Project co-funded by European Union funds (ERDF)

Interreg
Danube Transnational Programme
ENERGY BARGE

ENERGY BARGE

Building a Green Energy and Logistics Belt

Zagreb, 2018-01-18

Thies Fellenberg
Agency for Renewable Resources

25 JAHRE FNR

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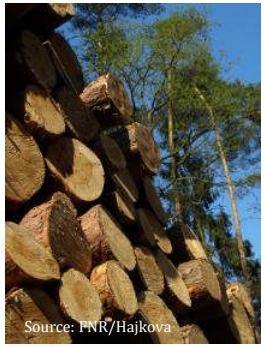
Agenda, National Workshop

09:00 – 09:15	**ENERGY BARGE – Welcome & introduction (scope and objectives)**	**Marko Ban** (SDEWES Centre), **Thies Fellenberg** (Fachagentur Nachwachsende Rohstoffe e.V.)
09:15 – 10:00	**Key note presentations**	
	Croatian biomass sector	***Croatian Wood Cluster***
	Croatian Danube logistics sector	***Dunavski Lloyd***
10:00 – 10:30	**Projects from the Danube region**	
	1. Made in Danube	**Ana Bošković** (Vukovar-Srijem County Development Agency VSC DA)
	2. 3Smart	**Mario Vasak** (University of Zagreb)
	3. Danube-INCO.NET	**Peter Canciani** (Central European Initiative)
10:30 – 11:00	*Coffee break*	
11:00 – 12:20	**Discussion forum**	Moderation by:
	incl. short statements from external stakeholders	**Ann-Kathrin Kaufmann** (BioCampus Straubing GmbH), **Simon Hartl** (viadonau)
12:20 – 12:30	**Summary & conclusion**	**Marko Ban, Thies Fellenberg**
12:30 – 13:15	*Lunch*	
13:15 ~ 16:00	**Site visits**	
	1. Power Plant	
	2. Port of Sisak (2 sites)	

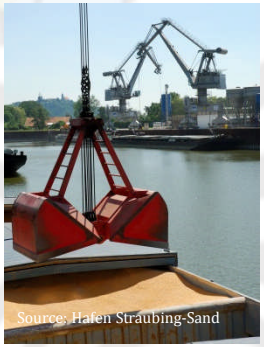
Main objectives

→Foster the use of biomass for energy production in the Danube region

→Increase the share of biomass transports on the Danube


Source: FNR/Hajkova


Source: FNR/Petersen


Source: Hafen Straubing-Sand

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ENERGY BARGE

Project overview

Start date: 01/01/2017
End date: 30/06/2019

Budget

Overall: 2,323,519.65 Euro
ERDF Contribution: 1,974,991.67 Euro

15 Project partners
8 Associated partners

Specific Objectives

1) Map value chains and facilitate market uptake of biomass for energy production

2) Sustainable and secure distribution of biomass

3) Provide practical solutions and policy guidelines (→ market actors, public decision-makers)

Source: FNR

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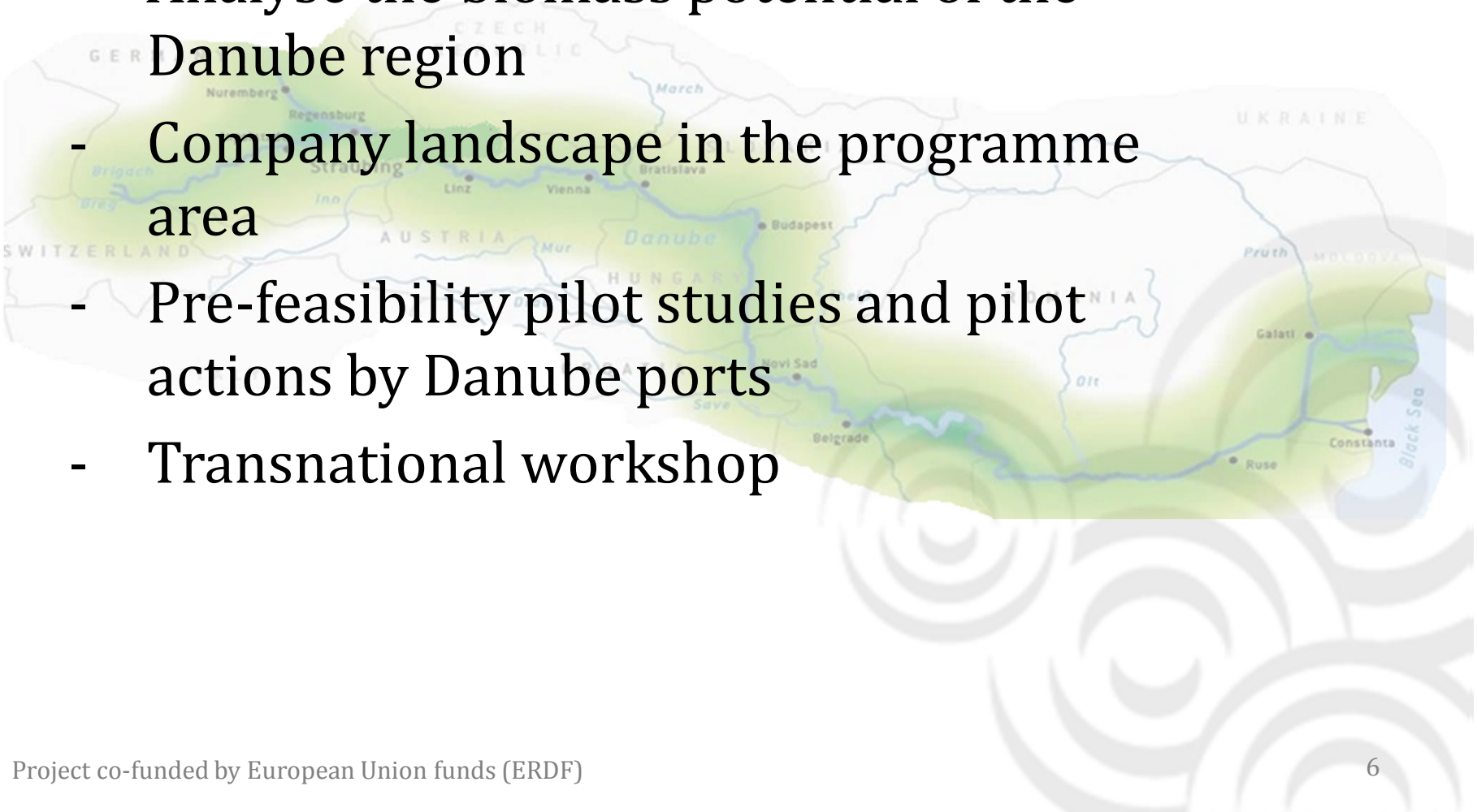
Methodology

- Analyse the biomass potential of the Danube region
- Company landscape in the programme area
- Pre-feasibility pilot studies and pilot actions by Danube ports
- Transnational workshop



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Pilot projects in ports

Ports of Budapest & Vienna

- **Pre-feasibility studies** to strengthen ports as logistics hubs for the bioenergy sector

- **Small-scale investments:**
  - Forklift to handle biomass of different commodity groups
  - Conveyor belt system for the central unloading of railway wagons and loading/unloading of ships

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Thank you for your attention!

www.interreg-danube.eu/energy-barge

Facebook: www.facebook.com/energybarge
Twitter: @Energy_Barge
LinkedIn: Energy Barge

Project co-funded by European Union funds (ERDF)

CROATIAN WOOD CLUSTER

- Association of companies in forestry and wood-processing industry
- Daughter associations
  - CROBIOM
  - Association of parquet producers
- More than 80 members
- Bootom-up approach
- Triple helix model

GOALS:

- Long-term sustainable and competitive sector
- Encouraging research, the knowledge and technology transfer, the implementation of innovation in the wood industry and forestry
- Fostering investments in the sector

ACTIVITIES:

- Events organization
- Publishing professional magazines
- Monthly newsletter
- The coordination of common positions and lobbying towards national and EU decision-makers

MAGAZINES

wood & furniture

- Independent informative magazine of the wood processing industry in SEE
- News on market conditions in: forestry, woodprocessing, furniture production etc.

- Specialized magazine addressing the issues of private forest management
- For private forest owners and holders
- News from the forestry sector with emphasis on the private forests management

EVENTS

- Gather different stakeholders at one place
- Discuss current market, political, production and educational issues
- Vivid discussions and exchange of ideas
- Propose conclusions and recommendations – basis for further decision making

EVENTS


2017.
KUPRES


WOOD
TECHNOLOGY
CONFERENCE


2017
DUBROVNIK
ADRIATIC
WOOD DAYS

NATIONAL ADVOCACY ACTIONS

Constant communication towards

- Relevant institutions:
  - Meetings
  - Position papers
  - Notes
- Companies & interested public:
  - Press releases
  - Media coverage

CROBIOM
CROATIAN BIOMASS ASSOCIATION

Priopćenje: SVE VEĆI PRITISAK NA BIOMASU NA RAZINI EU!

Hrvatska udruga biomase CROBIOM sudjeluje u konzultacijama oko najavljenih izmjena europskog energetskog zakonodavstva, koje uključuje izmjenu Direktive o obnovljivim izvorima energije (RED) i opsežan energetsko-klimatski paket zakona kao i paket zakona o kružnom gospodarstvu. Sektor očekuje donošenje rješenja koja će stabilizirati ulaganja i osigurati nastavak poticajnih energetskih politika.

Ulaganje u obnovljive izvore energije za mnoge je gospodarske subjekte, temeljem vrlo poticajne europske regulative otvorilo velike mogućnosti za poslovni rast i profitabilno poslovanje, stoga je u proteklom desetljeću u Hrvatskoj zabilježena pojava preko 200 različitih ulagačkih projekata, a jedan dio njih je izgrađen ili je u fazi realizacije. Radi se o ulaganjima u proizvodnju konjunkturnih energenata iz drva poput peleta ili sječke te o proizvodnji električne energije iz drva kroz kogeneracijska postrojenja.

Hrvatska regulativa OIE je relativno novi dio zakonodavstva i trebala je u svom nastanku slijediti EU energetske smjernice, pa će najavljene izmjene europskog energetskog paketa logično podrazumijevati i promjene postojećih zakona i podzakonskih akata. S druge strane, nevladin sektor i strukovne udruge u više su navrata zatražile temeljite promjene u cijelom paketu OIE zakonodavstva u RH, dok s druge strane zbog sporosti administracije dio podzakonskih akata niti nije usvojen što koči dio investicija i operativne poslovne subjekte u sektoru.

U tijeku su završne pripreme Europske komisije za objavljivanje prijedloga nove Direktive o obnovljivim izvorima energije (RED) i mnogobrojne europske sektorske asocijacije udružene u Europsku udrugu biomase AEBIOM izražavaju zabrinutost nekim najavljenim zakonskim rješenjima. Prije svega to se odnosi na nagovještene mogućnosti da se kreiraju različite energetske politike i obvezujuća mišljenja na nacionalnim razinama, što razbija europski harmonizirani pristup. AEBIOM se zalaže za princip usklađivanja - harmonizacije, a danas je upućeno pismo potpredsjedniku Komisije Šefčoviću te povjerenicima Cañete-u i Hogan-u koje uključuje sektorska stajališta, odnosno pozicije europskog sektora kojeg AEBIOM predstavlja. Udruga je zabrinuta jer još nije primila službenu obavijest o tome hoće li kriterij održivosti biomase biti uvršten u novu regulativu.

CROBIOM je u sklopu podrške aktivnostima AEBIOM-a identificirao ključne aspekte koji bi mogli postati pozitivni temelji za ove politike: smanjenje stakleničkih plinova za sve oblike bioenergije kao jedan od kriterija ili princip procjene rizika za šumsku biomasu.

Osim Direktive o OIE koja bi prema nekim neslužbenim izvorima mogla biti objavljena već do kraja studenog, Komisija navodno priprema i cijeli set povezanog zakonodavstva: Direktivu o promociji energije iz OIE, Direktivu o zajedničkim pravilima unutarnjeg tržišta električne energije, te niz regulatornih dokumenata koja uređuju sektor električne energije, npr. osnivanje Europske agencije za suradnju energetskih regulatora, itd.

Hrvatska udruga biomase CROBIOM je punopravni član AEBIOM-a i kroz rad svojih stručnjaka daje konstantan doprinos pronalasku novih rješenja, radi na sustavnom praćenju europske legislative te radi na analizama tržišnog okruženja i zalaže se za povećanje udjela iz OIE i veće korištenje drvnih goriva.

IZJAVA: Raoul Cvečić Bole, predsjednik CROBIOM
Najavljena izmjena EU zakonodavstva na području energetike je pobudila veliko zanimanje stručnih krugova u Europi. Prošli tjedan je naša delegacija CROBIOM-a boravila u Bruxellesu i kroz naša operativna tijela europske udruge biomase AEBIOM raspravljali smo o nizu mogućih scenarija, prije svega oko budućnosti obnovljivih izvora energije, te pozicije biomase, što nas najviše zanima. Nameće se zaključak da je drvo i drvna biomasa pod velikim pritiskom fosilnih lobija te dijela proizvođača OIE poput vjetra, a upravo te interesne skupine neutemeljeno osporavaju održivost drva i neutralni utjecaj na okoliš. S druge strane, važno je da se i dalje ohrabruju ulagači u ovaj sektor za nastavak i realizaciju njihovih projekta i povećanje udjela OIE u ukupno proizvedenoj energiji.

S poštovanjem,

CROBIOM - Hrvatska udruga biomase

HRVATSKI DRVNI KLASTER

- PRIOPĆENJE -

Drvni klaster i Hercegbosanske šume zajednički u Austriju i Sloveniju po europske projekte

Europski put Bosne i Hercegovine bit će najlakše ostvariv kroz konkretnu realizaciju europskih projekata, smatraju u javnoj tvrtki za gospodarenje šumama Hercegbosanske županije sa sjedištem u Kupresu. Nastavno na dosadašnju uspješnu suradnju s Hrvatskim drvnim klasterom organizira se studijska posjeta u Austriju, tijekom koje će se izmijeniti projektna stajališta i ideje s Odjelom za šumarstvo štajerske poljoprivredne komore, Austrijskim državnim šumama, Udruženjem šumarstva, štajerskim Holzclusterom te upriličiti sastanak s jednim od najvećih austrijskih šumovlasnika i drvoprerađivača Mayr Melnhof. Posjetit će se i tvornica i pogoni tvrtke European Hardwood Production, najvećeg austrijskog prerađivača tvrdog drva čiji su proizvodi globalno orijentirani i traženi. Svi potencijalni partneri već imaju bogato iskustvo sudjelovanja u europskim i međunarodnim projektima i oni također traže proširenje baze projektnih partnera u jugoistočnoj Europi. Osim Austrije, posjetit će se i važne sektorske institucije u Ljubljani, uključujući Biotehnički fakultet, Gospodarsku komoru te Slovenski institut za šumarstvo. "Naš interes je daljnje intenziviranje međunarodne suradnje i uključivanje u nove EU projekte, a tijekom ove godine intenzivno radimo na konkretizaciji novih projektnih ideja s više zainteresiranih međunarodnih partnera iz Hrvatske, Slovenije, Njemačke, Austrije i Italije", rekao je Matko Knežević, koordinator EU projekata u Hercegbosanskim šumama. Interes postoji u područjima zaštite šuma, unaprjeđenja rasadničarske proizvodnje i većeg korištenja biomase, ali i u projektima koji će ostvariti benefite za našu širu društvenu zajednicu. Posebno zanimljiva tema šumarskim stručnjacima na Kupresu je smanjenje utjecaja klimatskih promjena i nisko-ugljičnih emisija te trgovanje CO2 kvotama, što je na području zemalja jugoistočne Europe za sada projektno neobrađeno područje bez većih iskustava.

Hercegbosanske šume su nositelji prestižnog FSC certifikata i članica su europske asocijacije državnih šuma EUSTAFOR sa sjedištem u Bruxellesu te po rezultatima i pristupu spadaju u red najuspješnijih i najperspektivnijih šumarskih tvrtki u Bosni i Hercegovini. Dosadašnja iskustva u europskim projektima su respektabilna, a koristi od sudjelovanja u mnogobrojnim međunarodnim projektima su za tvrtku mjerljive na više načina. Vrlo konkretni učinci međunarodnih projekata bili su vidljivi prošli tjedan na pokaznoj vježbi gašenja požara s Oružanim snagama BiH pod nazivom "Pomoć civilnim strukturama pri gašenju požara". Na vježbi su sudjelovali s opremom financiranom u sklopu europskog projekta ForestEye, koji ima za cilj poboljšanje kvalitete života u pograničnim područjima Splitsko-dalmatinske županije te Hercegbosanske županije, prije svega smanjenjem šteta/rizika od prirodnih katastrofa izazvanih šumskim požarima te povećanjem socijalne kohezije u lokalnim zajednicama.

