

Conference

# **Energy Efficiency and RES**



5th December 2011, 10 am, Hyatt  
Regency, Belgrade

# Konferencija

## Energetska efikasnost i korišćenje obnovljivih izvora energije

### Institucionalni pokrovitelji



РЕПУБЛИКА СРБИЈА  
АГЕНЦИЈА ЗА  
ЕНЕРГЕТСКУ ЕФИКАСНОСТ  
REPUBLIC OF SERBIA  
ENERGY EFFICIENCY  
AGENCY



# Topics of the Conference

- As long as the Serbian reached in the implementation of energy efficiency and using renewable sources - the percentage of energy from renewable sources predicted the state?
- Subventions / Investing in wind energy  
Local governments and energy efficiency projects - public street lighting and municipal cities, district heating
- Policies and regulations of the European Union in the field of energy efficiency and renewable energy
- Regional implementation of the concepts of energy efficiency and using renewable energy sources and their importance in the accession process to the European Union
- The experiences of Denmark and Japan in the field of implementation of regional programs for energy efficiency and use renewable sources.
- Quotas for CO2 emissions - the state policy
- Does Serbia need to foster a regional approach to the implementation of energy efficiency and using renewable energy sources?
- The experience of countries in the region in implementing energy efficiency projects

# The conference agenda

- 09:30 - 10:00 Registration of participants
- 10:00 to 11:30 **PANEL I Renewable Energy and Energy Efficiency - the regulatory framework for effective sector policy**
- 10: 00 - 10:10 Welcome speech: **Mr. Milutin Mrkonjic**, Minister for Infrastructure and Energy of the Republic of Serbia
- 10:10 to 10:20 **His Excellency, Ambassador Mette Nielsen Kewell**, Danish Embassy in Serbia
- 10:20 to 10:30 **Adriano Martins**, Deputy Head of Delegation of the European Union in Serbia
- 10:30 to 10:40 **Prof. Dr Milos Banjac**, Assistant Minister for Infrastructure and Energy of Republic of Serbia
- 10:40 to 10:50 **Mark Crandall**, Chairman, Continental Wind Partners
- 10:50 to 11:00 **Milan Popovic**, World Bank Country Office in Serbia
- 11:00 to 11:30 Discussion
- Moderator: **Professor Dr Milun Babic**, Director of the Regional Euro Energy Efficiency Centre Kragujevac
- 11:30 to 11:45 - Coffee Break



# The conference agenda

11:45 to 13:10 **PANEL II - International cooperation, funding opportunities and other improvements to improve energy efficiency in South East Europe**

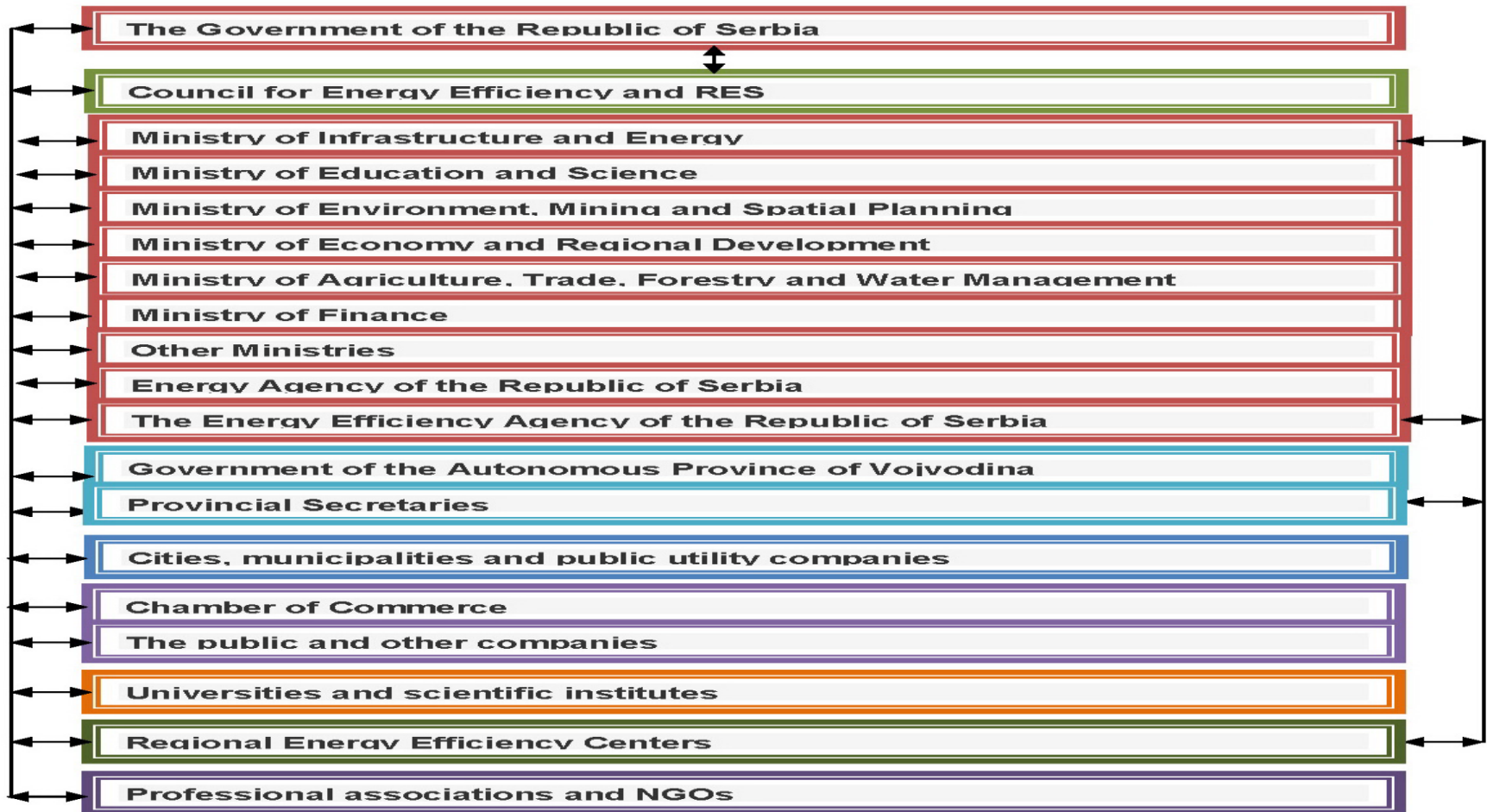
- 11:45 to 11:55 **Bojan Kovacic**, Director of the Serbian Energy Efficiency
- 11:55 to 12:05 **Satoru Kurosawa**, head of the Permanent Office of the Japan International Cooperation Agency (JICA) for the Balkans
- 12:05 to 12:15 **Prof. Dragoslav Šumarac**, President of Serbian Chamber of Engineers
- 12:15 to 12:25 **Gečevski Lazar**, director of the Energy Agency of the Republic of Macedonia
- 12:25 to 12:35 **Zoran Lazic**, Regional Manager, AB Serbian Energy
- 12:35 to 12:45 **Ian Brown**, Senior Advisor, Office of the European Bank for Reconstruction and Development
- 12:45 to 13:10 Discussion
- Moderator: **Professor Jovan Petrovic**, director of the Provincial Energy Efficiency Centre Novi Sad

13:10 to 14:30 - Cocktail

# Who takes care now in Serbia about energy efficiency and RES and how this process is organized



# The desired changes in the organization care about energy efficiency and RES in Serbia



# Regional Euro Energy Efficiency Center - Kragujevac and Energy Efficiency, Environmental Protection and Sustainable Development in the City of Kragujevac



Gold Medal  
2010th which  
the Club of  
Economic  
Journalists of  
Serbia was  
rewarded our  
center for the  
results  
achieved





# Role of the Center

- Commitment to energy efficiency improvement, renewable sources promotion and local community sustainable development
- Technical and logistic support for implementation of energy efficiency projects
- Consulting, promotion and education about energy efficiency



# Activities of the Center

- Energy efficiency in:
  - industry
  - public buildings
  - municipal companies
- Consulting
- Conceptual design development
- Publishing



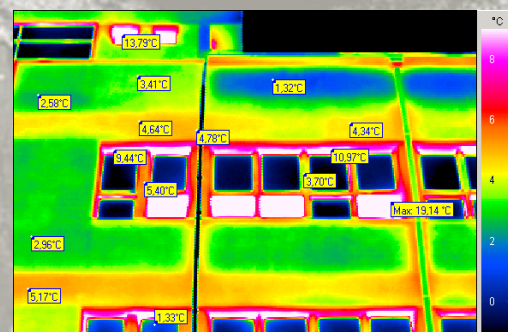
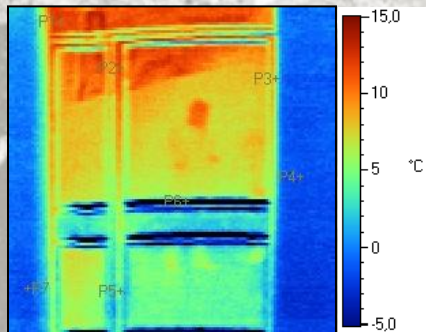


