

Towards 2020:

New Horizons for RTD and Innovation in the Western Balkan Region

WBC-INCO.NET Final Conference & Brokerage Event

Tech Gate Vienna / Donau-City-Straße 1 / 1220 Vienna / Austria

Parallel Session 3:
Focus on Secure, Clean and Efficient Energy

Current State-of-art of Energy Saving Research and Possible Future Priorities

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About us

- ▶ 1GT- R&D Centre of Gas Technology, in operation since 1989
 - ▶ Projects, studies, research and consulting in the field of gas industry, EE, RES, including project development in EE and RES; Education and trainings in the field of gas industry within Gas Industry Training Centre; Laboratory and on-site testing of gas appliances and industry plants; Publishing, conference and symposium organisation, market research
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Introduction

- ▶ Energy saving research is a specific multidisciplinary area of research, especially its application (applied research)
 - ▶ Cooperation with industry, material and building's component producers, building owners is usually needed and required
 - ▶ Energy could be saved, to some extent, at different levels of society and/or economy sectors (one home, one settlement, one factory, one public/commercial building, one city, one region, one country), but somebody have to make priorities
 - ▶ If we have problems (anywhere, in research too), we usually asked ourselves 1 question (Do we can do that?) and have 2 answers (Yes, we can! or No, we can't!), it means:
 - ▶ 1. Why is it so hard to say: "Yes, we can!" Because, it sounds like promise and means: We will do everything to make something!
 - ▶ II. Why is it relatively easy to say:"No, we can't". Because, it is without any obligations, and means: We don't need to try to do
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- ▶ 4 anything!

Caractheristics of the current state on energy saving research

- ▶ Bosnia and Herzegovina and WBC, generally have very bad energy efficiency indicators (primary and final energy intensity, efficiency of power plants, %CHP in power capacity, etc.) – it means, opportunity for action in the field of EE is there!
- ▶ BiH and WBC are in the process of transposition and implementation of EE and RES legislation and they have to fulfil a lot of goals (defined by NEEAP, NREAP, etc) – it means, obligations in the field of EE are also there!
- ▶ But, what is not there, and it should be? A lot of things
- ▶ 1. Organisation, generally (state structure; science, R&D and education strategy and priorities, ...)
- ▶ 2. Capacity, generally (authorities at all levels, universities, R&D centres)
- ▶ 5 ▶ 3. Ideas....

Caractheristics of the current state on energy saving research (cont.)

- ▶ Generally, financial support is several times lower than before 1990th
- ▶ Generally, no science and R&D strategies, or they are usually not in compliance with development strategy
- ▶ Energy saving research was not enough understood for a long time, and was not a prioritiy by states, but also by scientific and R&D centres
- ▶ Partially approach in research has usually applied Dilemma: who energy saving research belong to? Who will be a leader?
- ▶ No systematic approach,..... results are usually known and used by a small groups and not by community
- ▶ Research was mostly on the energy (electricity) production side
- ▶ Very slow transposition and implementation of EU legislation on EE and RES

Future priorities of energy saving research

- ▶ Impact of energy saving on: environment, society, building products industry, RES, energy dependence, etc. could be possible areas for the research
- ▶ Energy efficiency in district heating systems could be also interesting field for energy savings research
 - ▶ It would also include fuel switch (from coal and fuel-oil to biomass and biogas, use of municipality waste, possibility for district cooling, energy management in connected buildings, that's introduction of a functional closed loop within the supply chain)
- ▶ 3 examples (2 specific and 1 general approach)

A model for energy saving research in public buildings

- ▶ Apply EE measures at your place (backyard)
 - ▶ possibility to get and promote results of the implementation of EE measures (especially, smart building, green office, energy management) from own building to public and commercial buildings generally
 - ▶ If you apply EE measures at your Faculty, Institute, R&D Centre, than you can say:
 - ▶ We do that on **our building**, and now, can learn **our students** about that!
 - ▶ We do that, and now, **can help** other public building owners to do that!
 - ▶ We do that, and now, **are really saving** money and protect environment!
 - ▶ We do that as **first in our city/region/country**, we know how to do that, and now, can **show everybody** the **real effects** of the
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- ▶ 8 realized EE activities

A model for inter-city (inter-regional) cooperation

Example from an EU country

City A has a steel industry, a DHS (CHP) based on coke gas and MSW (not used)

City B has a paper industry, DHS from paper industry, MSW (not used)

City C has no industry, but **has** DHS based on its and MSW from neighbouring cities and wooden waste

A (regional) state university from City A is a support for all cities, and the state authorities take into account their research results

Why is there synergy between cities, state and university? win-win-win model

Example from BiH (or any WBC)

City A has a steel industry, a DHS based (partially) on coke gas and MSW (not used), intention to build CHP as PPP model

City B has a TPP (CHP partially, heat surplus), DHS from TPP, MSW (not used)

City C has no industry, **no** DHS, but **has** MSW and wooden waste from SME and forestry

A (regional) state university from City A is a support for all cities, but not good enough, and the state and municipality authorities don't not take into account their research results

Why is there no synergy between cities, state and university????



A general model for a cooperation and networking (a real example)

- ▶ Research idea by individuals from one faculty – multidisciplinary research (researchers from other faculties, and financial resources are needed)
 - ▶ Discussion and involvement of another faculty (from the same university), but financial resources are still needed
 - ▶ A small enterprise is included (it is interested in research results due to extension of own business) and the realisation is possible
 - ▶ Project is under realization, it will get results and it is an example of win-win approach (but not win-win-win approach, even it could be, because state is nowhere)
 - ▶ A couple of logical questions come from the abovementioned example:
 - How to find an appropriate scientific, R&D centre interested in your research (from your and/or neighbouring and/or EU country)?
 - How to find an appropriate small/medium enterprise interested in your research (from your and/or neighbouring and/or EU country)?
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New approach to energy saving research

- ▶ Integral multidisciplinary approach
 - ▶ To some extent, more or less, energy saving research belongs to all areas of research (technology, economy, nature science, social, psychology,)
- ▶ Establishment of centres of excellence (referent centres) in the different countries of WBC (one centre per country)
 - ▶ They would be established for different subjects (EE in buildings, EE in industry, EE in transport, new materials, social and environmental impact)
 - ▶ They could be established within the existing institutions
 - ▶ They have to be the most referent in their areas of practice
 - ▶ They would be a core of research and business for WBC and connection to EU's similar centres (institutions)
 - ▶ EU could support these centres through the first 3-4 years period

Conclusions

- ▶ Energy saving research should get a common framework within universities, including curricula
- ▶ Universities should make networking with other R&D institutions and industry inside a country as well in the region
- ▶ Academician and researcher have to force and help authority to transpone and implement EU legislation on EE and RES – it could mitigate and help them in research and cooperation with industry (faster transposition and implementation of this regulation could improve and ambient for energy saving research), but it could also be better opportunity for investors
- ▶ Authorities at all levels should be included and support these processes through defining common priorities and use the research results
- ▶ Money is not always the main obstacle - Absence of a authorities' (state's) support (including research goals and priorities, and networking of researcher) is often bigger problem than absence of resources

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Thank You For Your Attention!

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