Studijska posjeta će započeti današnjim sastankom Hercegbosanskih šuma i Klastera Hrvatskom šumarskom institutu u Jastrebarskom, gdje će se također razmatrati mogućnosti za kreiranje zajedničkih projektnih projedloga koji će biti kandidirani u Bruxellesu te na otvorenim europskim natječajima. Više na www.hbsume.ba i www.drvniklaster.hr

HRVATSKI DRVNI KLASTER
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TOWARDS THE EU INSTITUTIONS

Cooperation with MEPs

TOWARDS THE EU INSTITUTIONS

Participation in Commission’s WGs

TOWARDS THE EU INSTITUTIONS

The first business delegation in the Croatian Mission to the EU

MEMBERSHIP

AEBIOM
EUROPEAN BIOMASS ASSOCIATION

MEMBERSHIP

LOBBYING

- The decision making process seeks the cooperation of all parties, including **lobbyists** and political decision-makers
- the NGO sector is not satisfied with the results, so it is trying a lot to improve the situation
- Policymakers need specialized information and lobbyists supply this in the exchange for political influence

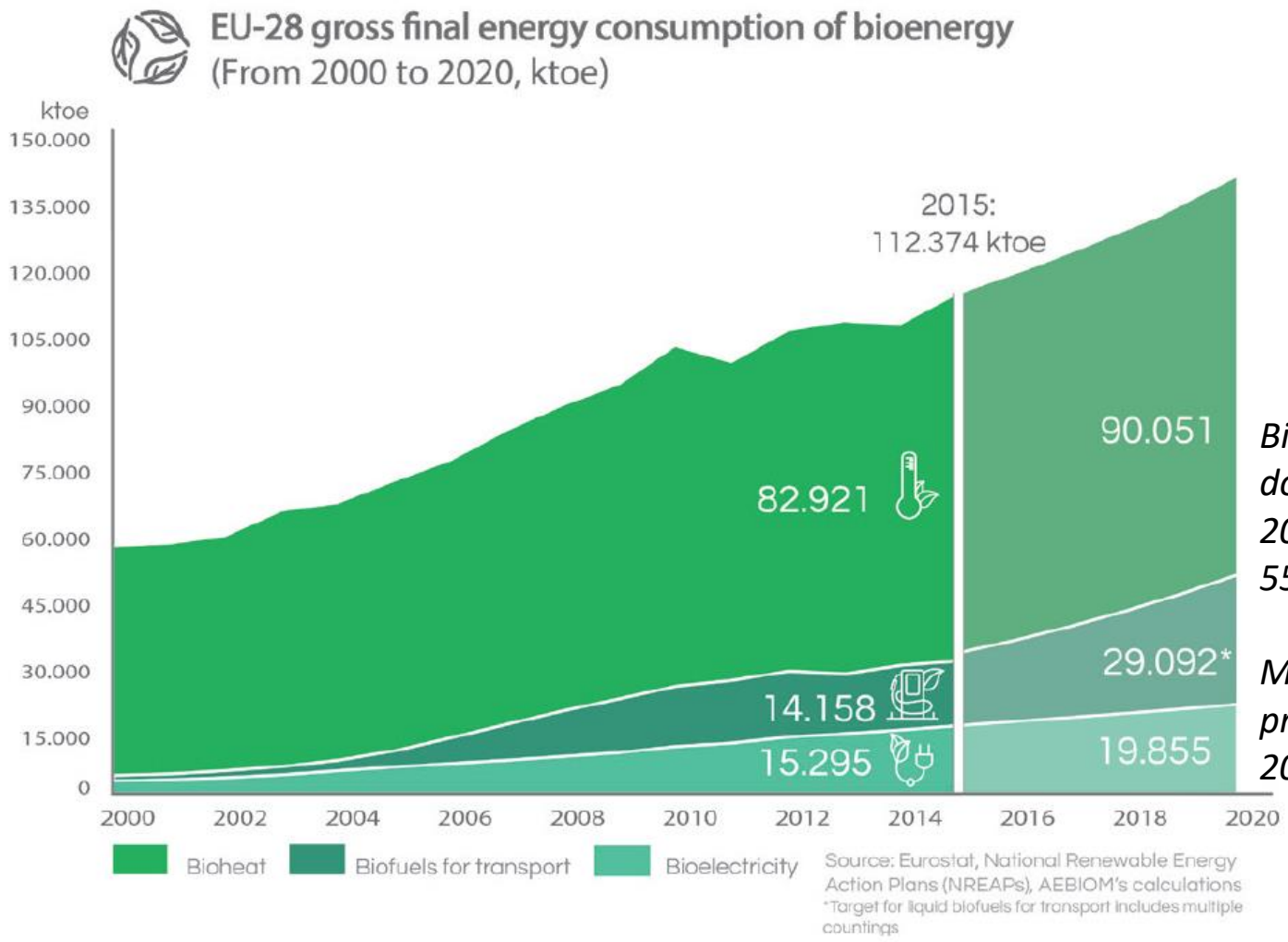
LOBBYING

- **Framing** - specific language employed to gain the desired policy results
- Forest based industry lobbying stands out with a strong and unified voice of its interest groups
- **Positive gains:** Lobbying efforts of various industrial associations and NGOs have helped the EU to become the world leader in the economy, human rights, foreign aid and climate change

LOBBYING

- Lobbying is a very important challenge for the EU future, especially in the policy making and legislative area
- Lobbying is often mixed up with **corruption**
- On the other hand, lobbying can also help to protect the interests of minorities
- Where is the limit between corruption and lobbying and how could the system be improved?

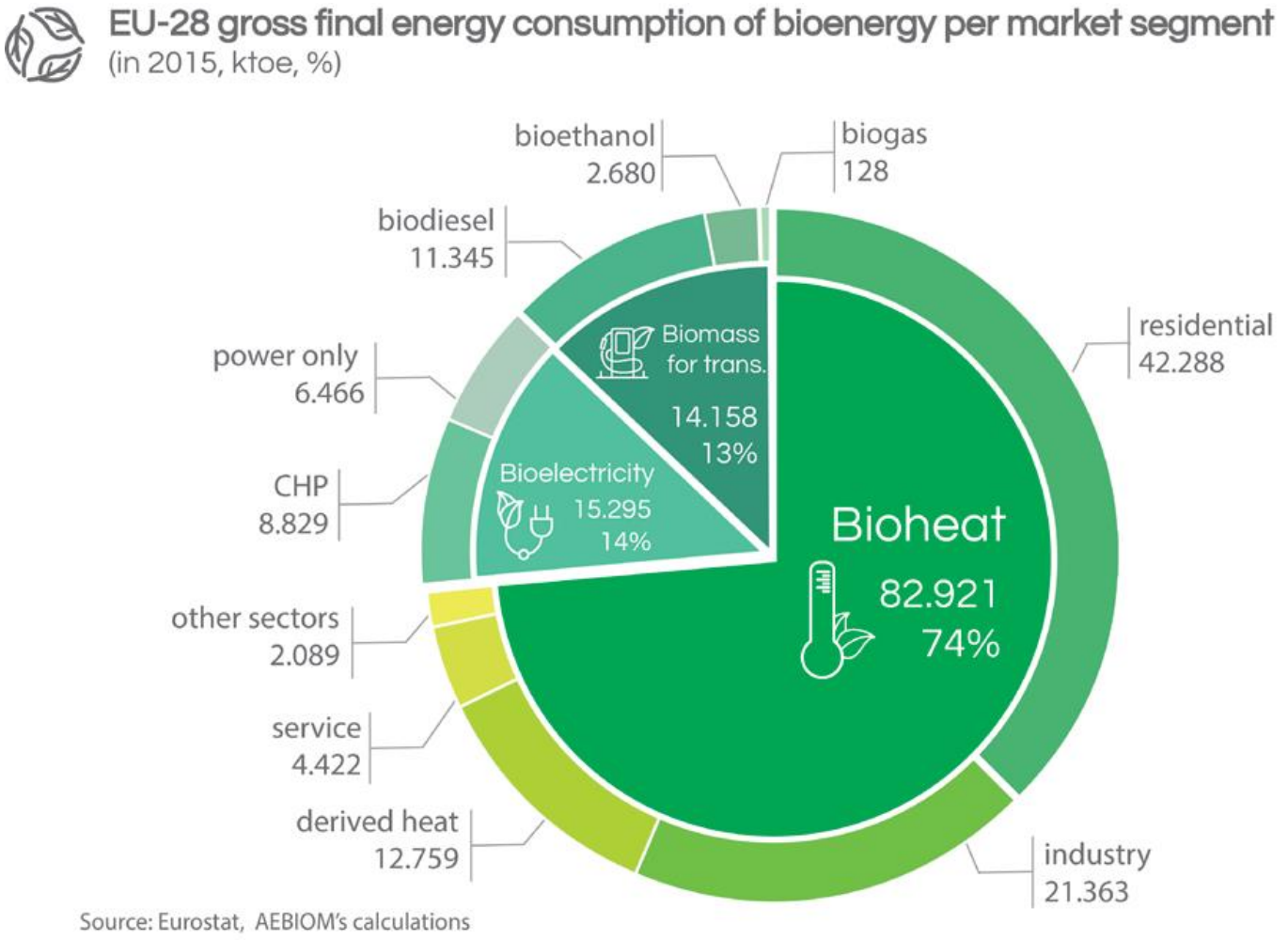
Pellet, chips and cogeneration market trends



Bioenergy consumption doubled compared to 2000:
55.4 to 112.3 Mtoe

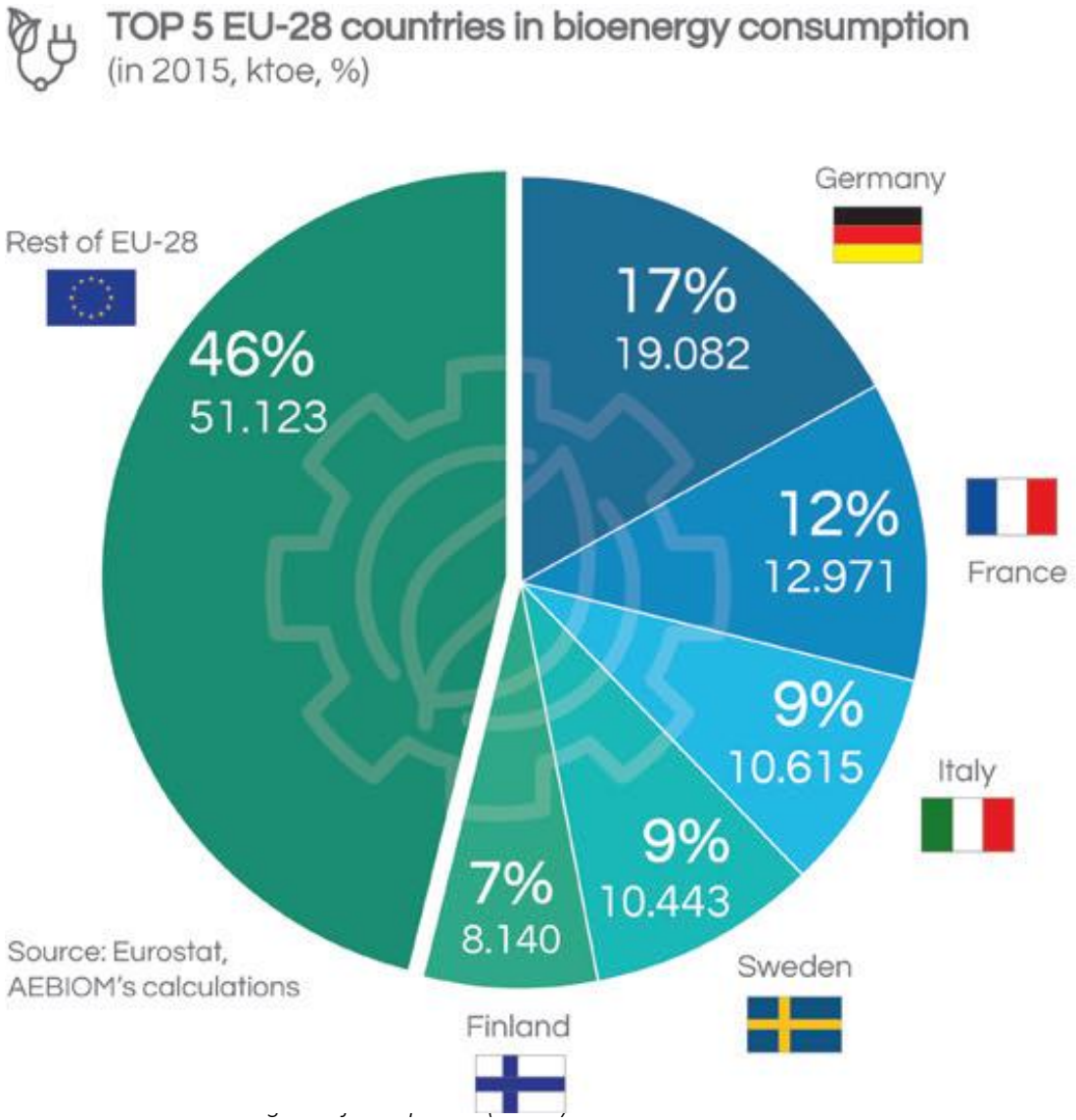
Member States' projection: 139 Mtoe by 2020.

Pellet, chips and cogeneration market trends



The required growth of 4% per annum
(probably if we know that the average annual growth in the period 2000 - 2014 was 4.8%)

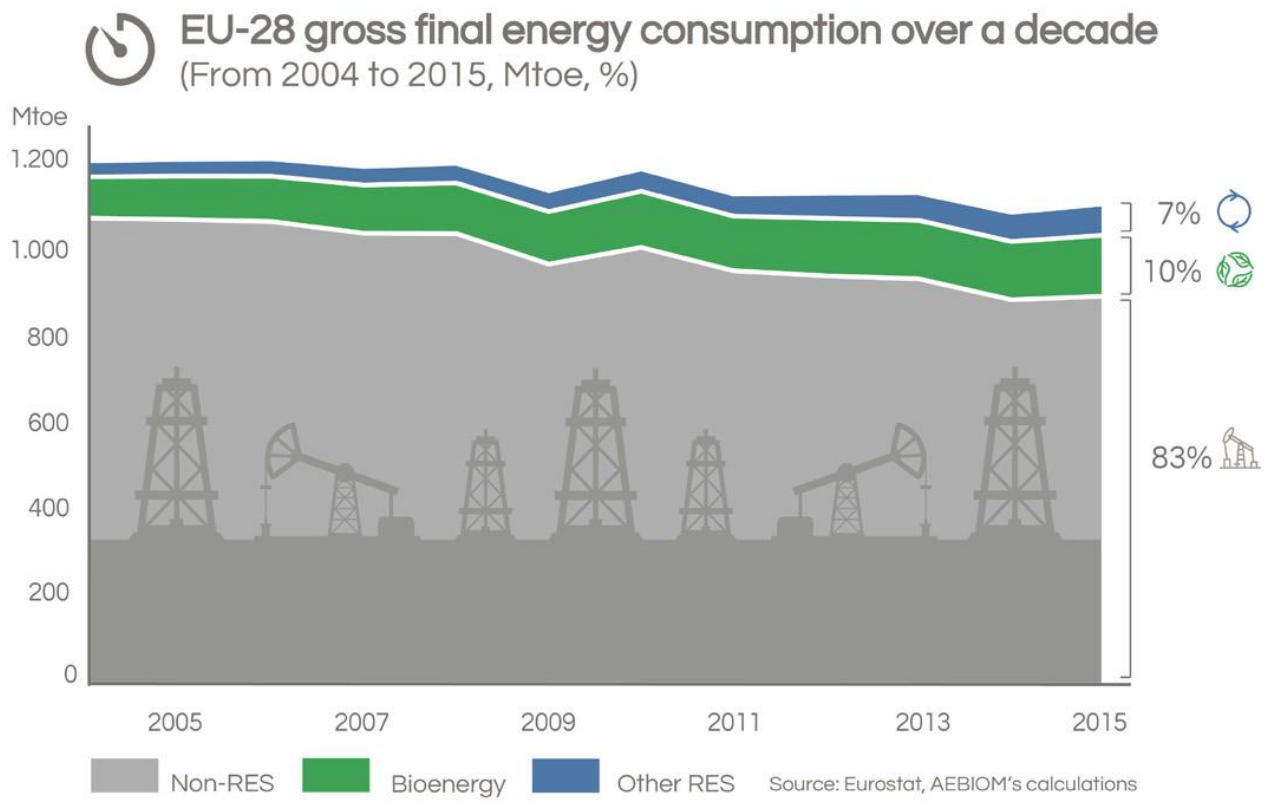
Pellet, chips and cogeneration market trends



The 5 largest states represent more than 50% of total EU bioenergy consumption / strong political support!