Showing several projects of the  
Regional Euro Center for Energy  
Efficiency - Kragujevac

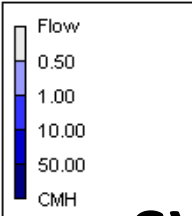
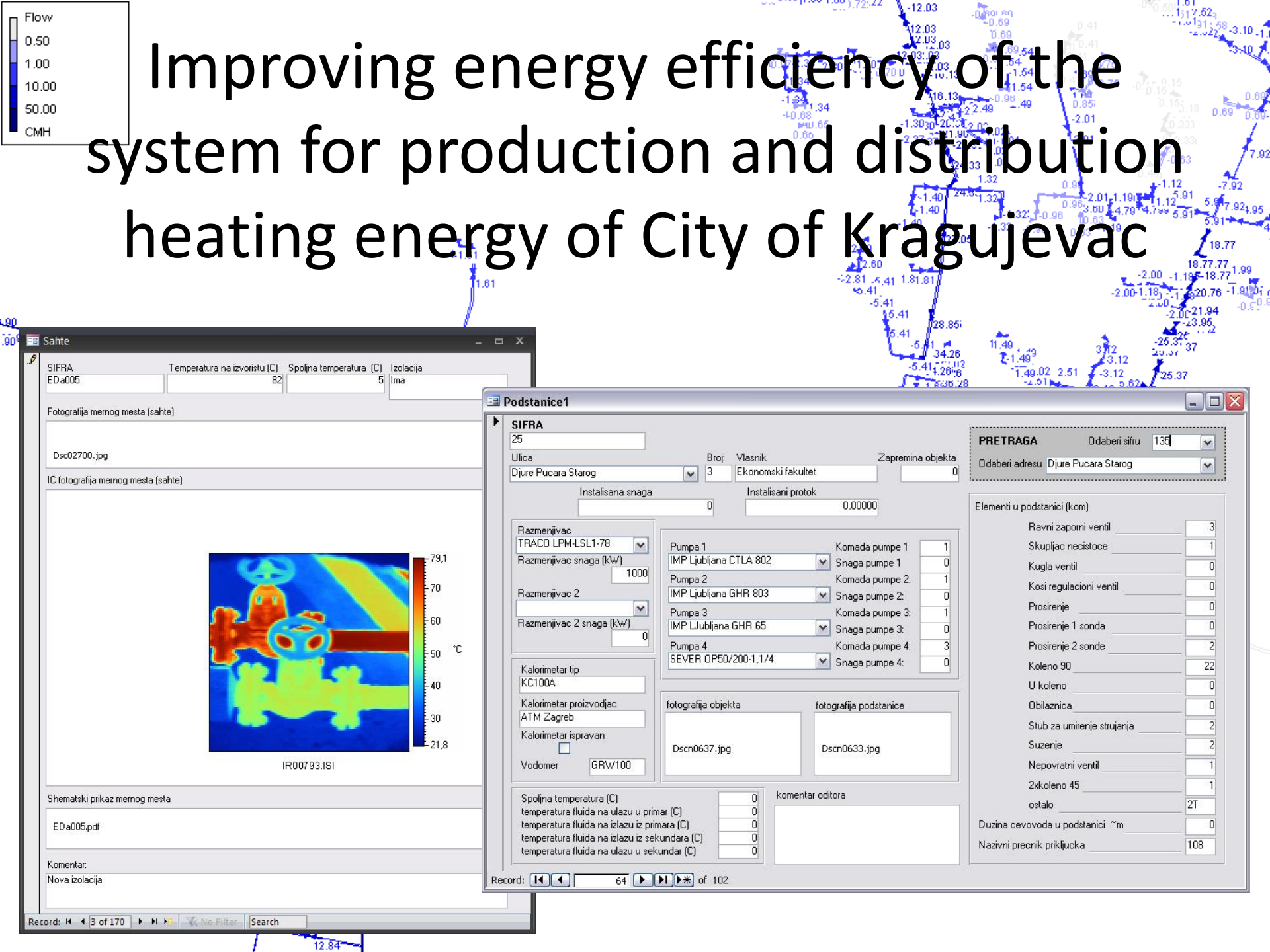




# Energy efficiency in public buildings



# Improving energy efficiency of the system for production and distribution heating energy of City of Kragujevac



**Sahte**

SIFRA: EDa005  
 Temperatura na izvoristu (C): 82  
 Spoljna temperatura (C): 5  
 Izolacija: Ima

Fotografija mernog mesta (sahte)

Dsc02700.jpg

IC fotografija mernog mesta (sahte)

IR00793.ISI

Shematski prikaz mernog mesta

EDa005.pdf

Komentar: Nova izolacija

**Podstanice1**

SIFRA: 25  
 Ulica: Djure Pucara Starog  
 Broj: 3  
 Vlasnik: Ekonomski fakultet  
 Zapremina objekta: 0

Instalisana snaga: 0  
 Instalirani protok: 0,00000

Razmenjivac: TRACO LPM-LSL1-78  
 Razmenjivac snaga (kW): 1000

Razmenjivac 2: [empty]  
 Razmenjivac 2 snaga (kW): 0

Kalorimetar tip: KC100A  
 Kalorimetar proizvođač: ATM Zagreb  
 Kalorimetar ispravan:

Vodomer: GRW100

Spoljna temperatura (C): 0  
 temperatura fluida na ulazu u primar (C): 0  
 temperatura fluida na izlazu iz primara (C): 0  
 temperatura fluida na izlazu iz sekundara (C): 0  
 temperatura fluida na ulazu u sekundar (C): 0

fotografija objekta: Dscn0637.jpg  
 fotografija podstanice: Dscn0633.jpg

komentar oditora

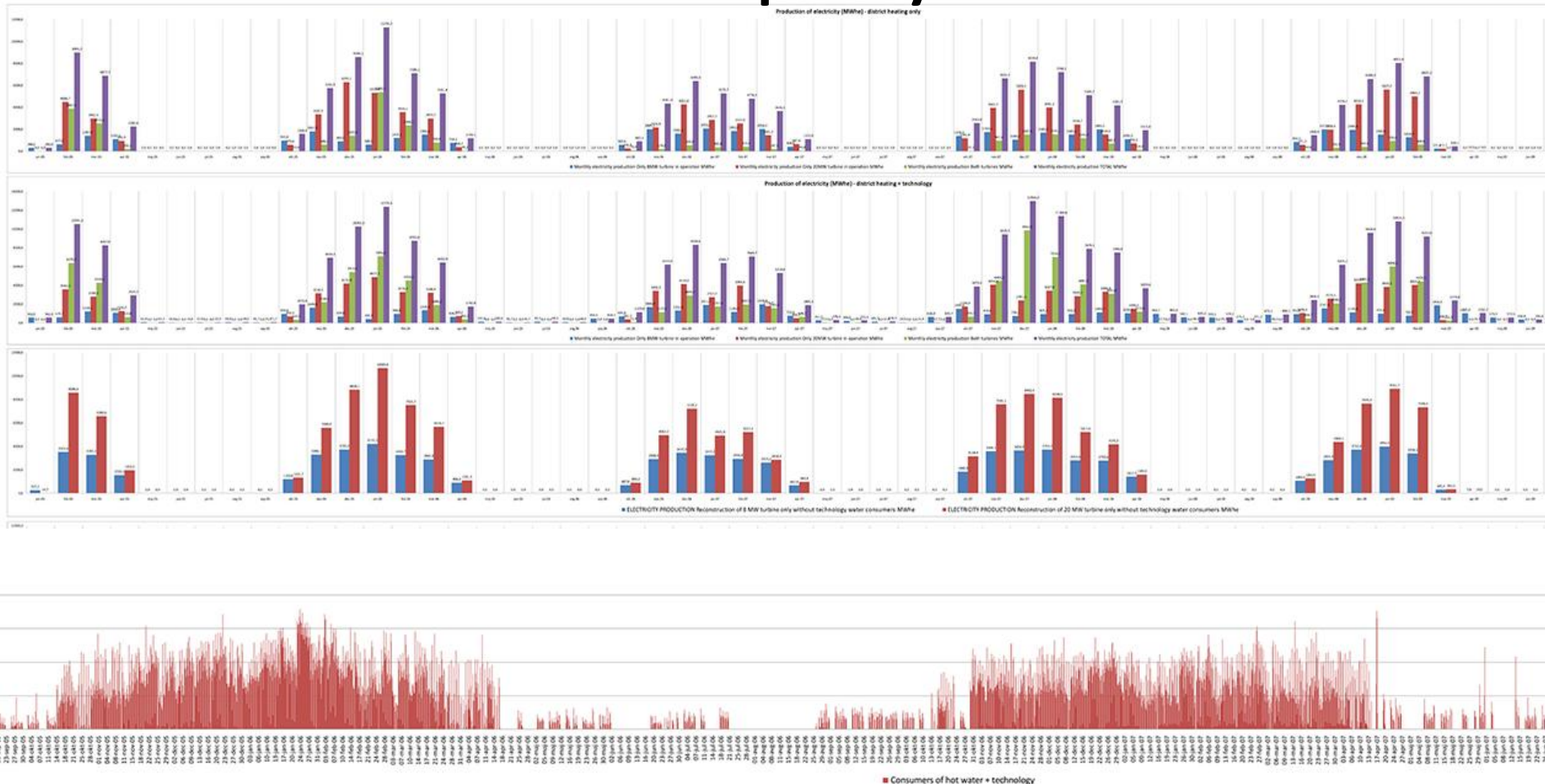
**PRETRAGA** Odaberi sifru: 133  
 Odaberi adresu: Djure Pucara Starog

