Riga Technical University, Latvia
- 42. FIRST STEPS TO DEVELOP BIOMIMICRY IDEAS**
Vanaga R., Blumberga A., Riga Technical University, Latvia
- 43. REVIEW ON SHRINKING MUNICIPALITIES PROBLEM IN TERRITORIAL PLANNING**
Grantina L., Kamenders A. Blumberga A., Riga Technical University, Latvia
- 44. THE ROLE OF GREEN INFRASTRUCTURE TO IMPROVE AIR QUALITY**
Lieplapa L., Gedrovics M., Suzdalenko V., Riga Technical University, Latvia
- 45. USE OF THERMAL SUPERINSULATION IN BUILDINGS**
Jaunzems D., Valters K., Riga Technical University, Latvia
- 46. ENVIRONMENTAL IMPACT OF AVIATION**
Jatnieks M., Lieplapa L., Riga Technical University, Latvia
- 47. HYDRAULIC UNITS' VIBRATION DIAGNOSTICS SUBSYSTEM IMPROVEMENT AND ITS IMPACT ON THE LEVEL OF TECHNOGENIC RISKS**
Shindor O., Svirina A., Kazan National Research Technical University named after A.N. Tupolev, Russia
- 48. LUPIN WHEY AS A PERSPECTIVE SUBSTRATE FOR BIOETHANOL PRODUCTION**
Kuznetsova L., Zabodalova L., Domoroshchenkova M., ITMO University, All-Russia Scientific Research Institute of Fats of Russian Academy of Agricultural Sciences, Russia
- 49. COMPARISON OF INDIRECT CO₂-EMISSIONS OF DIFFERENT RENEWABLE TRANSPORTATION FUELS**
Holmberg H., Siitonen S., Laukkanen T., Tuomaala M., Niskanen T., Aalto University, Finland
- 50. OPTIMIZATION OF LANDFILL GAS USE IN MUNICIPAL SOLID WASTE LANDFILLS IN LATVIA**
Dace E., Blumberga D., Kuplais G., Riga Technical University, Latvia
Bozhko L., Khabdullina Z., Khabdullin A., Rudny Industrial Institute, Kazakhstan
- 51. ASSESSMENT OF THE POTENTIAL FOR BALANCING WIND POWER SUPPLY WITH BIOGAS PLANTS IN LATVIA**
Dzene I., Romagnoli F., Riga Technical University, Latvia
- 52. ASSESSMENT METHOD OF HEALTH CARE WASTE GENERATION**
Gusca J., Kalnins S.N., Blumberga D., Riga Technical University, Latvia
Bozhko L., Khabdullina Z., Khabdullin A., Rudny Industrial Institute, Kazakhstan
- 53. BIOMETHANE POTENTIAL FROM ANAEROBIC DIGESTION OF THE MACROPHYTE CERATOPHYLLUM DEMERSUM: A BATCH TEST STUDY FOR LATVIAN CONDITIONS**
Pastare L., Romagnoli F., Rugele K., Dzene I., Blumberga D., Riga Technical University, Latvia