Finland and Sweden - the share of bioenergy in total energy consumption by about 33%

Pellet, chips and cogeneration market trends

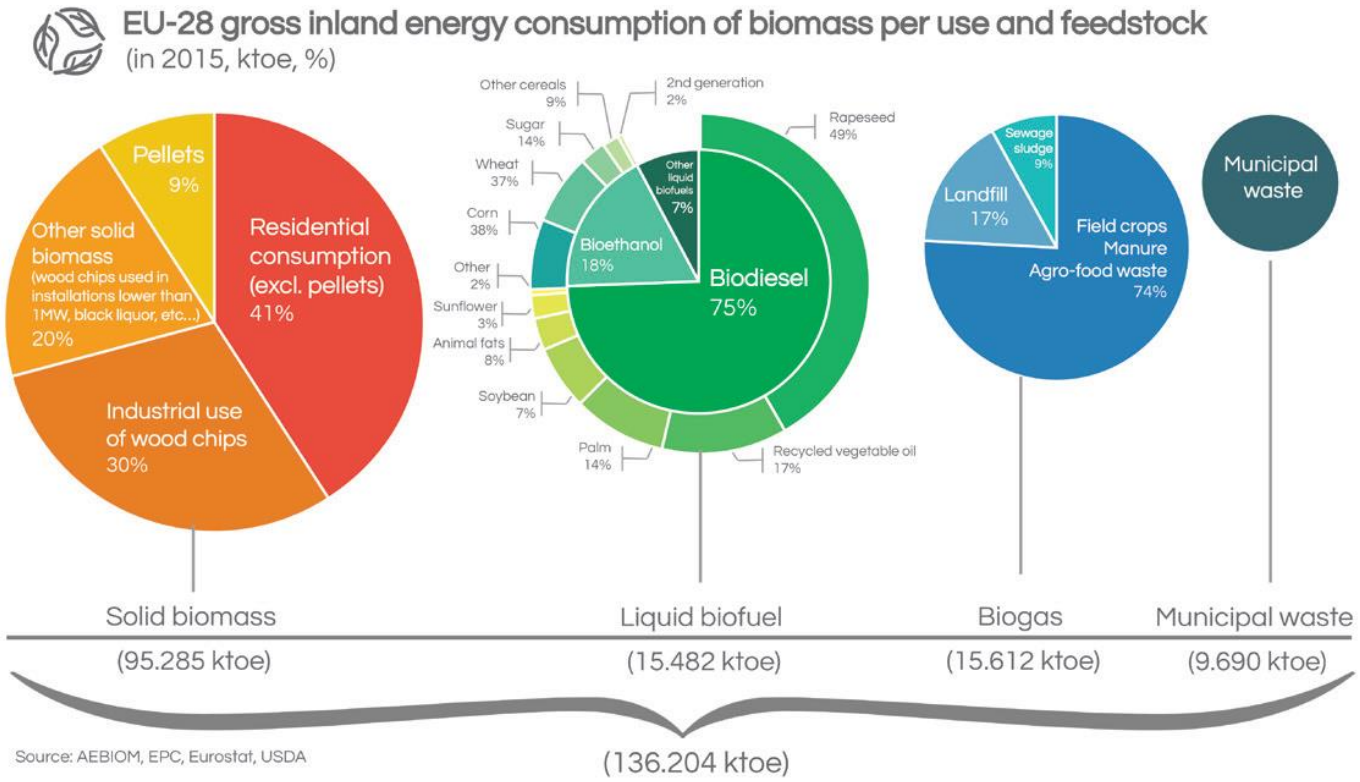


Energy share of RES in total energy consumption in 2015 (16.66%) slightly increased compared to 2014 (16.13%)

The share of bioenergy in total energy consumption in 2015 was 10% (= 61.34% of energy consumed from OIE)

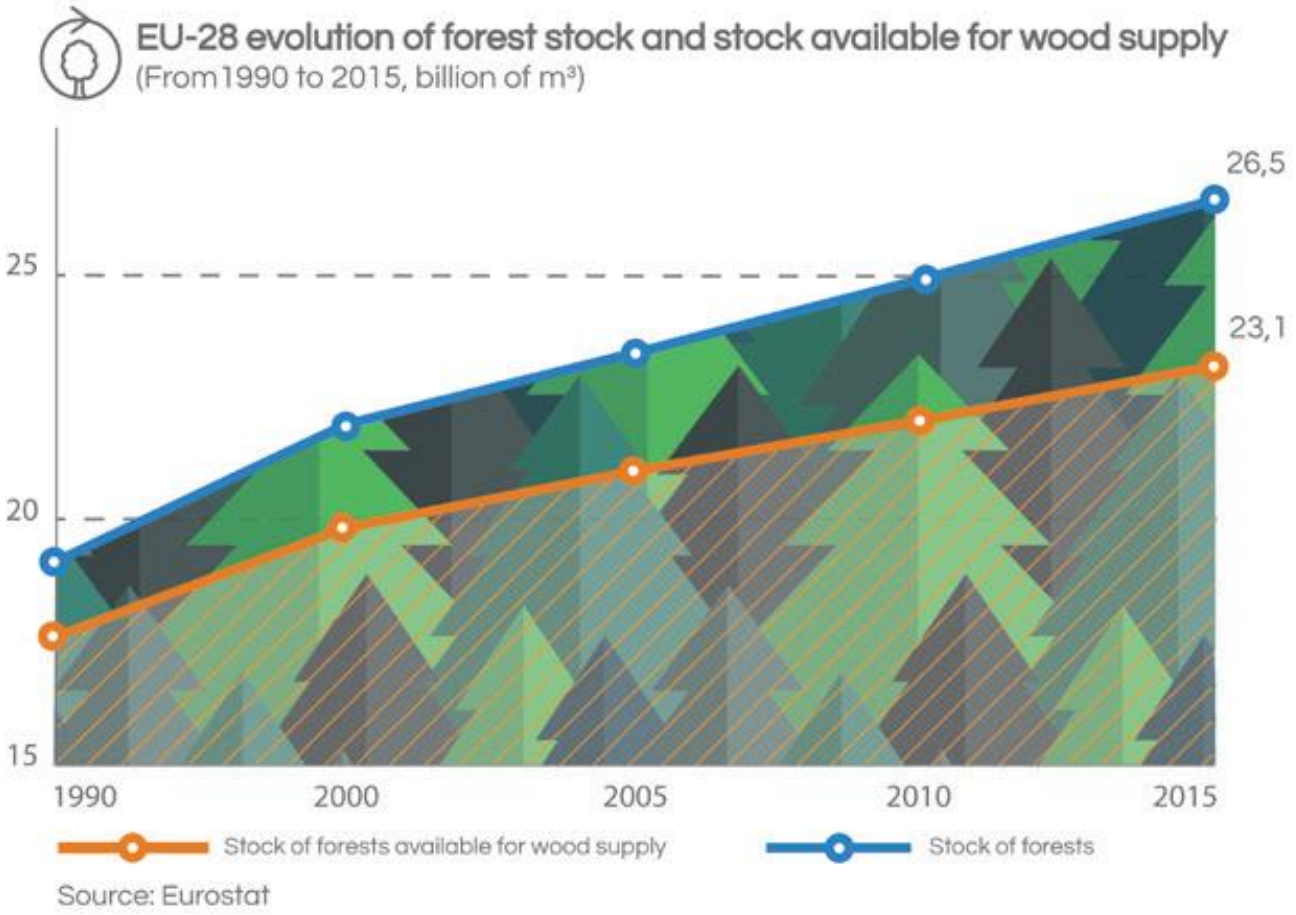
At the same time: a significant drop in investment (EU-28) - the lowest level in 10 years; 2015 declined by 21%

Pellet, chips and cogeneration market trends



EU-28 Consumption: Solid biomass is the main source (70% / 95,285 ktoe) of total fuel

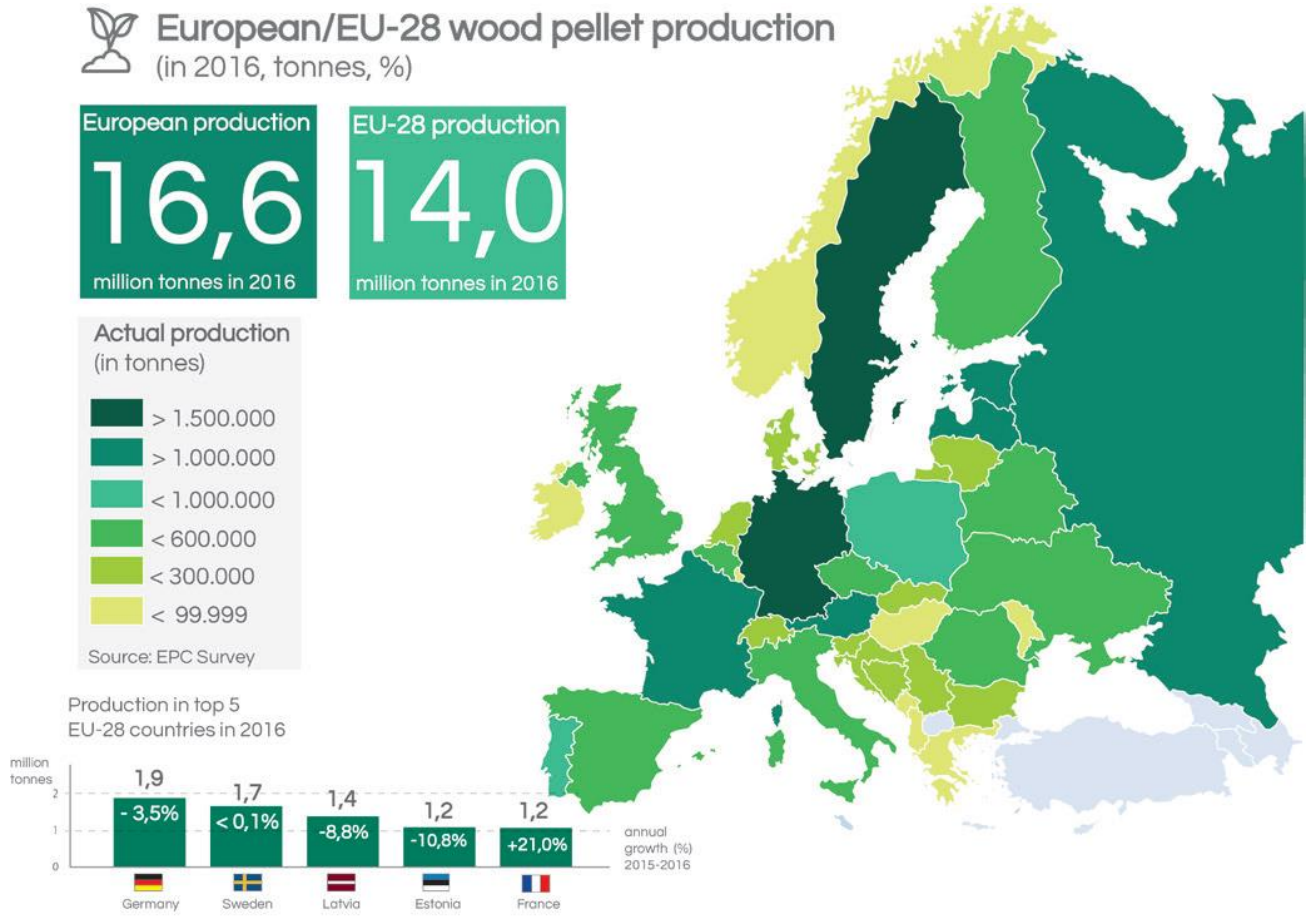
Pellet, chips and cogeneration market trends



Area of European forests:
1990: 19.7 bn m3, 2015: 26.5 bn m3
+ 32%

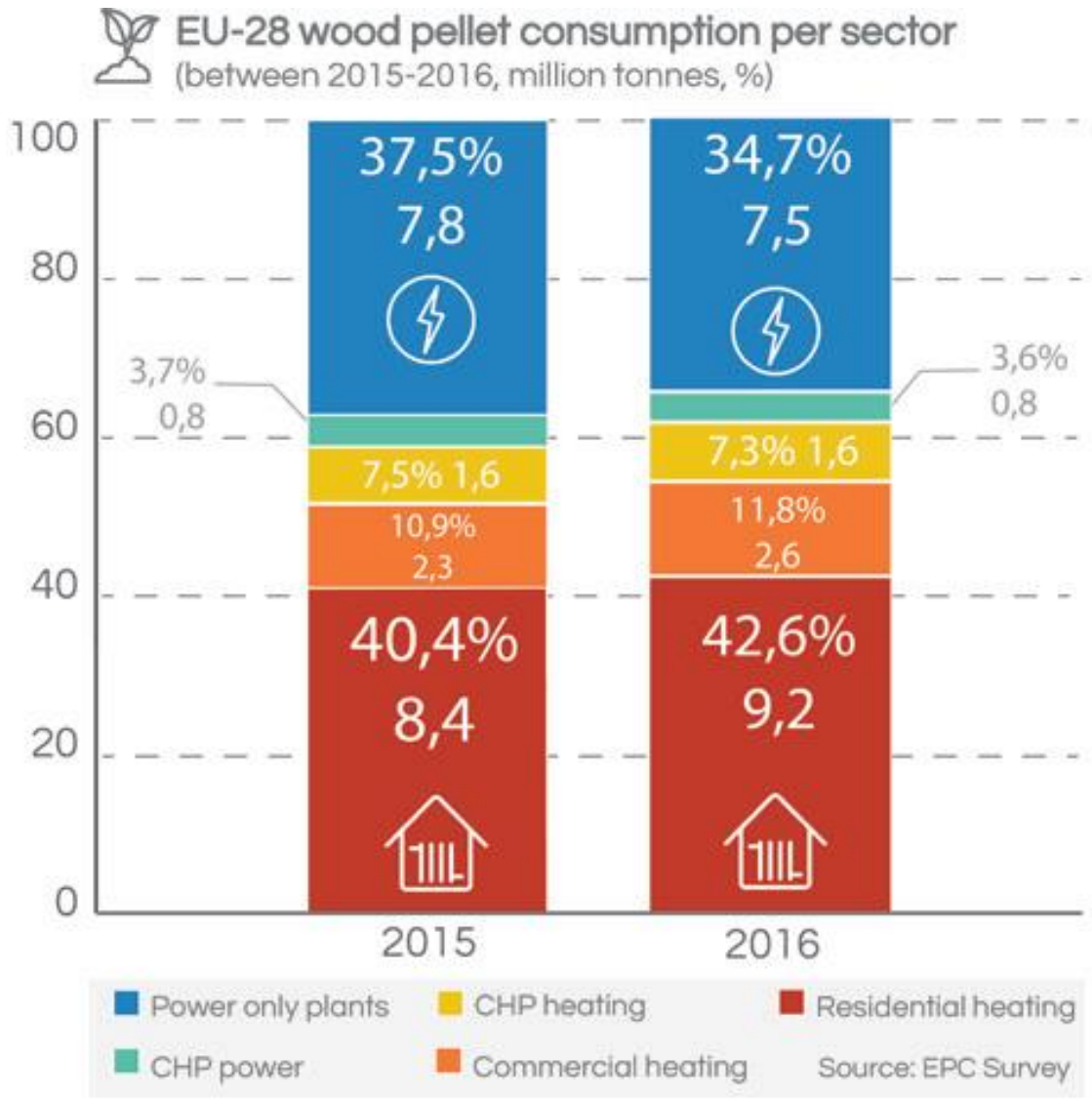
Consumption 2016 (EU-28): 21.7 million tonnes / 61.7% for heat production

Pellet, chips and cogeneration market trends



A slight decrease of 0.4% (weak winter)
Residential: 42.6% Industrial: 11.8% CHP: 7.3%
The remaining 38.3% for energy production