Elementi u podstanici (kom)

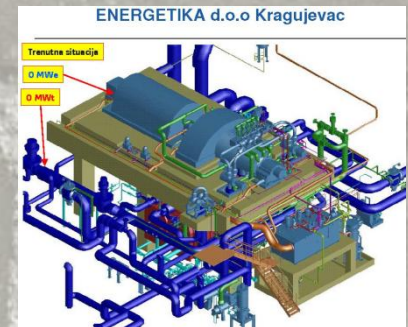
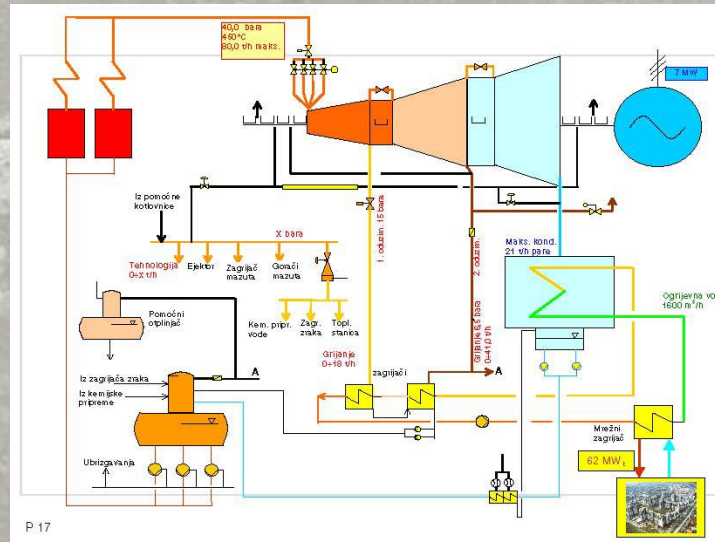
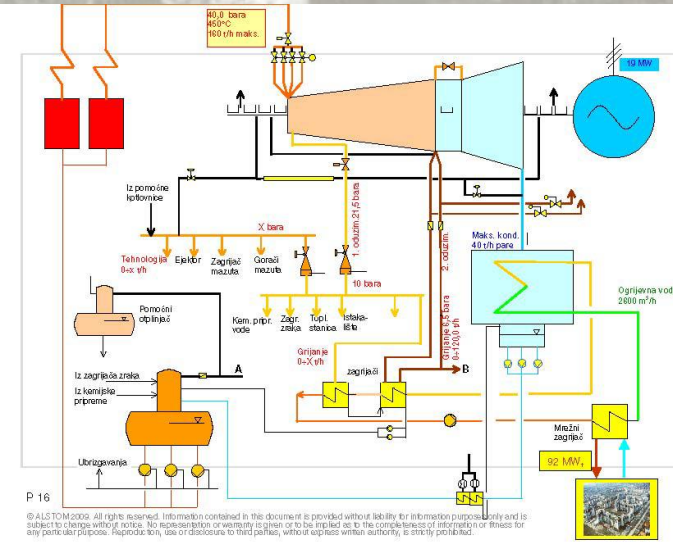
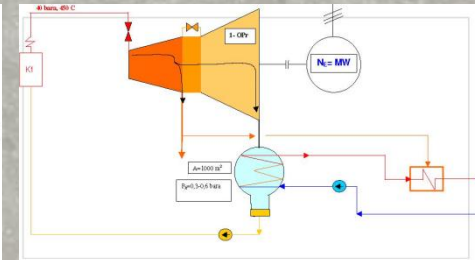
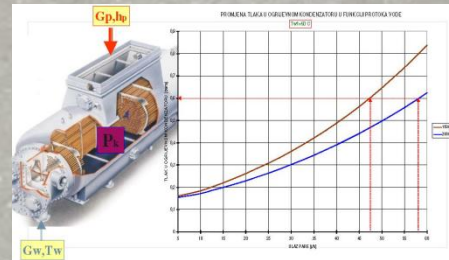
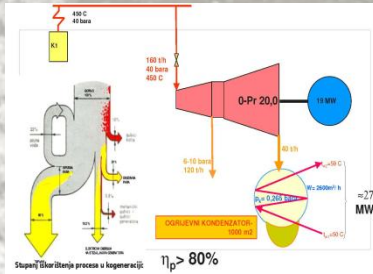
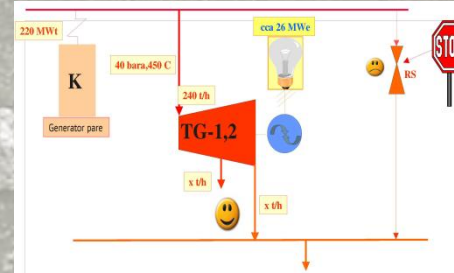
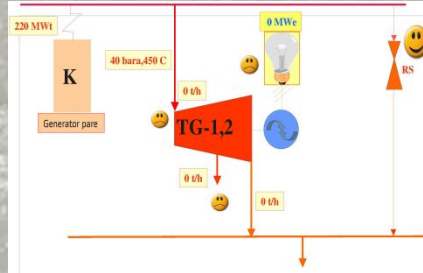
|                                 |     |
|---------------------------------|-----|
| Ravni zaporni ventil            | 3   |
| Skupljac necistoce              | 1   |
| Kugla ventil                    | 0   |
| Kosi regulacioni ventil         | 0   |
| Prosirjenje                     | 0   |
| Prosirjenje 1 sonda             | 0   |
| Prosirjenje 2 sonde             | 2   |
| Koleno 90                       | 22  |
| U koleno                        | 0   |
| Obilaznica                      | 0   |
| Stub za umirenje strujanja      | 2   |
| Suzenje                         | 2   |
| Nepovratni ventil               | 1   |
| 2koleno 45                      | 1   |
| ostalo                          | 2T  |
| Duzina cevovoda u podstanici ~m | 0   |
| Nazivni precnik prikljucka      | 108 |



# Feasibility study for production of electricity using CHP in DH company

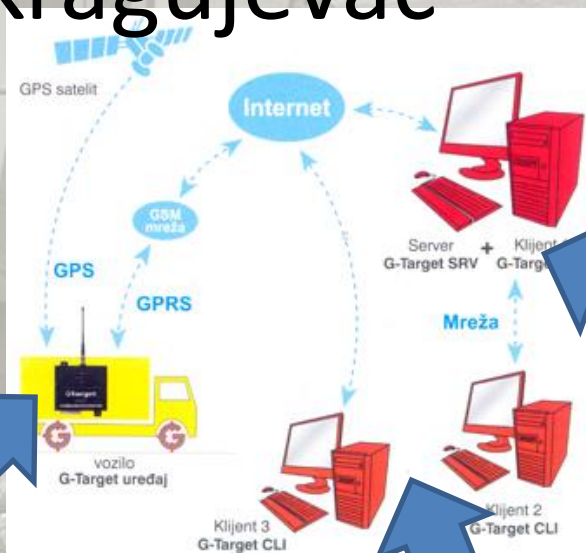
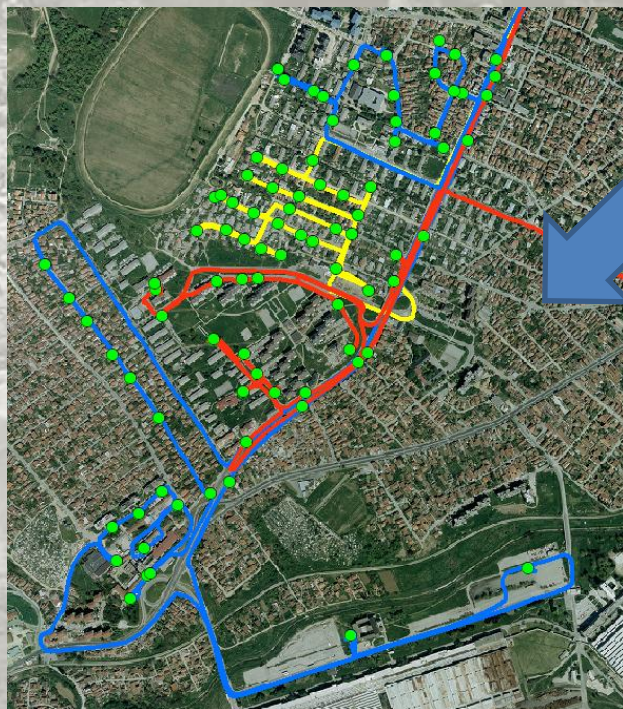


# Feasibility study for production of electricity using CHP in DH company "Energetika" – Kragujevac - preliminary design -



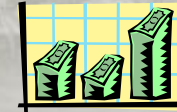
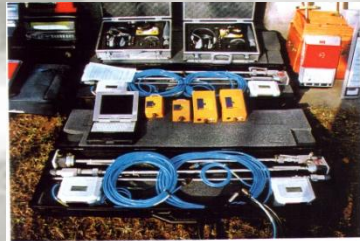


# Improving energy efficiency of municipal waste treatment company in Kragujevac





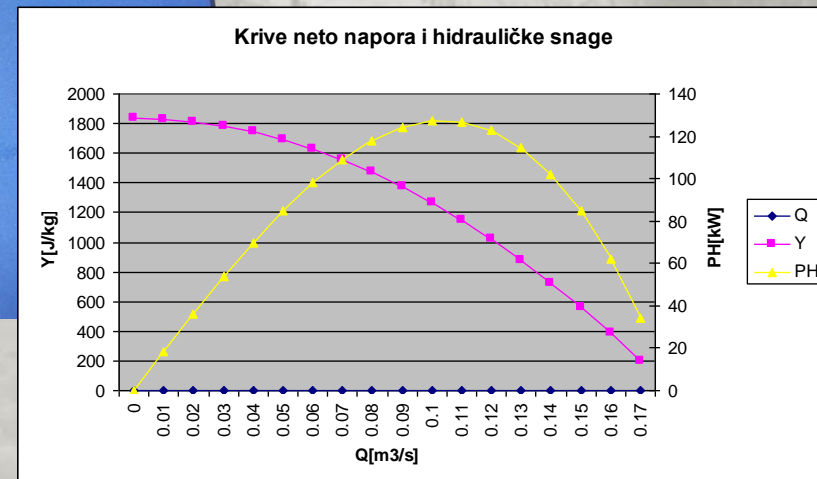
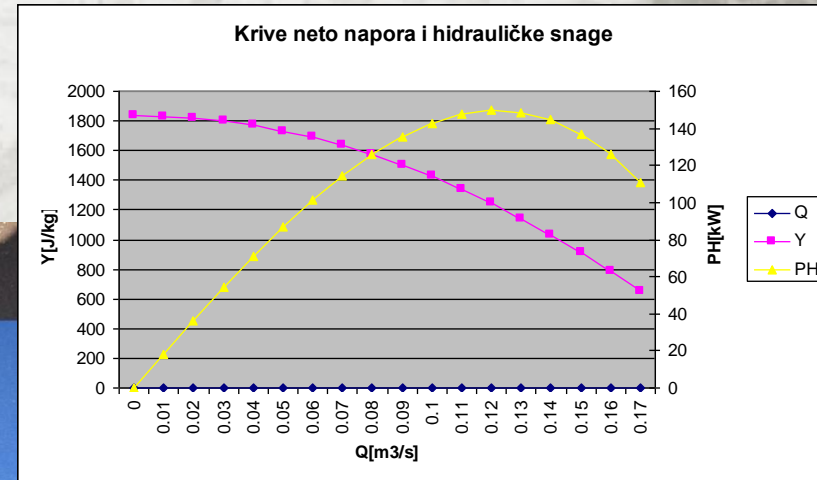
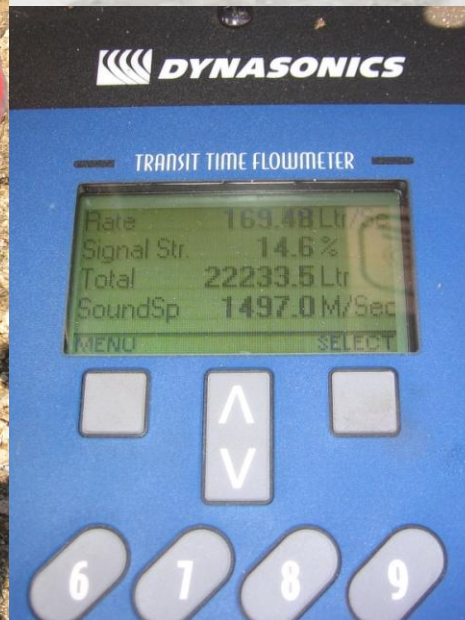
# Improving the energy efficiency of water supply system of city Kragujevac



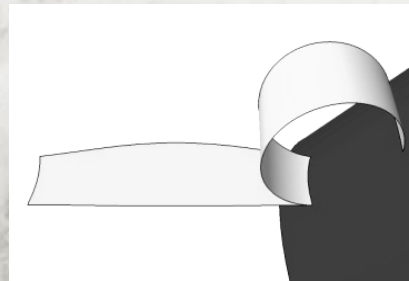
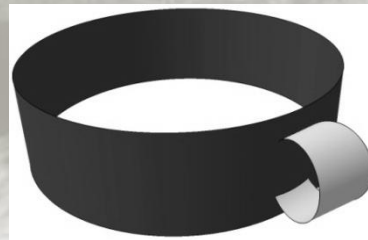
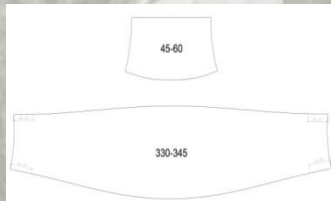
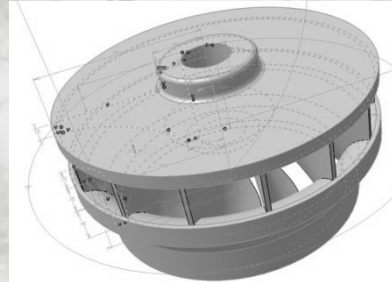
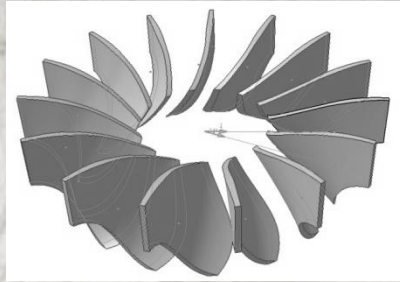
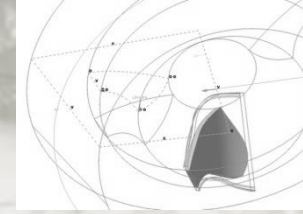
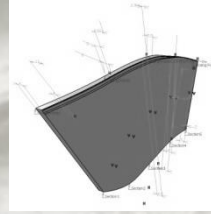
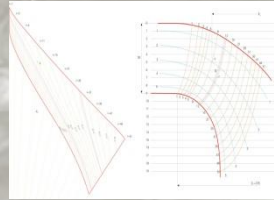
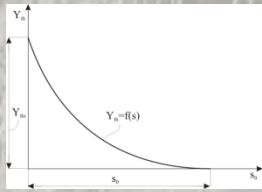
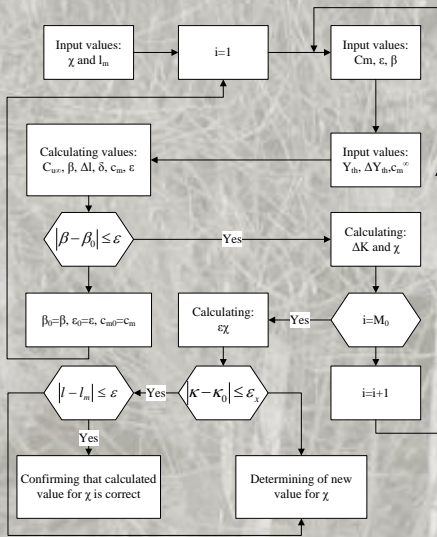
1.840.000 € / year