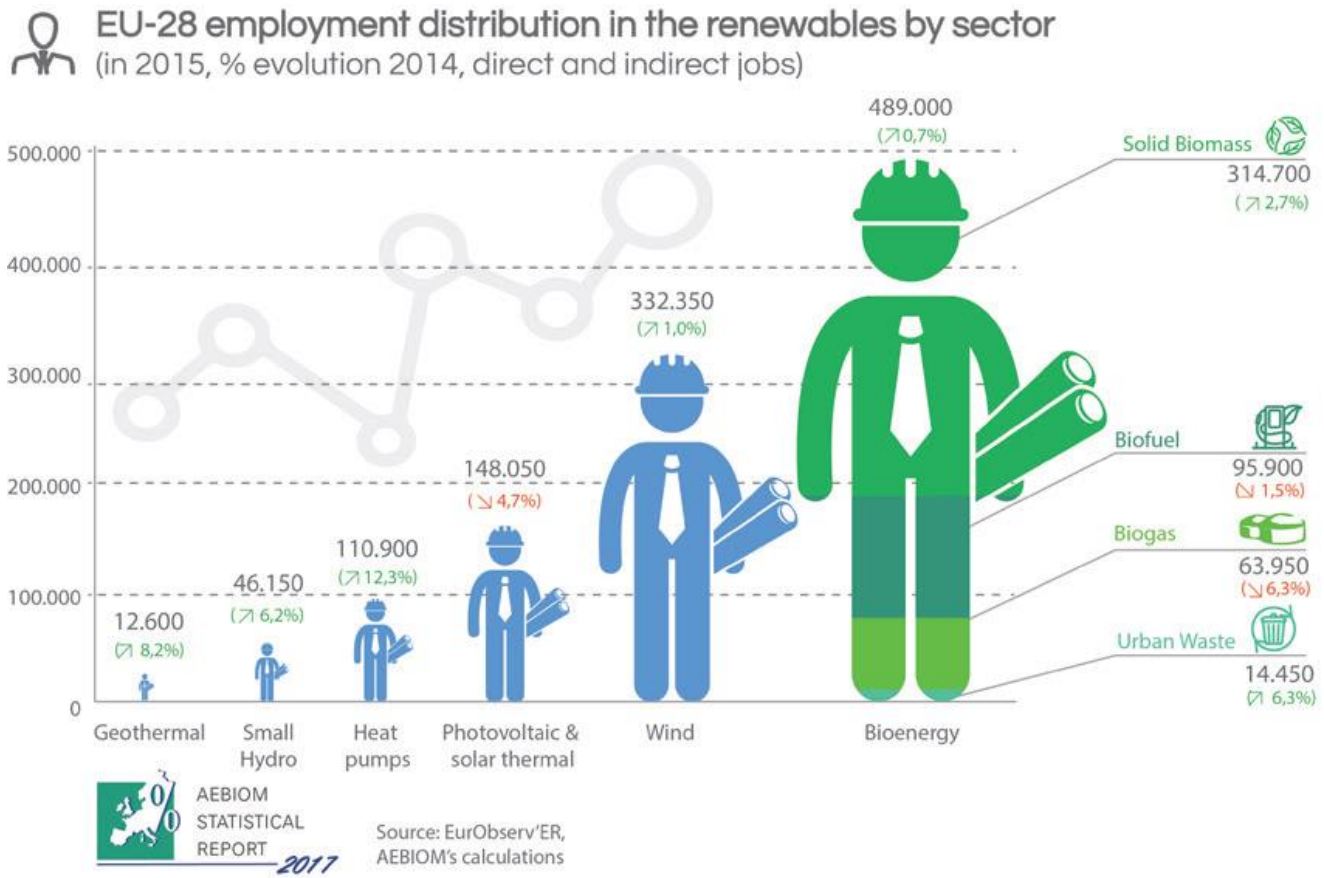
Pellet, chips and cogeneration market trends



Strengthens the market of medium-size pellet furnace, especially in eastern Eurasia (Poland)

Interesting: In China, pellets are mainly used for commercial purposes

Pellet, chips and cogeneration market trends



By 2015, the bioenergy sector employs nearly half a million people, which is more than just the solar and wind together.
Solid biomass sector: 314.700 = wind (332.350)

THANK YOU!

MARIJAN KAVRAN

CROATIAN WOOD CLUSTER

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HRVATSKO RIJEČNO BRODARSTVO DUNAVSKI LLOYD – SISAK AND THE PROBLEMS WE ENCOUNTER ON INLAND WATERWAYS

DUNAVSKI LLOYD
SISAK d.o.o.

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e-mail:ured.direktora@dunavski-lloyd.hr
web: www.dunavski-lloyd.hr

DUNAVSKI LLOYD – PAST…

- established 1952. in Vukovar
- since 1954. head office is in Sisak
- 80's „golden age" (22 ships, 91 vessels, about 900 employees…)
- 90's closing of the waterways
- alienation of the fleet

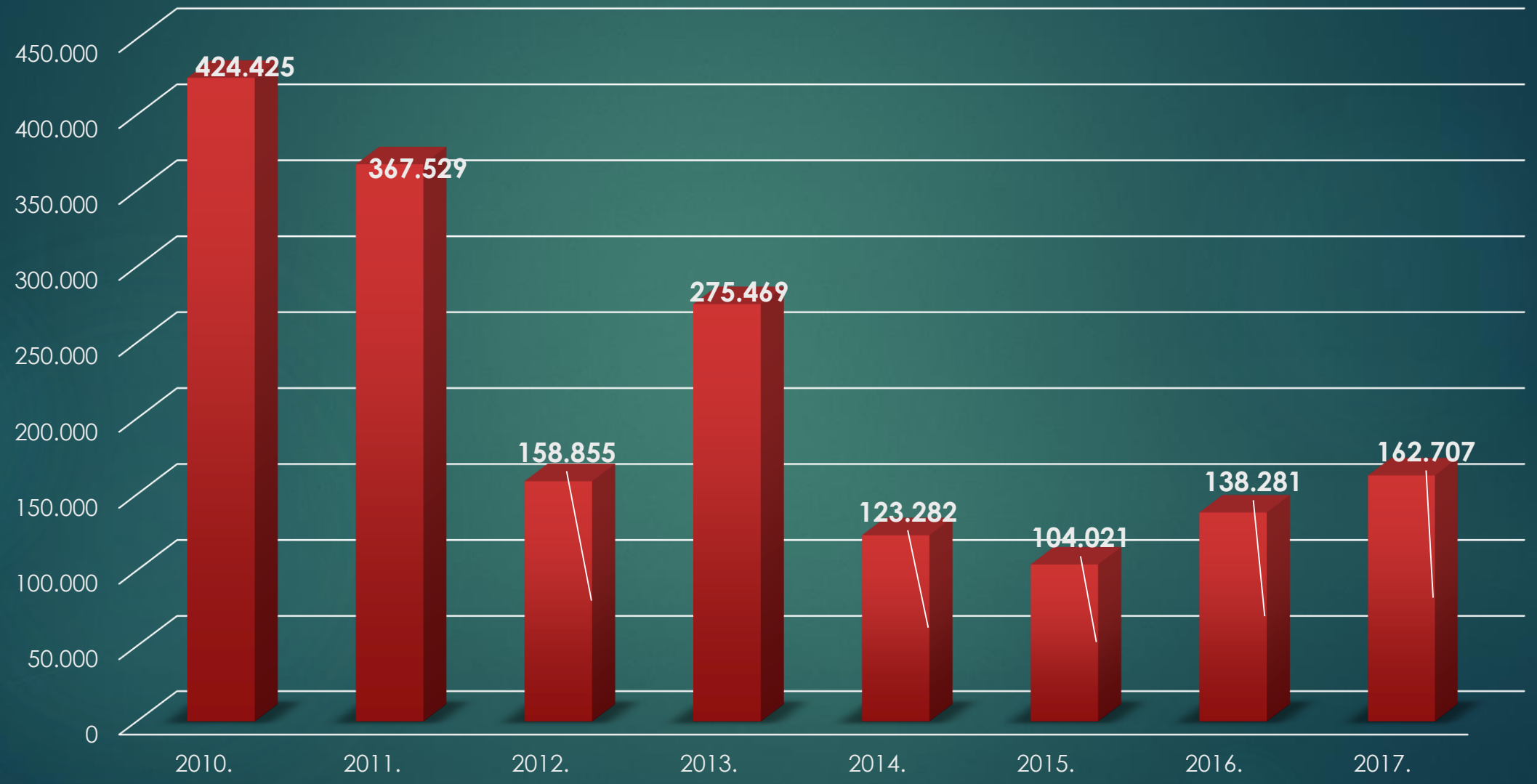
DUNAVSKI LLOYD – YESTERDAY

- 2003 privatization process
- reduction of the number of employees
- reduction of the vessels

DUNAVSKI LLOYD – TODAY

- fleet: 10 vessels, 20 barges
- 32 employed
- transport of goods (liquid cargo, bulk cargo in open vessels)
- sailing from Germany to the Black Sea
- transport of crude oil on the relation Ruščica - Crnac

GOODS, TRANSPORTED IN TONS




Zagreb
(53 km)
(68 km)
Karlovac
(161,5 km)
594+000
Sisak
(11 km)
(4 km)
(222,8 km)
Slavonski Brod
371+200
338+200
(33 km)
(24,3 km)
(102,9 km)
210+800
Županja
137+000
(143,15 km)
65+090
Batina
1424+000
(137,5 km)
Bilje
(41,4 km)
Belišće
(14 km)
1380+000
Aljmaš
Osijek
1333+000
Ilok
Vukovar
1298+500 km
REPUBLIKA HRVATSKA
VODNI PUTOVI
LEGENDA:
Klase vodnih putova:
I klasa
II klasa
III klasa
IV klasa
Vb klasa
VI klasa
Međunarodne luke
Pristaništa
Glavni grad
1333+000 Dužina vodnog puta u km od ušća rijeke
(137,5 km) Dužina dionice vodnog puta iste klase
Dunav Naziv rijeke

INLAND WATERWAYS IN CROATIA

- part of the European transport system
- the total length of inland waterways within the borders of Croatia is 804.1 km
- the total length of international waterways 611,60 km
- the Danube River – class of navigability VI c
- the Sava River – class of navigability III and IV
- the Drava River – class of navigability II, III and IV

INLAND WATERWAYS - PROBLEMS

- inadequate level of waterway maintenance
- low water level – Sava River
- insufficient depth – Sava River
- insufficient width – Sava River

Problems in Ports

- outdated equipment
- lack of work force

BUSINESS PROBLEMS

- lack of qualified staff (Captain, Mechanic)
- outdated vessels
- high fuel use during the navigation
- high fuel prices
- large oscillations of water levels throughout the year

CONCLUSION

- inland waterway transport - the most cost-effective way of land transport
- achieving a competitive position on the European market
- cooperation between shipping companies and Ministry
- stimulating shipping companies (lower taxes, lower fuel price…)

THANK YOU FOR ATTENTION !!!

LITERATURE

- Ministarstvo mora, prometa i infrastrukture, Strategija prometnog razvoja Republike Hrvatske 2017. – 2030.
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- http://web.efzg.hr/dok/TRG/jbendekovic/11.%20Rije%C4%8Dni%20promet%20DS.pdf
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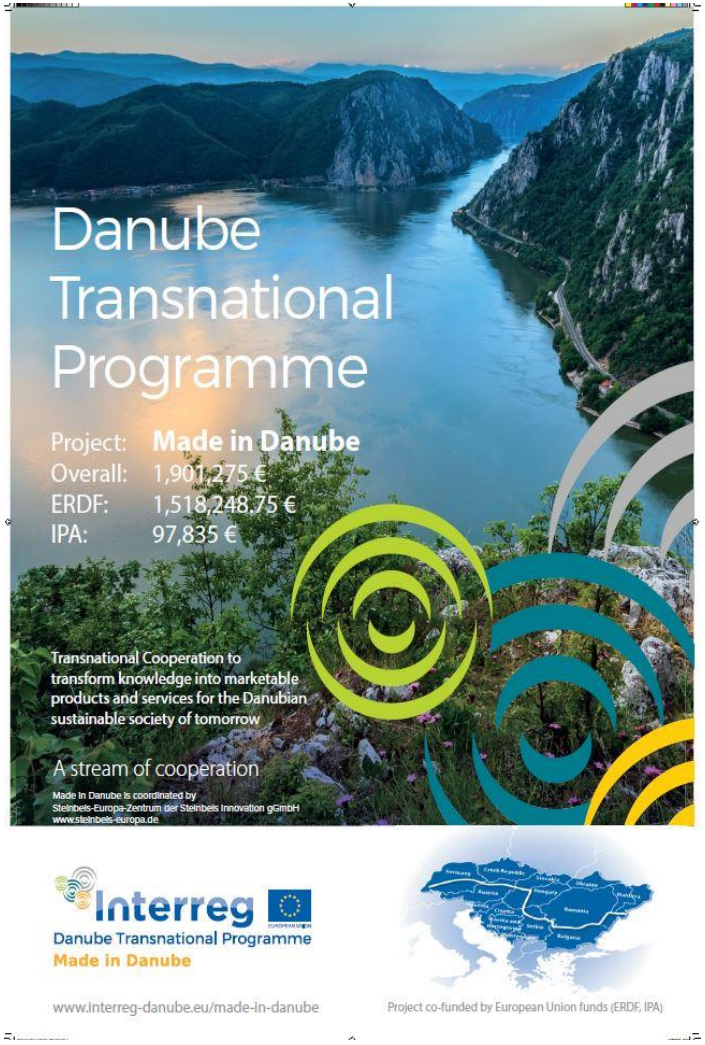


Made in Danube

Ana Bošković, Vukovar-Srijem County Development Agency, Project Partner

ENERGY BARGE 2nd National Workshop
Zagreb, 2018-01-18

Made in Danube Consortium

Interreg
Danube Transnational Programme
Made in Danube

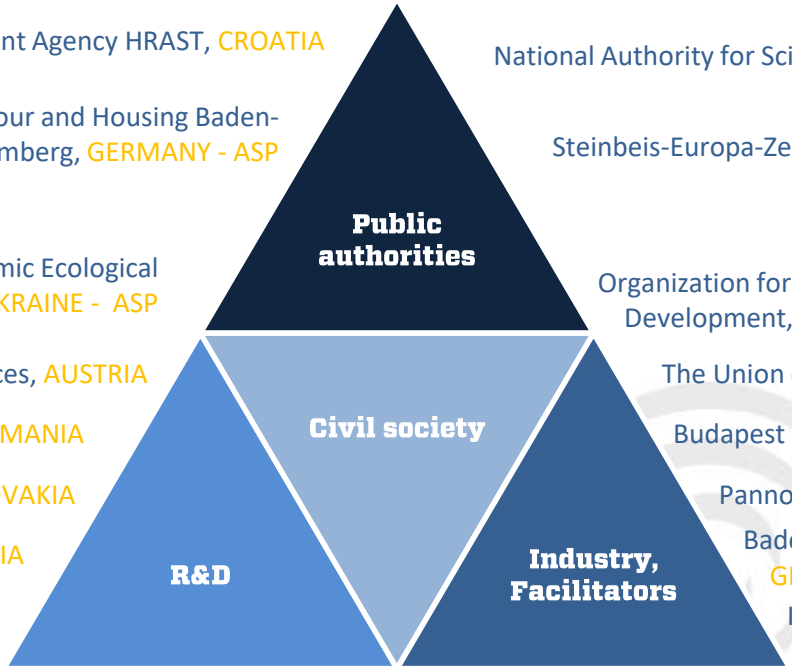
Quadruple Helix Approach

Vukovar-Srijem County Development Agency HRAST, CROATIA

Ministry of Economic Affairs, Labour and Housing Baden-Württemberg, GERMANY - ASP

National Authority for Science Research and Innovation, ROMANIA

Steinbeis-Europa-Zentrum, GERMANY – **LEAD PARTNER**



Institut of Market Problems and Economic Ecological Research of NASU – UKRAINE - ASP

University of Natural Resources & Life Sciences, AUSTRIA

Technical University Cluj-Napoca, ROMANIA

Slovak University of Agriculture, SLOVAKIA

University of Maribor, SLOVENIA

Bay Zoltán Nonprofit Ltd., HUNGARY

University of Novi Sad Faculty of Technical Science , SERBIA

Organization for Small and Medium Entreprise Sector Development, MOLDOVA - ASP

The Union of Slovak Clusters, SLOVAKIA

Budapest Chamber of Commerce and Industry, HUNGARY

Pannon Business Network Association, HUNGARY

Baden-Württemberg Industry Association, GERMANY

IPA Business Incubator, ROMANIA

Center for Social Innovation, AUSTRIA

15 Partners, 3 ASP, 10 countries

Project co-funded by European Union funds (ERDF, IPA)

Made in Danube Target Groups

Interreg
Danube Transnational Programme
Made in Danube

Regional Public Authorities

Small and Medium Enterprises

Higher Education and Research Institutions

Business Support Organisation, Clusters and NGOs

Civil Society

Project co-funded by European Union funds (ERDF, IPA)

Made in Danube Project Objectives

Interreg
Danube Transnational Programme
Made in Danube

The aim of the project is to improve the framework conditions for innovation by supporting the collaboration process between companies and RTO in the innovation-driven field of bioeconomy.