# Assessment study of energy efficiency of water supply system



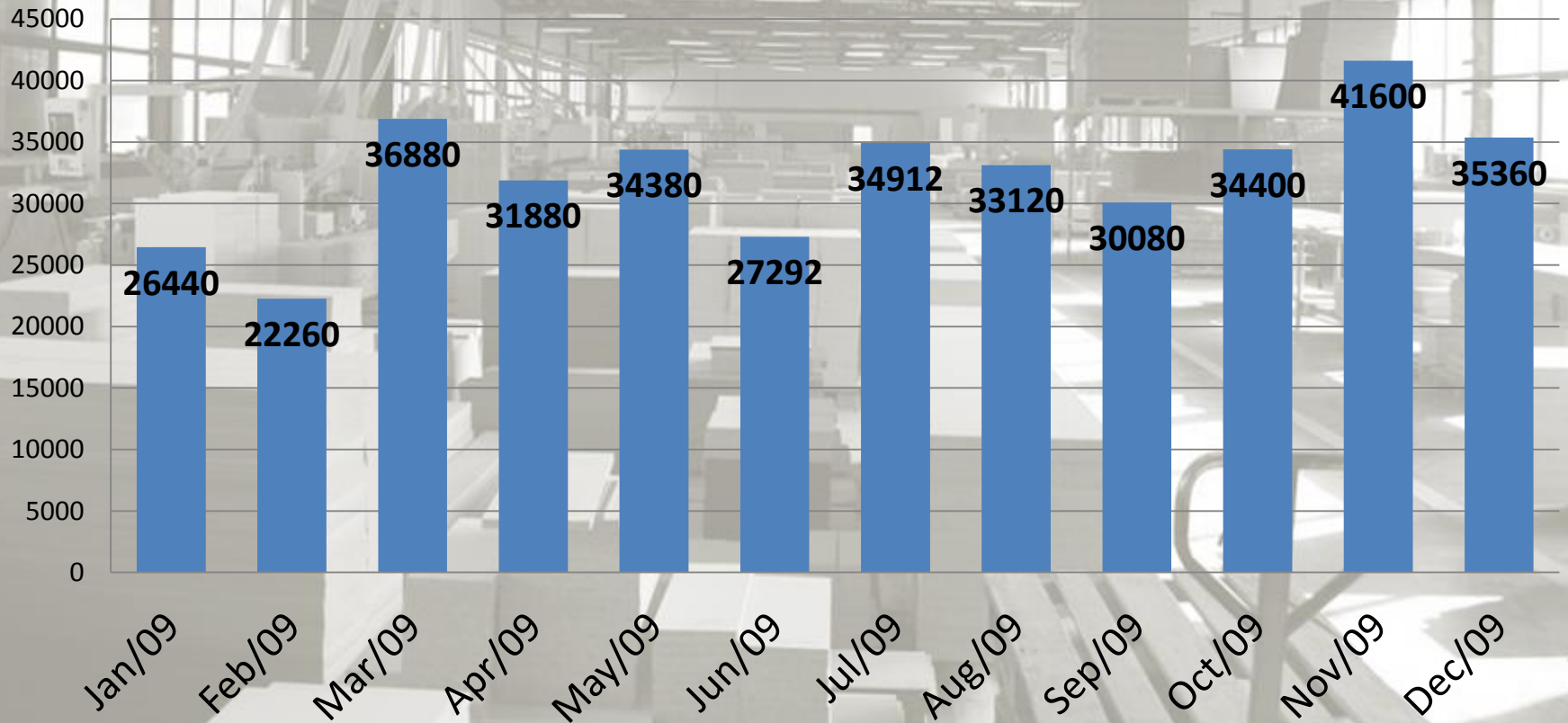
# Designing and building SHPP (Power: 2x10<sup>7</sup> kW)







# Increasing energy efficiency in wood processing industry- furniture company



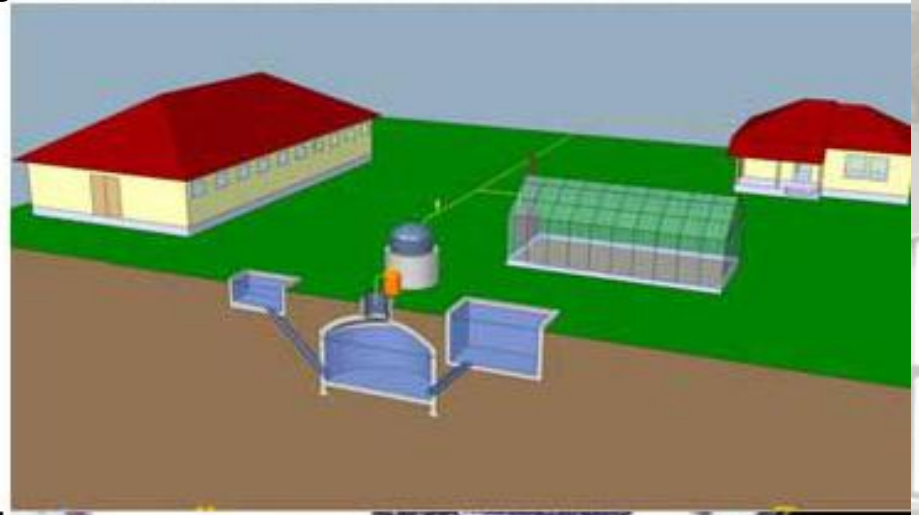
# TEMPUS project

Building capacity of municipalities in area of energy efficiency and environment





# Students – assistants of Regional Euro Energy Efficiency Centre at the Internationals scientific conference exhibit their projects





# Students and staff the Regional Euro Energy Efficiency Centre - Kragujevac defend their project to increase of energy efficiency Winery Aleksandrovic the owner of the winery





# Design of the new high performance pump



# Other projects of our students in the Euro Regional Centre for Energy Efficiency in Kragujevac

- Workshops in the EEE
- The first student monographs on Nikola Tesla
- Defense of academic projects performed
- International cooperation
- Student party

## Iz života naših studenata



Pažljivi slušaoci i strogi ocenjivači – detalj sa jednog od završnih workshop-ova

Tim A u napadu – Prezentacija (odbrana) projekta (projekat visokoučinskog ventilatora)



Posle uspešne odbrane projekta postrojenja za energetska korišćenje otpadnih automobilskih guma i polusatnog nastupa na televiziji, na redu je torta „Tim P“

Važno je svoj tim što efektnije i lepše predstaviti



I sarma može da bude srpski brend (detalj jednog od završnih workshop-ova)



Dekan ume, s vremena na vreme, da proveri visoki kvalitet predavanja i projekata naših studenata



Znaju naši studenti, nakon svojih predavanja, odbrana projekata ili objavljivanja svoje prve monografije, da prirede i iznenađenja – pogača i kajmak za kolege



A kada apsolviraju, to izgleda ovako

## Studenti i naša međunarodna saradnja

Međunarodni Tempus projekat o energetsom korišćenju komunalnog otpada i energetske efikasnosti u opštinama



Profesori iz Bidgošća (Poljska) – Workshop za opštine i naše studente na MFK



Workshop za opštine i naše studente na Kopaoniku



Već desetak godina veoma uspešno saradujemo sa norveškim i našim ekspertima (NEEG i SEEA) na planu energetske efikasnosti i finansijskog inženjeringa







Serbian academicians, ministers, managers, generals and others - guests of the Department and Regional Euro Energy Efficiency Center - Kragujevac held invited lectures to our students

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ministers, managers,  
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**ACADEMICIAN VLADETA  
JEROTIC**



**ACADEMICIAN  
MIOMIR  
VUKOBRA TOVIĆ**



**DR ALEXANDER  
POPOVIĆ  
FORMER MINISTER  
SCIENCE AND  
ENVIRONMENT**



**RADOMIR NAUMOV  
FORMER MINISTER OF MINING  
AND ENERGY**



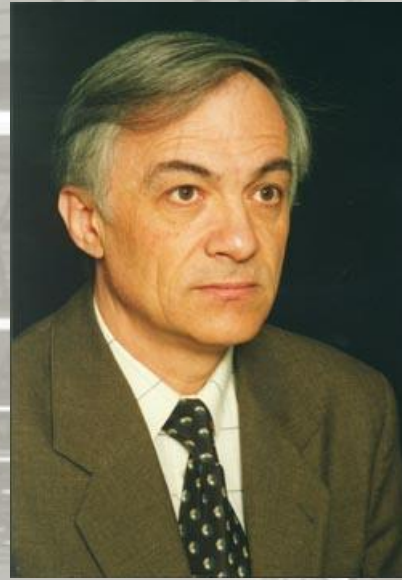
**NENAD PAVLOVIĆ  
FORMER DIRECTOR OF THE  
AGENCY FOR ENERGY  
EFFICIENCY**



**DR VEROLJUB TRIFUNOVIĆ  
FORMER DIRECTOR OF THE INSTITUTE FOR URBAN PLANNING  
Kragujevac**



Serbian academicians,  
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ACADEMICIAN VLADAN DJORDJEVIC



MLADEN SIMOVIĆ  
DIRECTOR ENTEL ENERGOPROJEKT



GENERAL PROF. DR. MIODRAG JEVTIC,  
RECTOR OF THE UNIVERSITY OF THE MILITARY



DR. ZORAN KRSTIC, ARCHPRIEST-STAVROPHOR  
RECTOR OF THE SEMINARY "ST. JOHN CHRYSOSTOM"



## DETAIL FROM TEACHING (STUDENT TEACHER)



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ACADEMICIAN PETAR MILJANIĆ  
I PROF. DR MILAN DIMKIĆ,  
DIRECTOR OF THE INSTITUTE "JAROSLAV CERNI"



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JASMINKA MILOŠEVIĆ, MANAGER  
ENVIRONMENTAL PROTECTION AND  
GORAN VASIC, ASSISTANT DIRECTOR  
"HOLCIM» POPOVAC



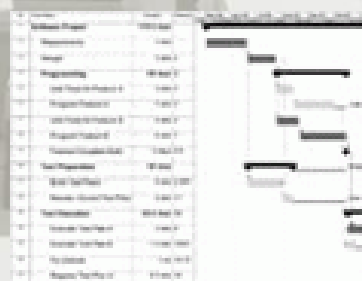
ŽARKO GALIC, FORMER DIRECTOR AND  
COMPANY FOUNDER AND ENCOTEH  
FORMER DIRECTOR OF MAINTENANCE  
"HYATT REGENCY



PROF. DR PETER SKUNDRIC  
FORMER MINISTER OF MINING AND  
ENERGY



DR OLIVER DULIC, MINISTER OF SPATIAL  
PLANNING, MINING AND THE ENVIRONMENT



DR DURY CRAWEL  
THE DEPARTMENT OF ENERGY,  
WASHINGTON, DC, USA

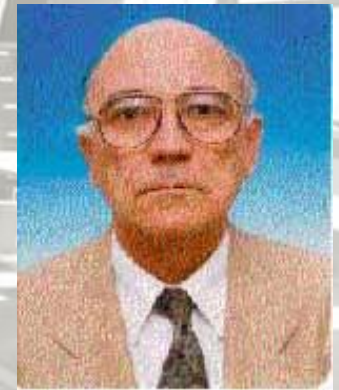




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**PROF. DRRADIVOJE MITROVIC, STATE SECRETARY OF  
THE MINISTRY OF EDUCATION AND SCIENCE**



**PROF. DR OKA, CHIEF SCI JOURNAL  
THERMAL SCIENCE**



**PROF. DR MILAN RADOVANIČIĆ,  
PRESIDENT OF THE SOCIETY OF THERMAL  
SERBIAN**



# International project of the Center: EBRD Western Balkans Sustainable Energy Facility Direct Financing

## Implementers

**FICHTNER**

Germany



Italy



Serbia

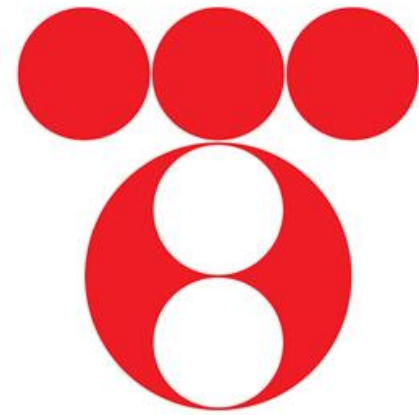
Регионални евро центар за енергетску ефикасност  
Regional Euro Energy Efficiency Center

## Financier of the project



**European Bank**  
for Reconstruction and Development

# Fact Finding Survey on Local Level of Sites and Initial Energy Assessment for Introduction of Energy Management System in the Serbia





# International project of the Center: EBRD Western Balkans Sustainable Energy Facility Direct Financing

## Implementers

**FICHTNER**

Germany



Italy



Serbia

Регионални евро центар за енергетску ефикасност  
Regional Euro Energy Efficiency Center

## Financier of the project



**European Bank**  
for Reconstruction and Development



# National energy efficiency action plan 2009 – module transport



| No | Title of the program/measure  | Category   | Application   | Potential Energy Savings                  | Status of implementation and exact timeframe   | Share in FEC  |
|----|---|--|---|---|--|---------------|
| -  | -   | note 1   | National / Regional / Local                                   | Mtoe                                      | note 2   | %             |
| 1  | 2   | 3  | 4   | 5   | 7  | 8             |
| 1. | <b>CREATING OF ENERGY EFFICIENT TRANSPORT SYSTEMS</b>                               | Information and mandatory information measures   | National, with selected local communities as a pilot projects | not estimated                             | Implementation has not begun yet. The policy will be developed and measure should start with implementation in 2011. | not estimated |
| 2. | <b>PROMOTION OF ECO-DRIVING AND LOW COST ENERGY EFFICIENT MEASURES IN TRANSPORT</b> | Information and mandatory information measures / Focused information campaigns; Training and education | National  | 0.024 Mtoe in 2016 and 0.004 Mtoe in 2011 | Implementation has not begun yet. The policy will be developed and measure should start with implementation in 2011. | 1%            |



Conferences, congress,  
discussions

At the International Conference, Energy 2010. performances by students of Mechanical Engineering, with the following scientific and technical papers:

1. DEVELOPMENT absorption COURT FOR TREATMENT biogas (DEVELOPMENT OF ABSORPTION FACILITY FOR BIOGAS purification) Authors: Marko Jovanovic, Simone Miletic Nikola Šaranović, Milan Filipovic, Nemanja Jankovic, J. Milun Babic
2. DEVELOPMENT OF A NEW FAMILY OF KILN Timber (DEVELOPMENT OF NEW FAMILY TIMBER DRYER) Authors: Milojevic Jelena Milašinović Marko Terzic Marko, Marko Petronijevic, Matovic Nemanja Milun J. Babic
3. Development of biogas plant for curing meat and meat products (DEVELOPMENT OF BIOGAS PLANTS FOR DRYING MEAT AND MEAT PRODUCTS) Authors: Goran Sentić, Dragomir Vranic, Vladimir Vukašinović, Bojan Savic, Nikola Vranic, Milun J. Babic
4. 3D CONCEPT IN THE DESIGN of highly efficient shell and tube FAN (3D CONCEPT IN DESIGN OF HIGH EFFECT FANS) Authors: Bojan D. Savic, J. Milun Babic



# ENERGETIKA 2010.

Međunarodno savetovanje

u organizaciji

**SAVEZA ENERGETIČARA**

pod pokroviteljstvom

Ministarstva rudarstva i energetike,

Ministarstva nauke i tehnološkog razvoja,

Ministarstva životne sredine i

prostornog planiranja,

Ministarstva ekonomije i

regionalnog razvoja,

PKS, JP EPS, NIS a.d. Novi Sad,

JP EMS, JP Srbijagas



Zlatibor,  
23.03. – 26.03.2010.

Drugo obaveštenje

# MASTER

# 2010

On 25 June 2010. , in the Hall building B, which lasted from 08:00 to 15:00 will be held the first scientific-technical conference of students of master study Mechanical Engineering in Kragujevac. This is the first such scientific-technical Conference in Serbia and the first of its kind in Southeastern Europe. All received papers (total of 27 papers) are of high quality. Students of Mechanical Engineering and other interested parties are welcome.





## 5<sup>th</sup> DUBROVNIK CONFERENCE ON SUSTAINABLE DEVELOPMENT OF ENERGY WATER AND ENVIRONMENT SYSTEMS



### **Prof. Milun Babic**

Faculty of Mechanical Engineering Kragujevac  
Kragujevac, Serbia

Milun Babic is corresponding member of Serbian Academy of Engineering Science. Since 1990 he is employed as a full professor at Faculty of Mechanical Engineering, University of Kragujevac, Serbia. During academic career he worked as a lecturer at several Universities and Faculties in the country and abroad. On the Faculty of Mechanical Engineering in Kragujevac, Belgrade, Nis, Pristina and at Faculty of Science in Bor he held undergraduate and postgraduate courses: "Energy and Environment", "Energy and Environmental Project Management", "Process Machinery and Plants", "Turbomachinery", "Hydraulic Power Transmissions", "Computer Application", "Special Pumps", "Fluid Mechanics and Fluid Transport", "Equipment in Hydraulic Facilities", etc. At Faculty of Mechanical Engineering in Kragujevac, besides teaching, he also performed duties of Vice Dean and Dean of the Faculty. He is now Chief of Department of Energy and Process Engineering and director of Regional Energy Efficiency Centre Kragujevac.

Milun Babic is also author/co-author of 265 science, research and scholar papers that are published in national and international scientific journals and conferences, 8 patents, 67 technical solutions-new industrial products and plants (which have patent character and now are integral part of national companies' production). He managed 87 science and R&D projects of regional, national and international importance. He published 8 monographies, 3 university textbooks and mentored 7 PhD theses, 11 master theses, 3 specialists and large number of graduate exams. He was the member of large number of comities for PhD and master thesis at Faculties of Mechanical Engineering in Kragujevac, Pristina, Nis, Belgrade and Novi Sad.

During his career Milun Babic also performed, beside others, several nationality important duties such as: Minister in Government of Republic of Serbia for Coordination of Industry Development, head of Republic Council for Energy Efficiency, member of Scientific Board for Energy Efficiency of Ministry of Science, coordinator and manager of Program of Development Strategy for Implementation of New and Renewable Energy Resources in Republic Serbia - Subprogram MoME for Development Serbian's RES's Strategy for the period 2006-2010., director of National Energy Efficiency Subprogram in Municipal Systems of Ministry of Science, local expert in international team for establishing of Energy Efficiency Agency of the Republic of Serbia and for preparing Energy Development Strategy of Republic of Serbia.







Prof. dr Milorad Bojic,  
Keynote speaker





## ENERGETIKA 2011.

Međunarodno savetovanje ENERGETIKA 2011 održaće se u godini koja po mnogim ocenama treba da predstavlja period od koga će početi da postaju vidljiviji pozitivni efekti strukturnih promena svetske i domaće ekonomije, koji su napravljani sa ciljem da se saniraju posledice svetske ekonomske krize. Iako se u poslovnom svetu najpazljivije prate stanja berzanskog poslovanja i bankarskog sektora, energetičari dobro znaju da su osnove svih ekonomskih i razvojnih politika čvrsto naslonjene na energetske sektor, i da od njegovog kvaliteta, efikasnosti, gradnje novih kapaciteta i sigurnosti snabdevanja energijom zavise svi ostali segmenti ukupnog društvenog razvoja.