The **project main result** is to intensify the cooperation of project partners with target groups (key actors) in the Programme Area leading to 15 innovation partnerships and 40 enterprises (SMEs) cooperating with research and technological organizations (RTO).

Project co-funded by European Union funds (ERDF, IPA)

Made in Danube Specific Objectives

Interreg
Danube Transnational Programme
Made in Danube

- **Developing a "Common Strategy to transform ideas into marketable products and services for the 3 existing regional Initiatives"**
  - **Pilot implementation of the Local Action Plan for Smart and Innovative Precision Farming in Slovakia,**
  - **Pilot implementation of the Local Action Plan for Competence Centre - Wood Sector in Croatia,**
  - **Pilot implementation of the Local Action Plan for Biofuel in Serbia.**

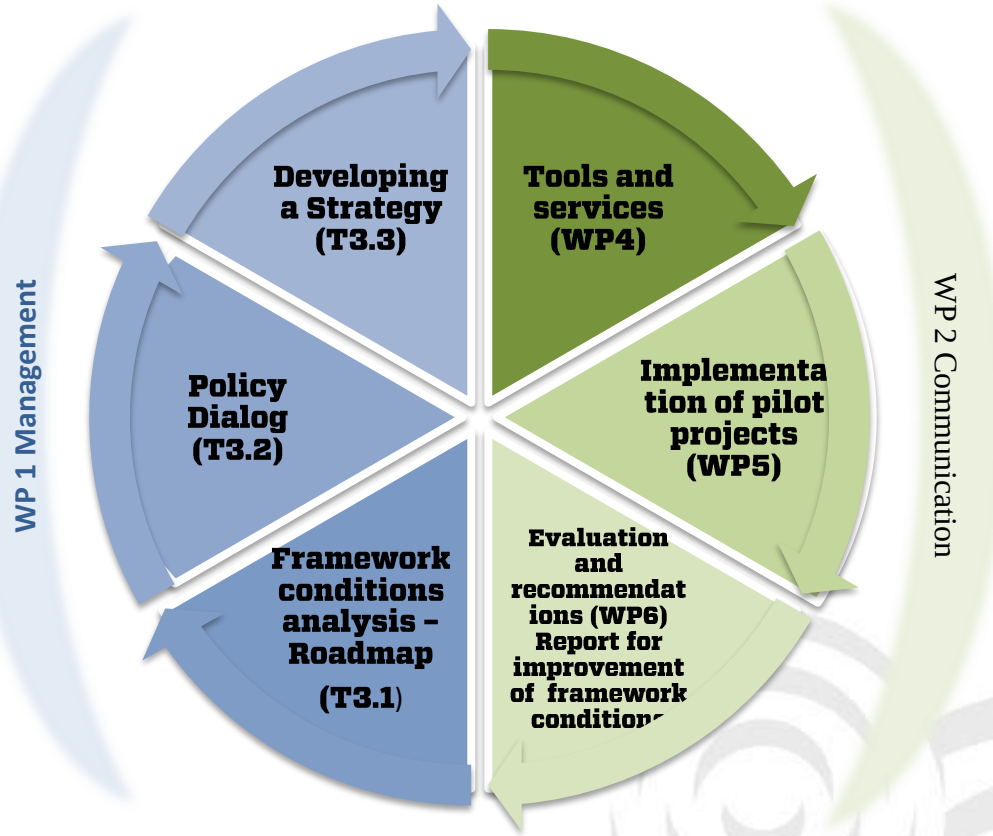
- **Developing tools and services (Innovation audits, Technology Offers/Technology Request, Brokerage Events, Training Tool KIT) to implement concrete transnational collaboration projects based on the needs of the 3 regional initiatives representative for the DR**. They will allow to identify needs of companies involved and permit access to knowledge not locally/nationally available but in the transnational "Made in Danube" consortium of 10 countries in order to achieve East-West cross-fertilisation.

- **Support good practices exchange in technology transfer and innovation partnerships by establishing a transnational network**

Project co-funded by European Union funds (ERDF, IPA)

Made in Danube Project Set-up

Interreg
Danube Transnational Programme
Made in Danube



Framework conditions and Policy Dialog (WP3) → Tools and services (WP4) → Implementation of pilot projects (WP5) → Evaluation and recommendations (WP6)

Project co-funded by European Union funds (ERDF, IPA)

Made in Danube Local Pilot Initiatives

Interreg
Danube Transnational Programme
Made in Danube

1. **Pilot implementation of the LAP for Smart and Innovative Precision Farming in Slovakia,**
2. **Pilot implementation of the LAP for Competence Centre - Wood Sector in Croatia,**
3. **Pilot implementation of the LAP for Biofuel in Serbia.**

- LAPs are one of the instruments to improve framework conditions as they offer a structure to the relevant stakeholders involved and foresee a process of continuous improvement (CIP).
- Besides being an instrument for the local initiatives LAPs have a central role within the Made in Danube project considering that together with the results of the questionnaires it serves as basis for elaborating a **roadmap** related to framework conditions.
- Based on the roadmapping and the policy dialogue results a **common strategy** will be developed which has the goal to bring R&D results on the market.

Project co-funded by European Union funds (ERDF, IPA)

Competence Centre – Wood Sector (*Vukovar -Srijem County)*

- **Vision** of the local initiative is to become the leader in the region in promoting and implementing bio-economy in the way of smart and sustainable use of resources.
- **Mission** of the local initiative is to enable sustainable development, to protect the environment and to enhance competitiveness through research, development and innovation projects with a special focus on Bio-economy.
- **Within the Made in Danube project**, local initiative aims towards:
  1. Identification of new financing opportunities for future project collaborations,
  2. Promoting bioeconomy, circular economy and local use of locally available resources for environment protection and smart, sustainable and inclusive growth,
  3. Bridging the gap between research and industry,
  4. Pilot implementation of the **Local Action Plan for Competence Centre – Wood Sector:** 5 Innovation Partnership Agreements, 10 Cooperation Agreements, 1 Final LAP report

Project co-funded by European Union funds (ERDF, IPA)

Competence Centre – Wood Sector (*Vukovar -Srijem County)*

- **LAP steps within Made in Danube:**
  1. **Framework analysis**: conducting interviews with SMEs, HERs and RPAs,
  2. **Analysis of the regional SMEs innovation capability**: collecting technology requests, identifying technology offers, conducting innovation audits,
  3. **Analysis of the regional R&D innovation capability:** identifying technology offers,
  4. **Growth of business network of regional players in the DR**: initiation of new innovation partnership agreements, initiation of new cooperation agreements,
  5. **Documentation and dissemination of knowledge:** pilot implementation of the LAP for Smart Forestry Final Report.

Project co-funded by European Union funds (ERDF, IPA)

Competence Centre – Wood Sector *(Vukovar-Srijem County)*

- **Competence Centre Ltd. for research and development - founded** by Vukovar-Srijem County
- bridging the gap between science and industry

Centar kompetencija d.o.o.
za istraživanje i razvoj

Project co-funded by European Union funds (ERDF, IPA)

Made in Danube Website and Social Media

Interreg
Danube Transnational Programme
Made in Danube

Project Website:

www.interreg-danube.eu/made-in-danube

Follow us on:

https://twitter.com/made_in_danube

https://www.facebook.com/madeindanube/

https//www.linkedin.com/in/made-in-danube-aa7324137

Project co-funded by European Union funds (ERDF, IPA)

Thank you for your attention!

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Project co-funded by European Union funds (ERDF, IPA)