Šta karakteriše sadašnje stanje energetskog sektora u Srbiji? Kako će on izgledati u vreme i nakon održavanja međunarodnog savetovanja ENERGETIKA 2011?

Po svojoj prilici, i u 2011. godini srpski energetski sektor ostaje „zarobljenik“ socijalne politike koja svoj oslonac traži u jeftinim domaćim energentima i, posebno, u jeftinoj električnoj energiji! Da li se u takvom okruženju mogu ostvariti planovi razvoja srpskih energetskih preduzeća? Kakva je izvesnost da će sve širomasniji energetski sektor uspeti da obezbedi finansiranje dobro zamišljenih infrastrukturnih energetskih projekata? Gde pronaći kapital za stimulaciju razvoja korišćenja obnovljivih izvora energije i onih subjekata koji dosledno i čvrsto sprovode programe energetske efikasnosti i zaštite životne sredine? Kako obezbediti da domaća energetika ne izgubi korak sa okruženjem, iako je prva uspela da napravi konekciju sa njim.

Ovo su pitanja koja će, po logici stvari, dominirati u raspravama koje će se voditi na međunarodnom savetovanju ENERGETIKA 2011. Od toga kakve odgovore na ta pitanja ponude energetičari Srbije i njihovih gosti na ovom savetovanju, veoma će zavistiti budući razvoj srpskog energetskog sektora i njegova dalja uspešna implementacija u regionalni i globalni energetski ambijent.

No ovo međunarodno savetovanje, po svojoj vokaciji nije nikad bilo takvo da se na njemu raspravljaju samo strateške teme u oblasti analiza/preispitivanja aktuelnih i kreiranja novih strategija i politika razvoja energetike, već je uvek bilo i omiljena tribina na kojoj su stručnjaci sa univerziteta, naučnih instituta i privrede, iz zemlje i sveta, iznosili i diskutovali o svojim naučnim rezultatima, od kojih su oni koji su prolazili recenzentski postupak objavljivani u našem poznatom naučnom časopisu „ENERGUA“. Tako će biti i u toku ovog međunarodnog savetovanja, a očekuje se da će na njemu, i ovom prilikom, dominirati naučni prilazi u sledećim oblastima:

2



- strateško planiranje razvoja energetike i energetska politika (sigurnost snabdevanja, ublažavanje klimatskih promena, društvena i državna podrška planovima rasta energetske efikasnosti, masovna primena obnovljivih izvora energije, razvoj „energetske poljoprivrede i šumarstva“, korišćenje domaćih neobnovljivih resursa, cene energenata i energije, podsticaji, generisanje zapošljavanja u energetskom sektoru, socijalni aspekti);
- analiza energetskih sistema (savremene analitičke metode i alati za modeliranje energetskih sistema, energetske ankete, sistemske analize, rezultati);

- povezanost politike zaštite životne sredine, energetske efikasnosti i optimalnog energetskog razvoja (saobraćajna politika i politika upravljanja vodama u službi poboljšanja energetske efikasnosti, upravljanje otpadom i otpadnim vodama, klimatske promene, postupci smanjenja zagađenja vazduha, vode i zemljišta), međunarodna i regionalna saradnja za razvoj (razvojni mehanizmi u oblasti održivog razvoja, energetike i zaštite životne sredine, mehanizmi čistog razvoja, itd).

- prenos toplote i mase i modeliranja procesa u energetici (CFD i drugi programski paketi u službi povećanja efikasnosti energetske opreme i postrojenja),

- savremeni tehničko-tehnološki izazovi vezani za:

- razvoj opreme, optimalno vođenje procesa, merenja, proaktivno održavanje, i korišćenje primarnih izvora energije (ugalj, nafta, gas, uran, uljni škriljci) u termoelektranama i topilanama (fluidizovani sloj, kombinovani ciklusi, kogeneracija, izdavanje ugljenika i njegovo skladištenje itd.), i u velikim hidroelektranama,

- kogeneraciju (pri proizvodnji toplote, pri tretmanu otpadnih voda, pri proizvodnji biogoriva, pri proizvodnji hrane, pri tretmanu komunalnog otpada), kao i za procese takozvane trigeneracije i poligeneracije,

- razvoj opreme i korišćenje obnovljivih izvora energije (šumska i poljoprivredna biomasa, tečna biogoriva, biogas, vetroelektrane, solarni uređaji, geotermalni sistemi, toplotne pumpe, vodonik, komunalni otpad),

- podizanje energetske efikasnosti u zgradarstvu, industriji, saobraćaju, poljoprivredi i domaćinstvima,
- razvoj opreme i korišćenje nuklearne energije (nove elektrane, dizajn, otpad, proliferacije, politike, socijalni aspekti),

- za razvoj opreme i korišćenje tzv. naprednih održivih sistema za konverziju energije (gorive ćelije, termo-električni sistemi, termo-elektronski sistemi, organski sistemi),
- razvoj i korišćenje energetske efikasnih hibridnih i električnih vozila, itd.

- energetska tržišta (liberalizacija, regulacija, skladištenje, neobnovljivi i obnovljivi izvori, spajanja i

3



akvizicije, modeliranje),

- tržišta emisija (ETS, ugljenik, GHG, SOx),
- inteligentne elektroenergetske mreže,
- transfer energo-tehnologija i razvoj (tržišta i nove mogućnosti visoko razvijenih zemalja, zemalja u razvoju i nerazvijenih zemalja),
- obrazovanje i kadrovi za održivi razvoj (ekološka i energetska svest, razvijanje nauke o energetici i održivom razvoju u osnovnim i srednjim školama i na univerzitetu, poželjni energetski profil, doktorske studije i istraživački rad, permanentno usavršavanje znanja, saradnja energoprivrede i nauke).

U okviru Međunarodnog savetovanja ENERGETIKA 2011 planiraju se:

- uvodna pozivna predavanja, oralne prezentacije, poster prezentacije, promotivno-marketingne prezentacije i izložbe o ergo-dostignućima u energoprivredi, industriji, komunalnim sistemima, saobraćaju, zgradarstvu, obnovljivim i novim izvorima energije itd.,
- studentski akademski projekti,

**I tri okupila stala sa našim stalnim temama:**

- Mogu li energetski sektor i privreda Srbije da normalno funkcionišu i ispunjavaju strateške zadatke sa važećom politikom cena energije i energenata?

- Ostvarenja i zadaci na planu podizanja energetske efikasnosti i korišćenja novih i obnovljivih izvora energije u Srbiji,
- Inovacije u energetici.

Posebna pažnja na savetovanju ENERGETIKA 2011 biće posvećena mladim istraživačima, jer SAVEZ ENERGETIČARA smatra da je njihova priprema i uvođenje u privredne i društvene tokove od presudnog značaja za razvoj Srbije. Zbog toga ćemo i ovom prilikom organizovati STUDENTSKI ENERGETSKI FORUM (prezentacija studentskih radova i ostvarenja i selekcija najuspešnijih) i potruditi se da podstaknemo energetske kompanije da na ovom savetovanju započnu sa formiranjem „BERZE POSLOVA ZA MLADE ENERGETIČARE“. Na savetovanju ENERGETIKA 2011 biće svečano uručena priznanja za razvojne i naučno-istraživačke doprinose i diplome sa novčanim nagradama za nagrađena studentska ostvarenja.

*Predsednik Organizacionog odbora Milun Bobić*

 energija

 ekonomija

 ekologija

# ENERGETIKA 2011.

**Međunarodno savetovanje**

**u organizaciji**

**SAVEZA ENERGETIČARA**

**pod pokroviteljstvom**

**Ministarstva rudarstva i energetike,**

**Ministarstva nauke i tehnološkog razvoja,**

**Ministarstva životne sredine i**

**prostornog planiranja,**

**Ministarstva ekonomije i**

**regionalnog razvoja,**

**PKS, JP EPS, NIS a.d. Novi Sad,**

**JP EMS, JP Srbijagas**



**Zlatibor,  
22.03. – 25.03.2011.**

**Drugo obaveštenje**



# ASHRAE student branch Kragujevac University-Danube



# Festival of energy efficiency

Let's play with **three E** (Energy, Ecology, Economy)  
One day within Festival of energy efficiency organized  
for kindergarten children in the RECEE - Kragujevac





# Festival of energy efficiency

Members of the Serbian Government, Ambassadors,  
and other in City Hall of Kragujevac



ON APRIL  
IN KRAGUJEVAC



# Workshop for representatives of municipalities of central Serbia

“Energy efficiency in municipalities”



# Students practice and visits

## **ARTICLE STUDENTS MECHANICAL ENGINEERING IN TAKOVSKI GAZETTE**



A group of students of Mechanical Engineering, Jasmine Miković, Sandra Velickovic, Slavica Mačužić and Milica Djedovic in the seminar in the subject "Energy and Environment"

## **VISIT "JAGODINA BREWERY"**



Graduate academic students - master studies of Mechanical Engineering, Department of Energy and Process tehniniku, within the course of energy and eco-management, visited the production facilities "Jagodina Brewery"

## **VISIT TECHNICAL COLLEGE IN POZAREVAC**



High School tehnikčka from Pozarevac realized part of the demonstrative teaching of the subject machine materials in a lab of Mechanical Engineering in Kragujevac.



# Students practice and visits

## INFORMATION ON PARTICIPATION OF STUDENTS AT THE MEETING OF DANUBE BRANCH ASHRAE-A in Timisoara.



Organized by Prof.. Milorad Bojic, five students (members of the student branch of Mechanical University) participated in the 15-16 April 2010 in Romanian of Thermal Conference in Timisoara ,and 16 April 2010 at a meeting of the Danube ASHRAE Then they presented their work competently and so very authoritative representoali our faculty.

## MR PATOU - PARVEDY ALEXANDRE



Mr. Patou - Parvedy Alexandre (pictured pouring valve factory Herz in Vienna) as of 1 February 1st September 2010. year. is the practice of Mechanical Engineering in Kragujevac, the Centre for heating air conditioning and solar energy under the mentorship of Prof. Milorada Bojic . Mr. Patou Master graduate student from France at the University of Reunion, where he attended School of Civil Engineering, Department of Physics buildings. We wish Mr. Patou successfully carry out the practice and to take the internship for all the best impressions of our country.

# Students practice and visits

## VISIT HOLCIM



On Tuesday, 16 February 2010. The team of experts of the Regional Euro Energy Efficiency Centre Kragujevac, visited and toured, along with representatives of the Japan International Cooperation Agency (Japan International Cooperation Agency - JICA) and the company Tokyo Electric Power Company (Tepca) cement plant Holcim (Serbia) Ltd. in Popovac. The visit was organized within the "Fact-Finding Survey on Level of Local Sites and Initial Energy Assessment for Sothern Serbia for the Study for Introduction of Energy Management System Energy Consumption in Sectors in the Republic of Serbia".





Books published by Center



Doc. dr inž. Milan Despotović  
Prof. dr inž. Milun Babić

# Energija biomase



LEGENDA  
2007

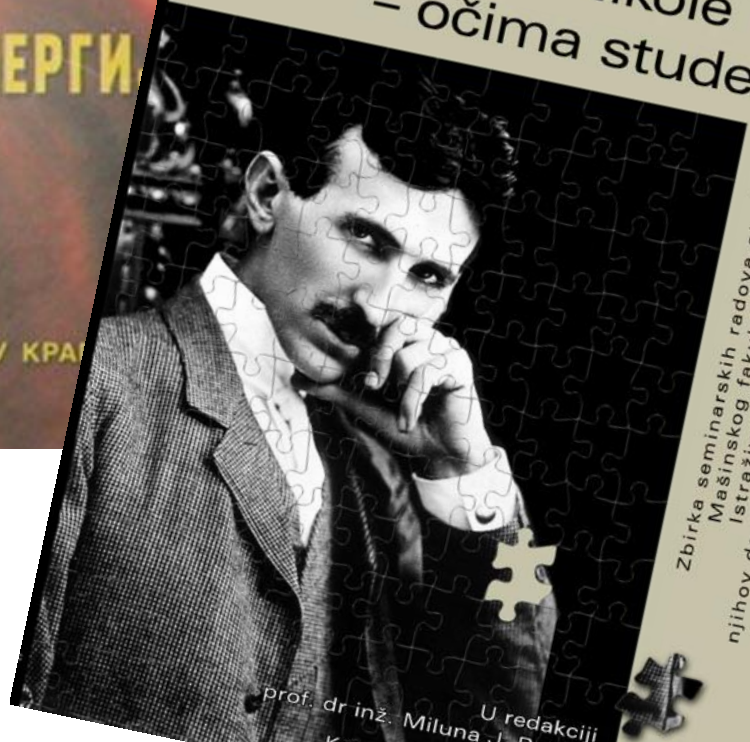
Небојша Лукић  
Милун Бабић

# СОЛАРНА ЕНЕРГИЈА

МАШИНСКИ ФАКУЛТЕТ У КРАЈЕВОЈ

## Ideje i dela Nikole Tesla - očima studenata

Univerzitet u Kragujevcu  
Mašinski fakultet



Zbirka seminarskih radova studenata  
Mašinskog fakulteta iz predmeta  
Istraživački izazovi 21. veka kao  
njegov doprinos obeležavanju 150  
od rođenja

U redakciji  
prof. dr inž. Miluna J. Babić  
Kragujevac

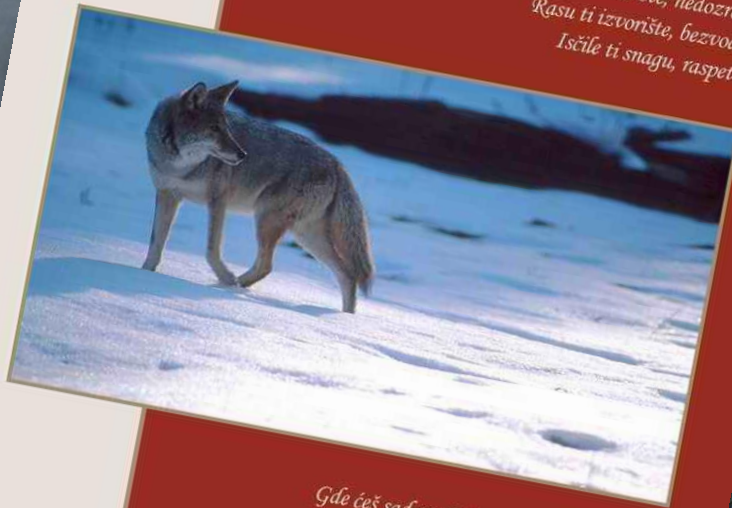
Вања Шуштершич  
Милун Бабић

ГЕОТЕРМАЛНА ЕНЕРГИЈА  
- енергија природних и вештачких  
извора топле воде -

Машински факултет у К  
2009.

Milun J. Babić  
**OSVRTI  
U KORACIMA**

*"Reč ti se ote, nedozreli?  
Rasu ti izvorište, bezvodi?  
Isčile ti snagu, raspeti?"*



*Gde ćeš sad pogledom da udariš, bezvodi?  
Čim ćeš da zaiskriš, ugasi?  
Kako novu reč da ispiliš, jajolikij?"*

$$Q = K \cdot A \cdot \sqrt{\frac{E}{\rho}} \cdot \sqrt{\Delta p}$$

Dušan Go

**ENOS SNAGE FLUIDOM  
- HIDRAULIKA**

teorijski osnovi, matematički modeli, rešeni primeri



$$\eta_v = \frac{P_1 - P_2}{P_1} = \frac{Q_1 - Q_2}{Q_1}$$





## SPECIAL PROMOTION OF THERMAL SCIENCE

On Monday 01 November 2010. beginning at 12.00 am in the Hall building B was presented a special number of Thermal Science, which is dedicated to marking the fiftieth existence of Mechanical Engineering in Kragujevac. The guests were welcomed dean. Miroslav Babic, about the journal and published works were:

- **Prof. Dr. Simeon Oka**, head editor of Thermal Science,
- **Prof. Milan Radovanovic**, president of the Society of Thermal Engineers of Serbia, where the shelter out of this magazine,
- guest editor of special issue of Thermal Science, prof. Dr. Milun Babic,
- **Prof. Dragoslav Šumarac**, president of the Chamber of Engineers and a member of the honorary committee for the celebration of Mechanical Engineering,
- **Prof. Dr Adriana Manea**, Hydraulic Machinery Department, Mechanical Engineering Faculty, "Politehnica" University of Timisoara, author of the paper.

In this special issue was published 25 scientific papers that have undergone the usual rigorous peer-reviewing procedure that is Thermal Science and led to the position of the most renowned international SCI journals in the field of thermal and energy, with the publication of any scientific work in his research is an important event not only for domestic researchers, but also for researchers from around the world. Scientific papers published in this special issue of Thermal Science, written by research teams from our faculty and faculty from the country and abroad with whom we cherish long-term successful scientific - research and academic cooperation.





Books published by Center

# THE "NIKOLA TESLA"



At a special Academy on 15 4. 2009th in the conference room of the Civil Engineering Faculty of the Association of university professors and scientists of Serbia awarded the prize "Nikola Tesla" **Dr. Milun Babic** professor of Mechanical Engineering in Kragujevac.



**DR MILORAD BOJIC ELECTED VISITING PROFESSOR**

Professor of Mechanical Engineering in Kragujevac Milorad Bojic was elected visiting professor at the University of Reunion, France.



Удружење  
универзитетских професора  
и научника Србије

додељује

**НАГРАДУ**

"Проф. др Војислав К. Стојановић"

**Др Милуну Бабићу**

редовном професору Машинског факултета Универзитета у Крагујевцу

за допринос раду и развоју

Удружења универзитетских професора и научника Србије  
у вишегодишњем периоду

У Београду,  
9. јуни 2010. године

Председник  
Др Милеико Јевтић

БЕОГРАД, ШАФАРИКОВА 7

Special Prize of the  
Association of Serbian's  
professors and scientists  
awarded Prof. Dr. Milun  
Babic 9th June 2010. year.



# THANK YOU FOR YOUR ATTENTION