Smart Building – Smart Grid – Smart City

Mario Vašak

University of Zagreb Faculty of Electrical Engineering and Computing

mario.vasak@fer.hr

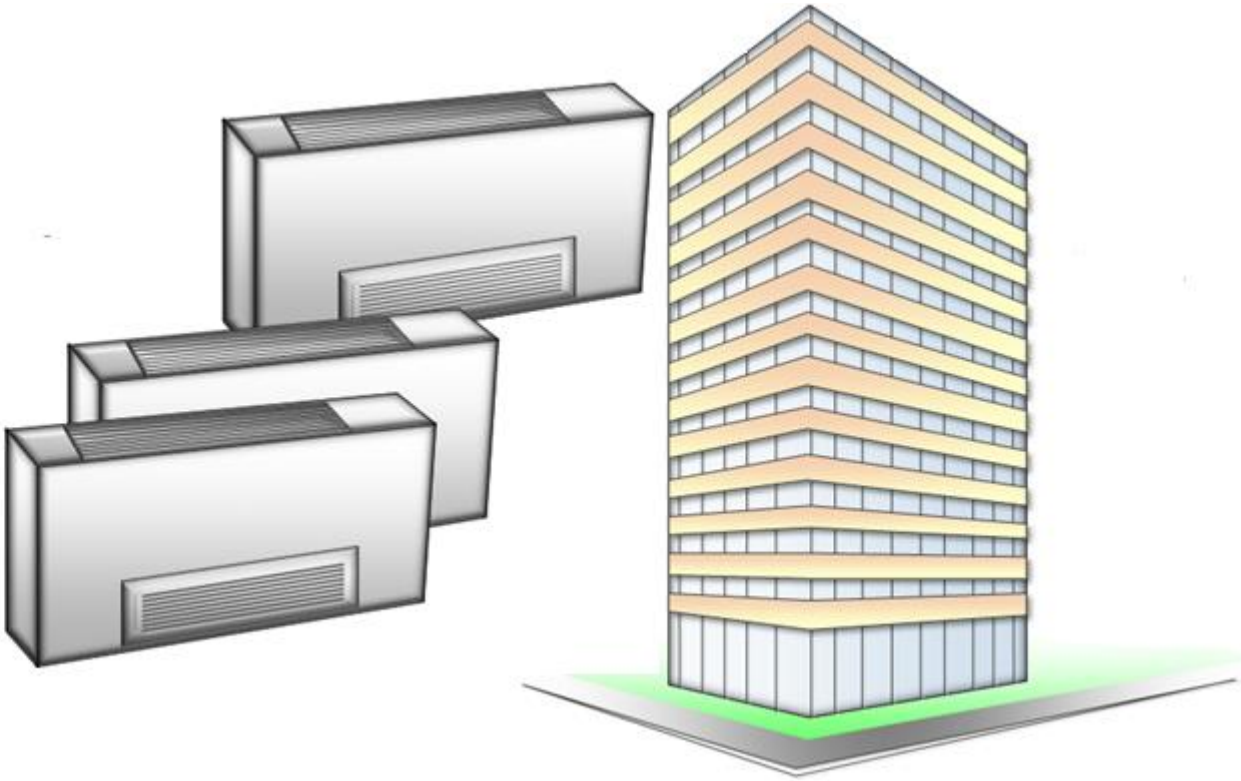
Presentation of the 3Smart Project

Zagreb, 18 January 2018

UNIVERSITY OF ZAGREB
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING

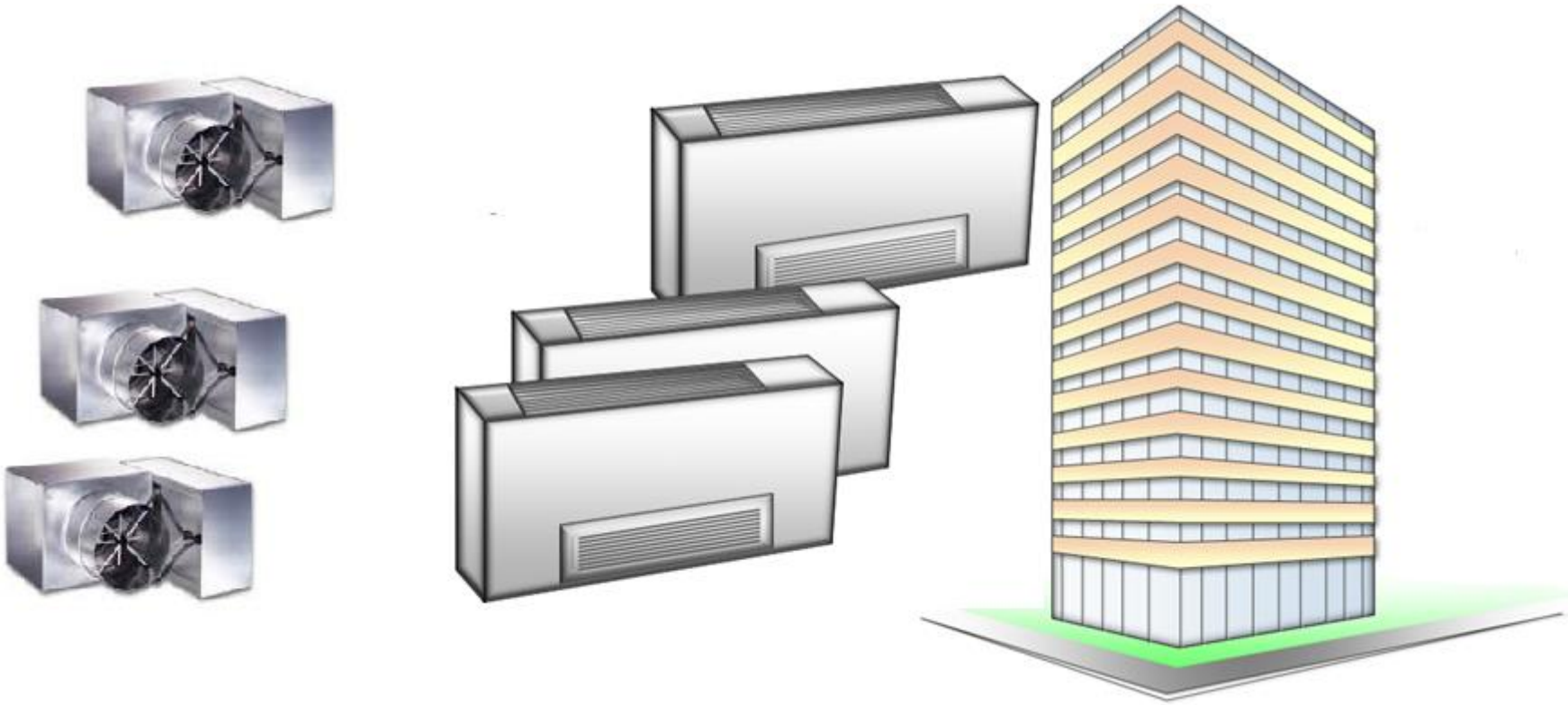
Project co-funded by the European Union

Classic commercial buildings



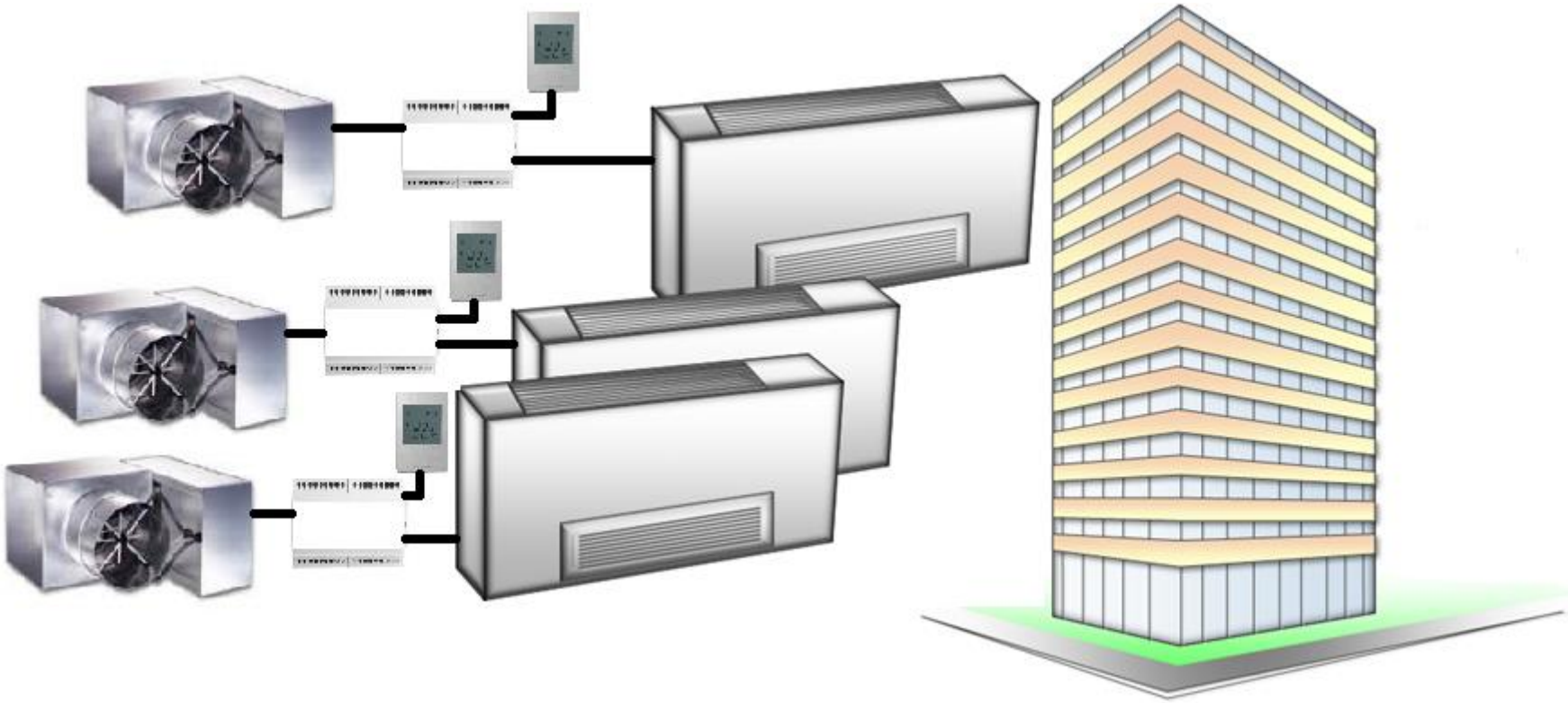
Comfort actuators in rooms: fan coils

Classic commercial buildings



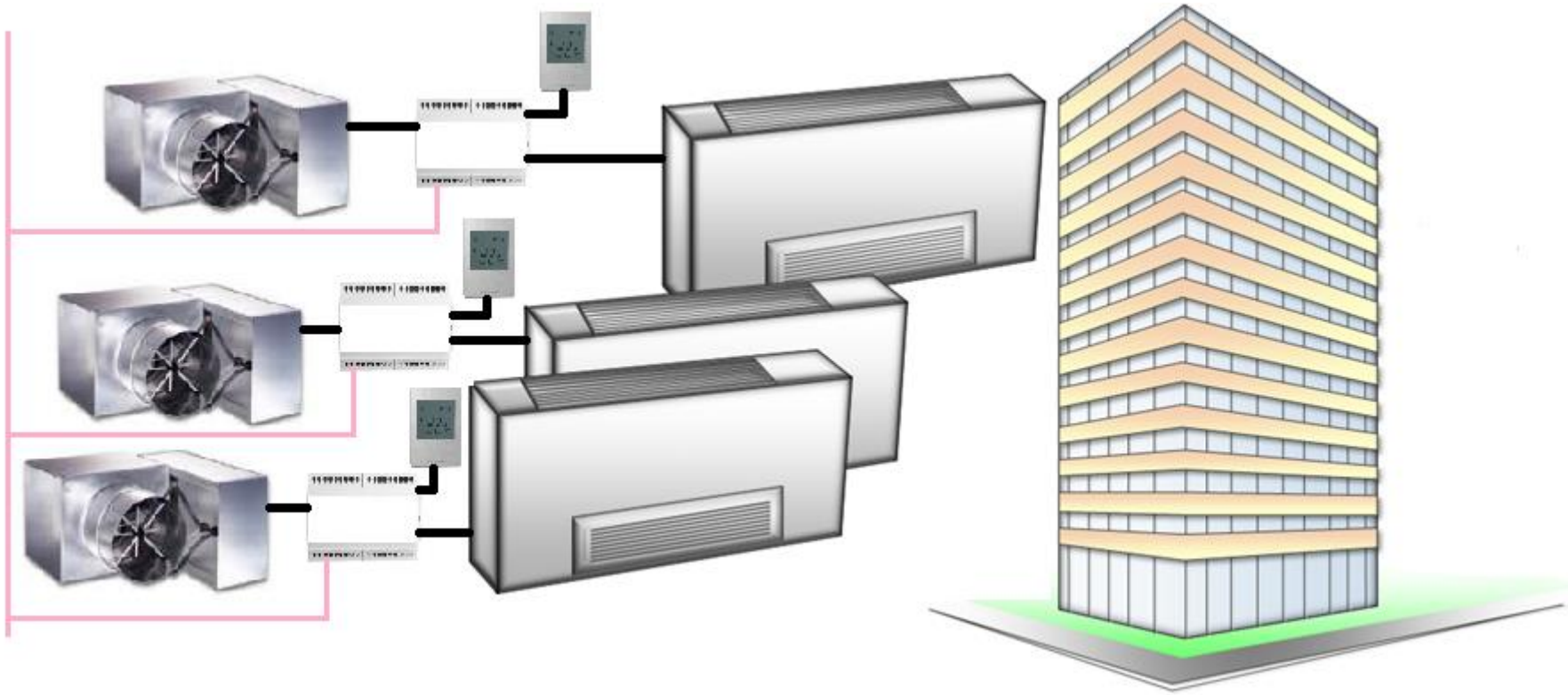
Comfort actuators in rooms: fan coils, VAV boxes or both

Classic commercial buildings



Local digital room controllers perform comfort control

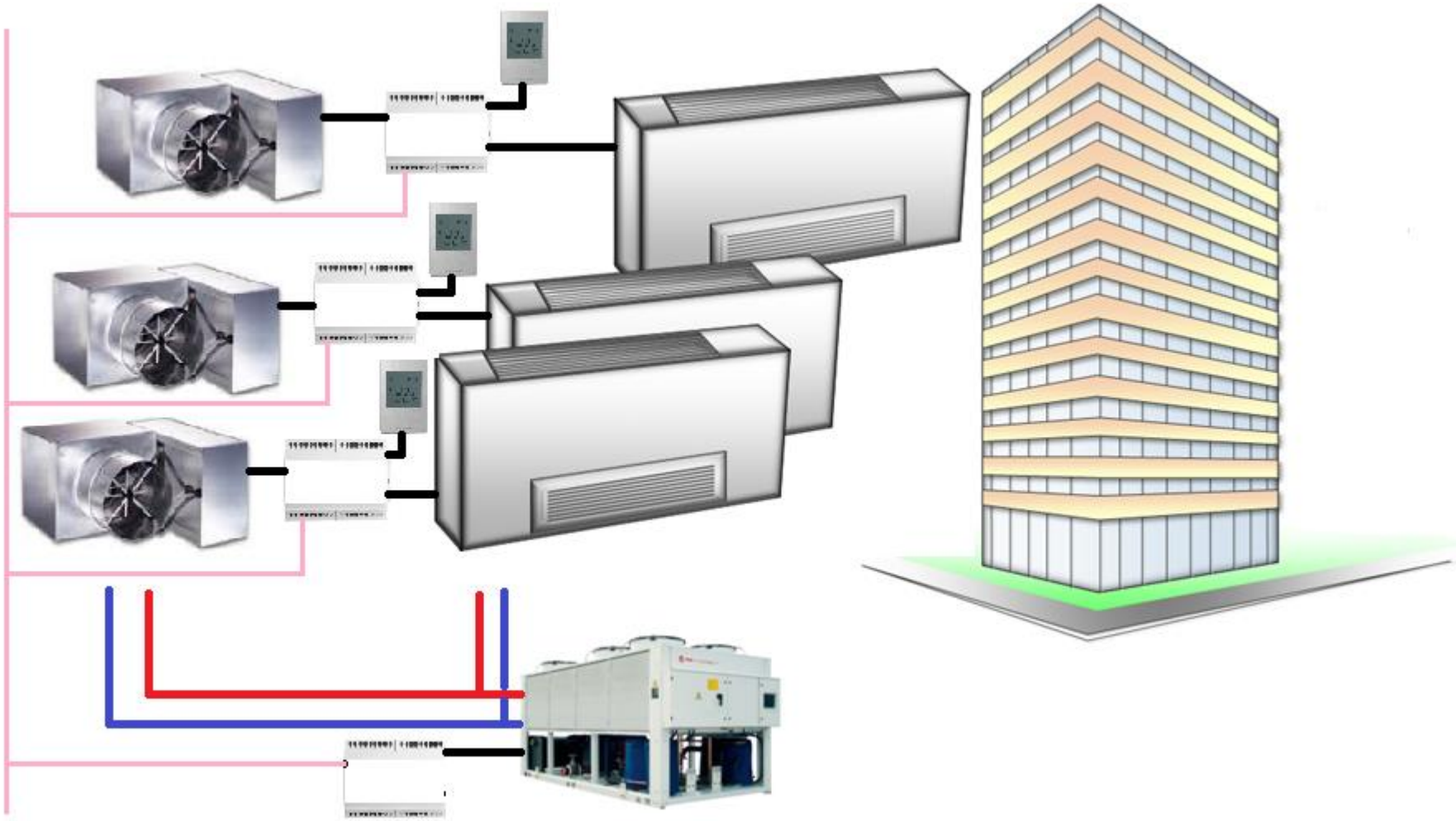
Classic commercial buildings



Local digital room controllers perform comfort control

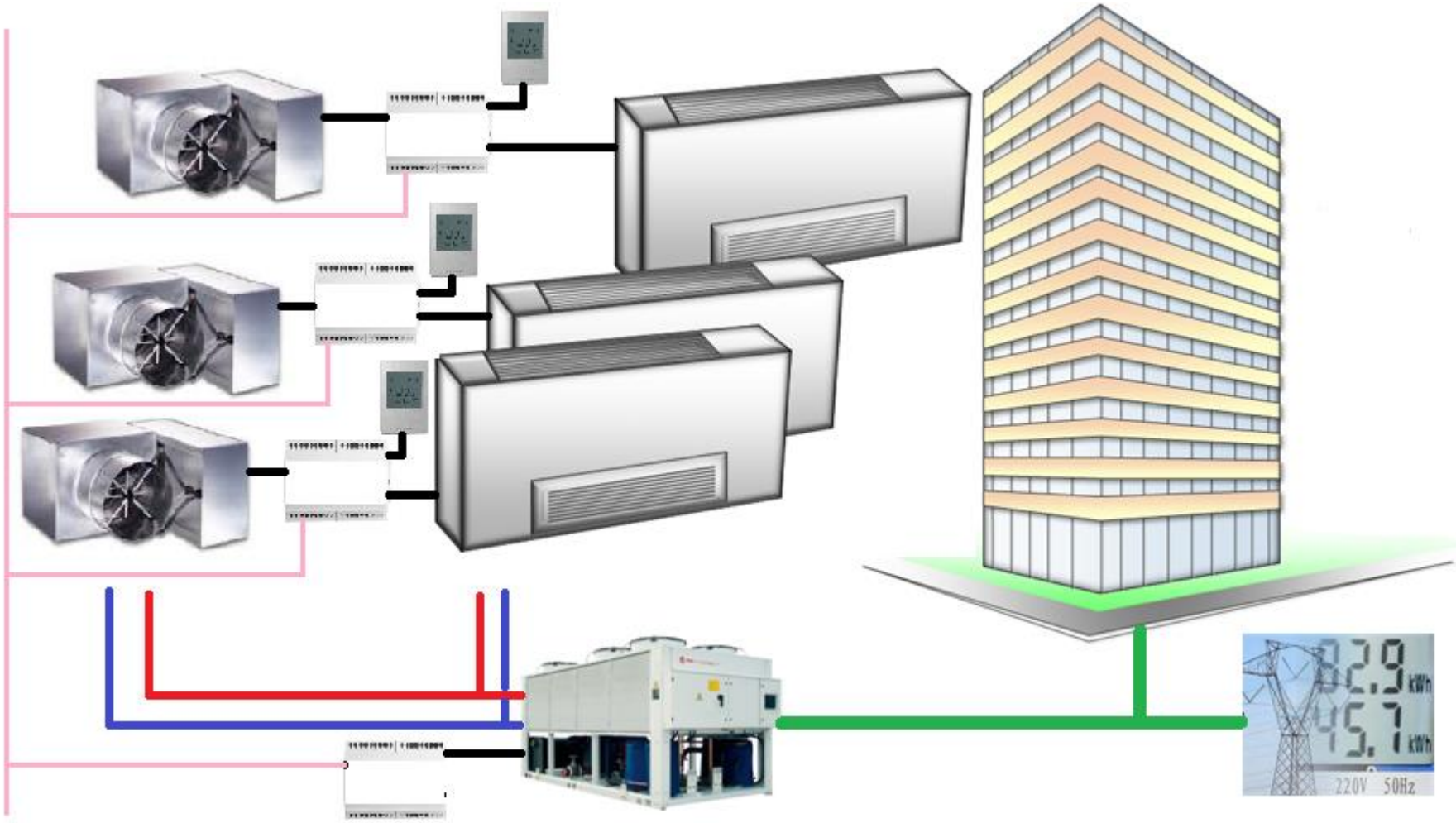
Networked for enabling central data acquisition

Classic commercial buildings



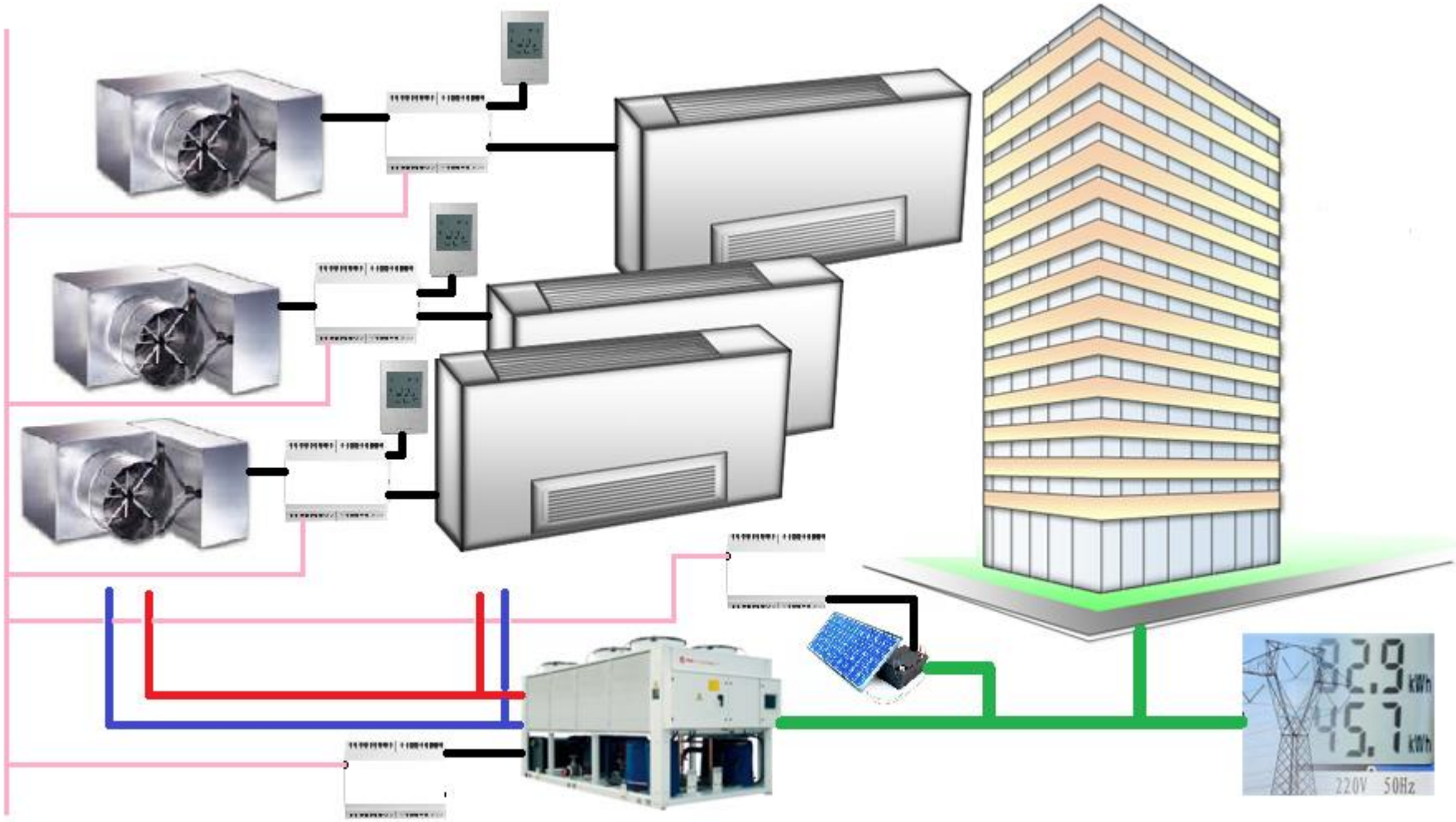
Controlled units for production of conditioning media...

Classic commercial buildings



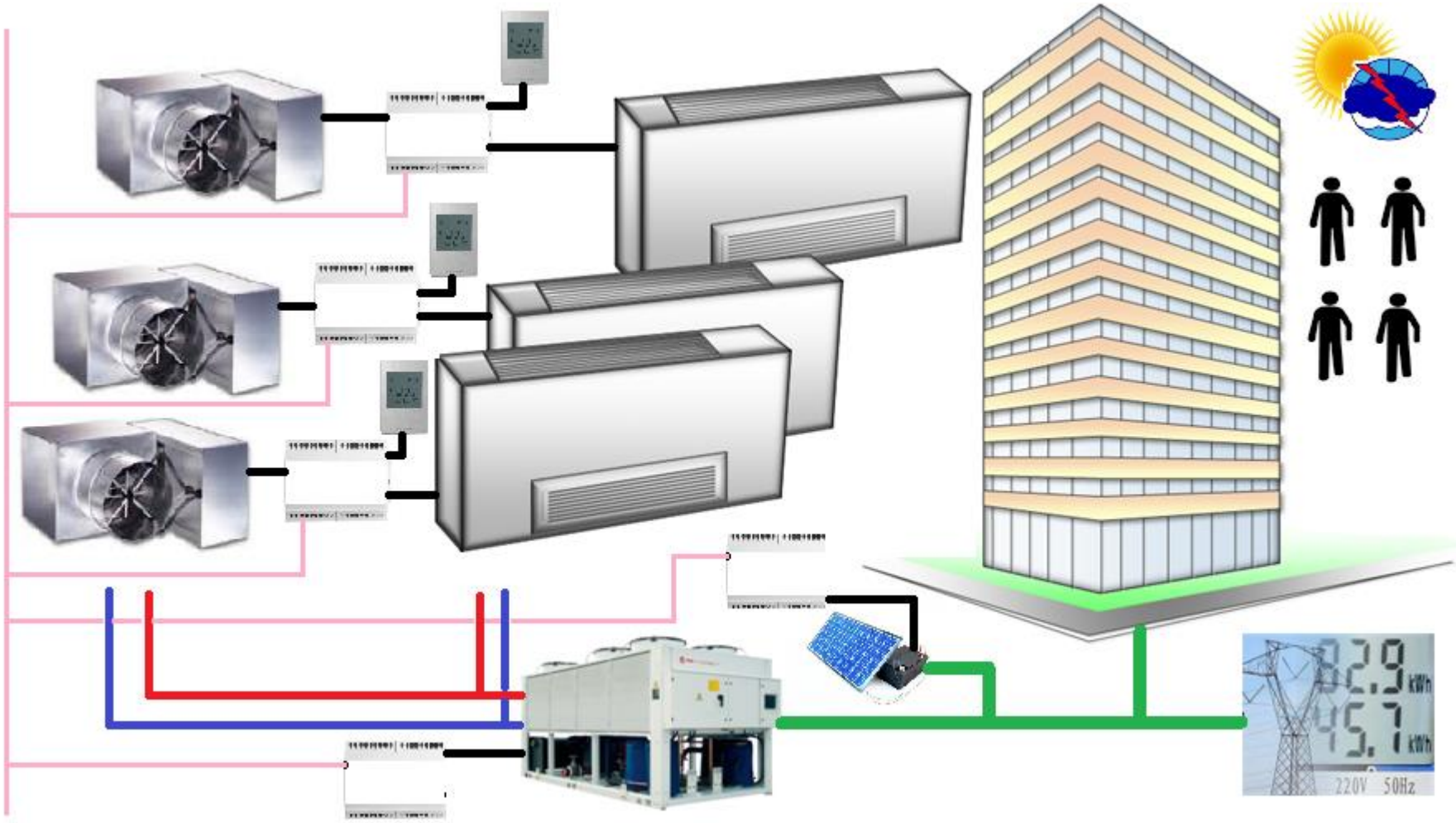
Connected to energy distribution grids

Classic commercial buildings



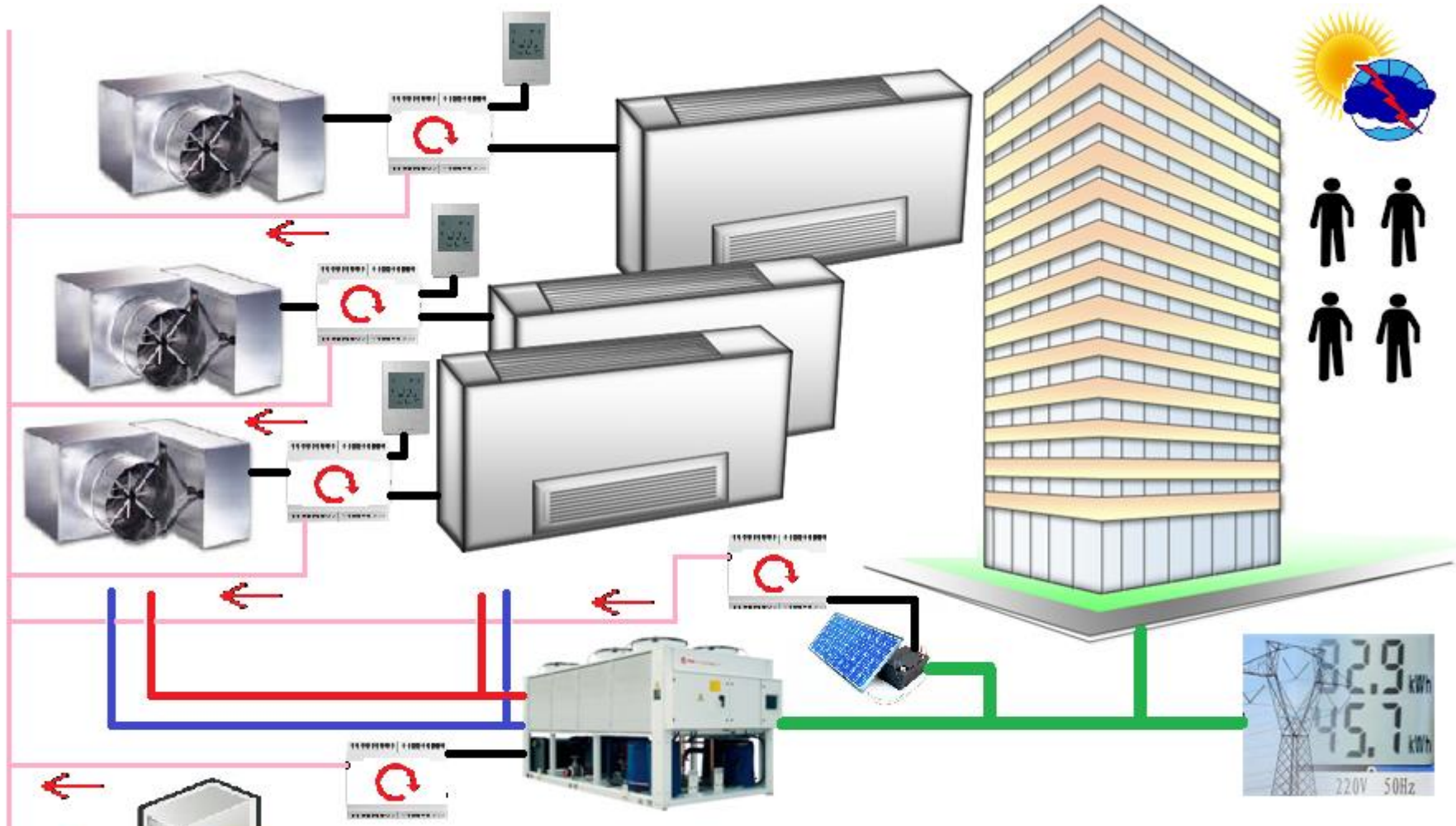
Local energy production and controllable storage

Classic commercial buildings



Weather and occupants

Classic commercial buildings



None/weak coordination between controllers!
The building operation to maintain comfort costs higher than it should!

Project drivers – buildings

- Buildings are an orchestra of many individual technical systems
  - in buildings without coordination all those systems are simply reactive to local variables or time-programmed
    - e.g., heating in the zone is on/off when thresholds are reached
    - batteries are filled in the night and discharged during the day

      → the shape of energy exchange with utility grids is coincidental and non-controllable

Project drivers – utility grid

- Many such non-controllable buildings coincidentally produce large peaks and sags of energy consumption on the grid
  - peaks result in progressively higher losses in the grid and may overload the grid equipment
  - high variance of energy consumption makes it difficult to assure proper supply conditions (voltage)
  - distributed generation may induce overvoltage

  → increased expenses for the grid, reluctance to renewable energy integration

What if?

- …if we can orchestrate the building subsystems
  - such that energy consumption is reduced and energy exchange with the grids becomes controllable while the comfort remains intact

What if...

- ...if the grid assigns different energy costs to different times of consumption and communicates it to the building in advance
  - ... and the building through the coordination mechanism adapts to these prices by selecting the one energy exchange profile that keeps the comfort intact and has the lowest cost
- ...and in this way by summing up many buildings the grid reshapes its load profile
  - ... and reduces energy losses while increases its equipment lifetime

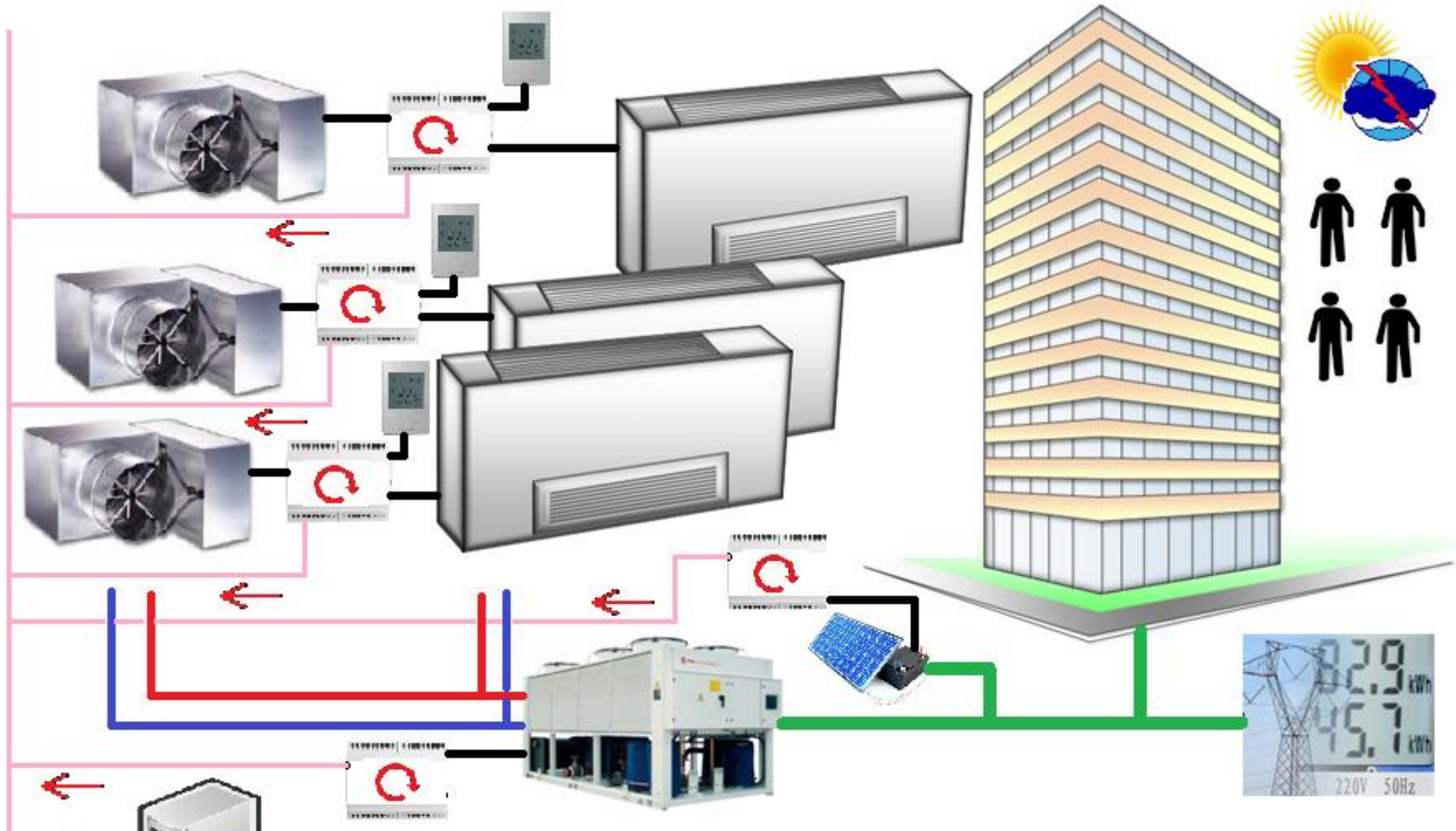
Grid-building coordination (1)

- Coordination within the building, within the grid and between the building and the grid **is technically possible**
- …how we do it?
  - Predictive control and mathematical optimizations
  - Exploiting their naturally featured market-based mechanisms for correlating prices and consumptions

Grid-building coordination (2)

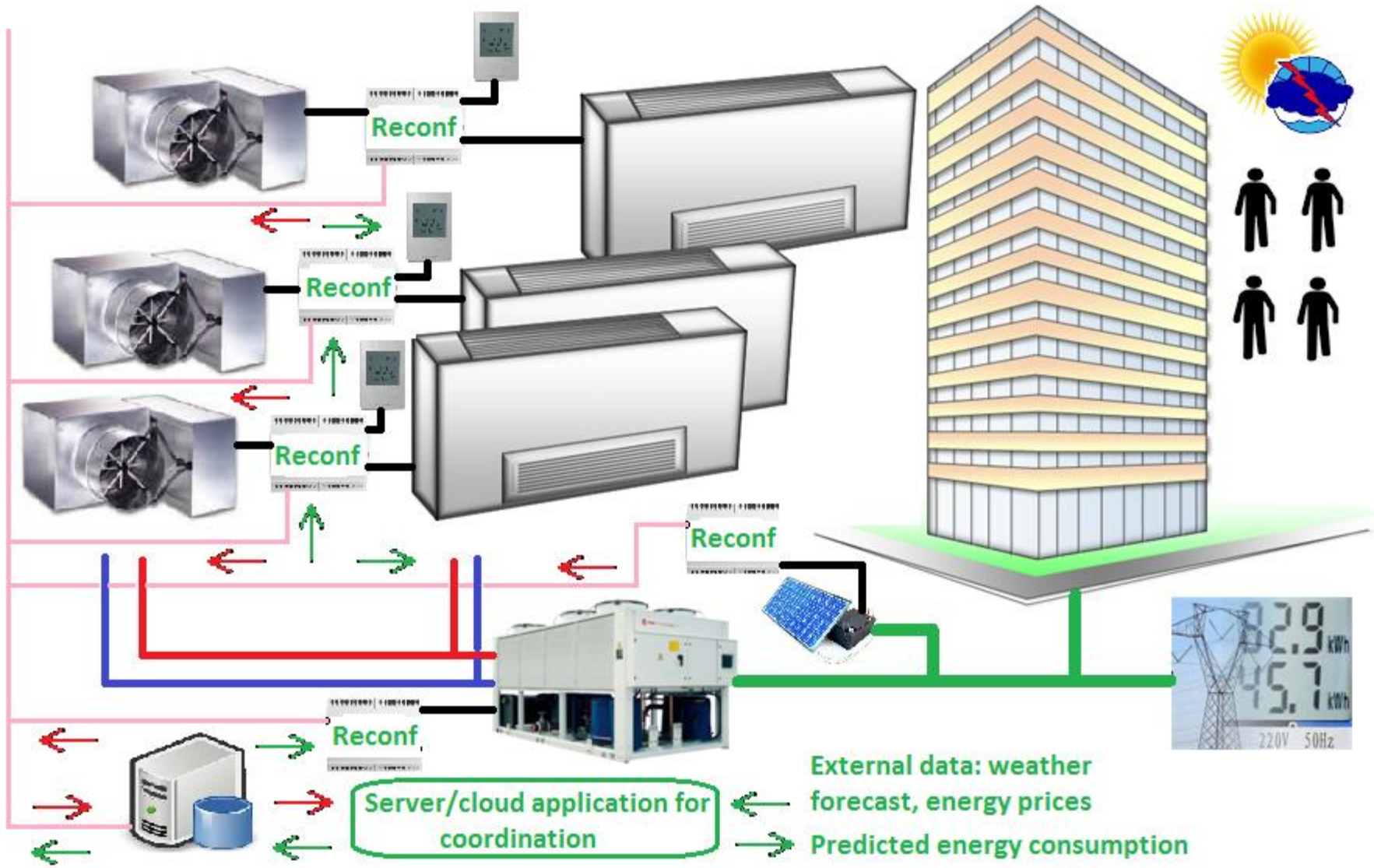
- …but
- …can we make it economically viable?
  - If we can easily impose coordination over the existing systems in their variety, yes! → needed energy management tool adaptable to different building configurations
- …are we allowed to do it?
  - If we can align with regulatory framework and remove barriers → need to influence the regulatory framework on technically sound basis

Classic commercial buildings



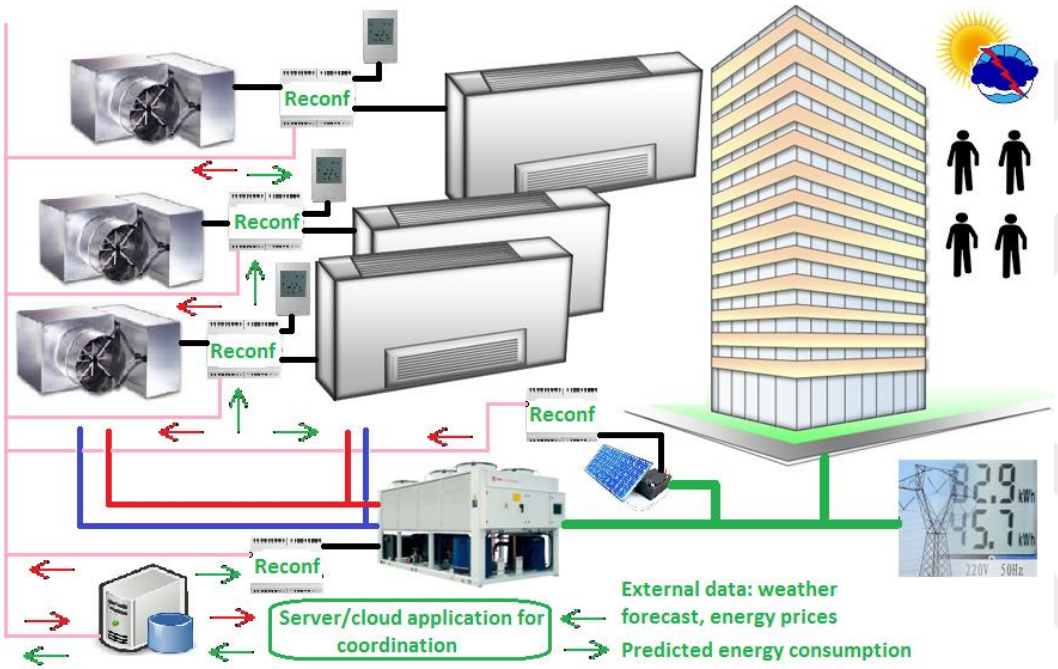
None/weak coordination between controllers!
The building operation to maintain comfort costs higher than it should!

Grid-building coordination (1)



Grid-building coordination (2)

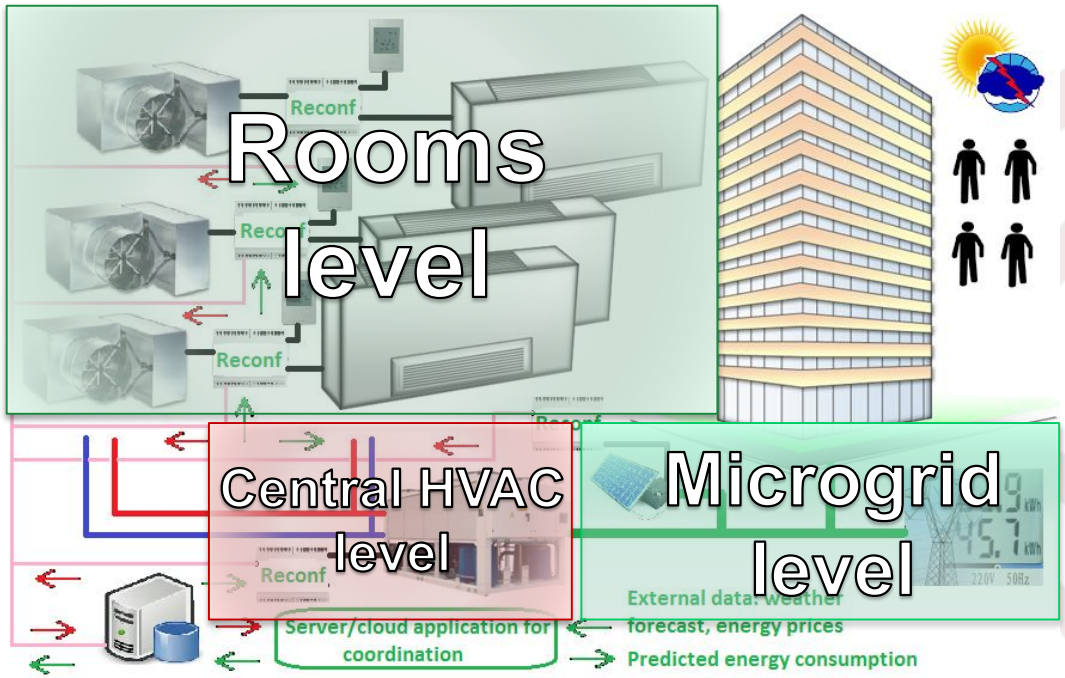
- Modularity of the coordination service
  - Separate modules for different building levels



  - Mutually coordinated in any configuration

Grid-building coordination (3)

- Modularity of the coordination service
  - Separate modules for different building levels



  - Mutually coordinated in any configuration

Grid-building coordination (4)

- … can we find common grounds for the grid-building energy management in the entire Danube region?

  → hopefully yes, through the **3Smart** project!

Acknowledgement

The presented research results are obtained within the project Smart Building – Smart Grid – Smart City (3Smart)

Project co-funded by the European Union through Interreg Danube Transnational Programme (DTP1-502-3.2-3Smart), in the amount of maximum 3.222.641,90 EUR.

PROJECT WEB PAGE

www.interreg-danube.eu/3smart

DISCLAIMER

The contents of this presentation are the sole responsibility of its authors and do not necessarily reflect the views of the European Union.

Overview of 3Smart (1)

- 3Smart overall objective:
  - provide a technological and legislative setup for cross-spanning energy management of buildings, energy grids and major city infrastructures in the Danube region

Overview of 3Smart (2)

- 3Smart specific objectives:
  - SO1. Enable energy management between buildings and distribution grids
    → cross-spanning energy management tool
  - SO2. Demonstrate effectiveness and feasibility of modular energy management
    → pilots in HR, SI, AT, HU and BA
  - SO3. Enable take-up of the platform in buildings, grids and infrastructures
    → strategy to influence the regulatory framework, strategy for EMS take-up on city scale, training, stakeholders engagement, cost-benefit analyses

Overview of 3Smart (3)

Partners

- UNIZGFER (Lead Partner), HEP (HR)
- E3, IDRIJA, ElektroP (SI)
- EEE, STREM, EnergyG (AT)
- UNIDEBTTK, EON (HU)
- UNIBGFME (RS)
- EPHZHB, SVEMOFSR (BA)

Associated Strategic Partners

- HERA (HR)
- GOLEA, JSI (SI)
- FERK (BA)
- HEA (HU)

Pilots

- The modular 3Smart energy management tool put in place in 5 pilots in 5 different countries of the Danube region:
  - UNIZGFER and HEP buildings in Zagreb, HR
  - school and sports hall in Idrija, SI
  - school and care retirement home in Strem, AT
  - EPHZHB headquarter building in Mostar, BA
  - EON headquarter building in Debrecen, HU

Platform, training, replication

- Platform is developed by modules and different partners contribute to it
- Pilot leaders and pilot hosts trained how to install, monitor and maintain the modules locally
- Platform operation will be presented to the public within pilots, in about 2,5 years time

3Smart vision

- Enabled economically optimal interoperation of energy efficiency measures and renewable energy sources in buildings
- Initiated installation of distributed storages to improve energy security in the Danube region
  - storages will further enhance controllability of the energy exchange profiles
- High share of renewable energy in the energy mix

CENTRAL EUROPEAN INITIATIVE

Promotion of Bioeconomy, advanced biofuels and biotechnology in Central, East and South-East Europe

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Project Manager

Central European Initiative
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+39.040.77.86.749
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CEI
CENTRAL EUROPEAN INITIATIVE

The CEI has now 18 Members, spreading from the Adriatic to the Black Sea and the Baltic, with a population of more than 240 million

- ✓ 10 are EU Member States
- ✓ 8 are at different levels of relationship with the EU
- ✓ CEI Members might be very different, but consolidated a shared vision and a common mission
- ✓ Since 1996, CEI has its operational arm in the **Executive Secretariat** established in Trieste with the status of an International Organisation

The Central European Initiative (CEI) was established in 1989 as the first intergovernmental forum promoting

REGIONAL COOPERATION

in Central, East and South-East Europe

The CEI operates flexibly to promote intergovernmental, inter-parliamentary and business cooperation, and is committed to supporting **EU integration** *through collaboration among its Member Countries and with the EU, international and regional organisations.*

... regional cooperation for European integration and bridge between macro-regions ...

CEI
CENTRAL EUROPEAN INITIATIVE

The CEI is committed to supporting the implementation of MACRO-REGIONAL STRATEGIES as well as in the NEIGHBOURHOOD DIALOGUE and EU ENLARGEMENT

CEI approach pivots on three objectives:

- ✓ **Support EU integration of CEI Member Countries**
- ✓ **Promote the alignment to the Acquis**
- ✓ **Implement small and medium-sized projects**

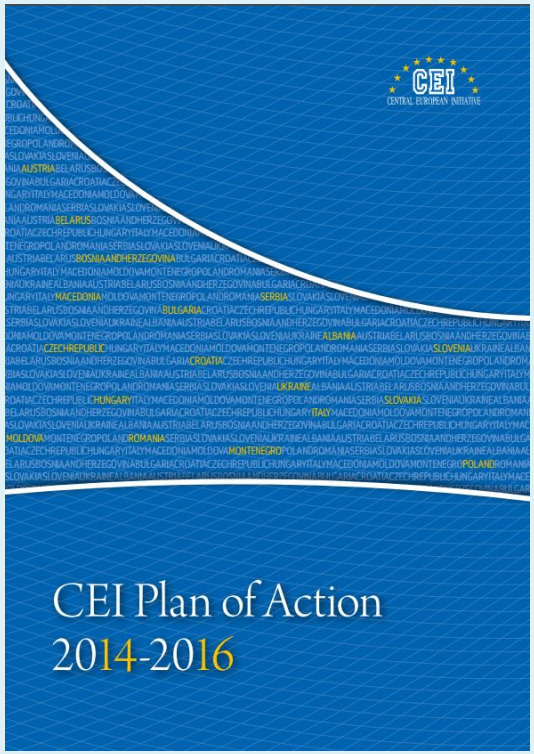
Regional Cooperation for European Integration

while providing

A BRIDGE BETWEEN MACROREGIONS

CEI
CENTRAL EUROPEAN INITIATIVE

The CEI Plan of Action 2014-2016 prioritized Energy Efficiency and Renewable Energy, with a focus on Advanced Biofuels



CEI Plan of Action 2018 – 2020 is currently under adoption.

BIOECONOMY IS A CROSS-CUTTING TOPIC:

- Goal 2 "**Economic growth**"; Objective 2.3 "Supporting the transition to Circular and Bioeconomy, including Blue Growth", but also 2.4. "*Improving the research and innovation systems*", 2.5 "*Supporting innovative start-ups and SMEs, including social enterprises and cultural and creative industries*"
- Goal 3 "**Environmental sustainability**", Objectives 3.2 "Promoting sustainable energy and energy efficiency", 3.3 **"Strengthening rural and area-based development",** 3.6 "Research and development of climate friendly alternative fuels and fuel efficiency"

CENTRAL EUROPEAN INITIATIVE

"To date the concept of the Bioeconomy (…) has largely been associated with visions of "green growth" and the advancement of biotechnology and has been framed from within an industrial perspective. However, there is no consensus as to what a Bioeconomy should effectively look like, and ***what type of society it would sustain****."*

[A Transition to Which Bioeconomy? An Exploration of Diverging Techno-Political Choices - D. Hausknost et al. – Sustainability, IV-2017]

"Although the EU has earmarked €3.85 billion for investment in Bioeconomy […] a more rounded and ***concerted approach*** *is needed to overcome the challenges for a nascent sector facing major risks […] Improving* ***synergies*** *between various existing financing instruments and facilitating access to them is therefore crucial to boost investment in biotechnologies […] The opinion also calls for measures to help SMEs to bring bio-based products to the market. These could include market incentives to partially offset the cost disadvantages for consumers […] It is also important that* ***better communication strategies*** *are developed in order to strengthen the awareness of the Bioeconomy in the regions […] Lastly, the opinion points to considerable* ***regional disparities*** *in the development of Bioeconomy"*

[Il Bioeconomista, May 15, 2017. https://ilbioeconomista.com/2017/05/15/cor-the-eu-needs-to-step-up-its-efforts-to-support-the-bioeconomy-in-regions-and-cities/]

CEI interest in **BIOECONOMY** is primarily determined by its **SOCIO-ECONOMIC POTENTIAL**, which is particularly relevant and meaningful for CEI Member Countries where related activities could **foster rural development**, strengthen the primary sector, valorise human resources and the ability of innovation, trigger industrial rejuvenation, etc.

Towards a **Danube** BIO **region** ?

… regional cooperation for European integration and bridge between macro-regions …

CEI
CENTRAL EUROPEAN INITIATIVE

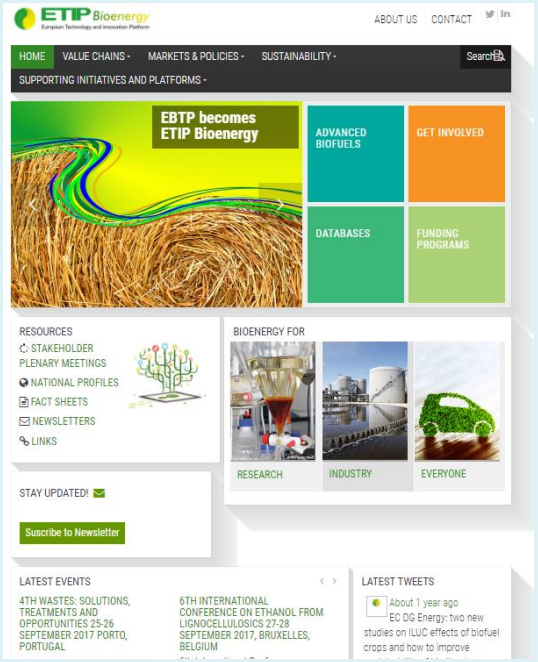
The CEI is not only a platform for political dialogue: we developed a specific methodology, combining **MULTILATERAL DIPLOMACY AND PROJECT MANAGEMENT**

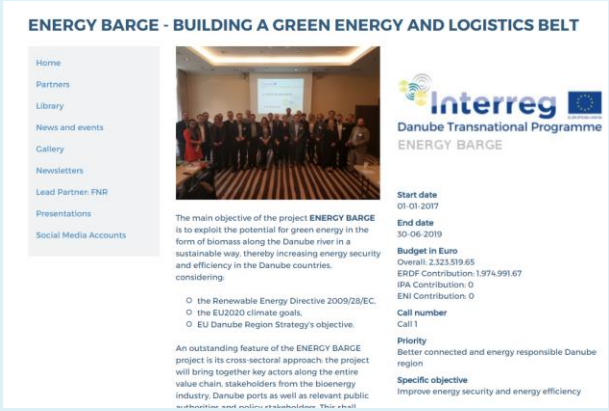
Noticeably, we are engaged in projects both as BENEFICIARIES, when participating to EU projects, and as DONORS, through our dedicated instruments:

- ✓ ***the Know-How Exchange Programmes***
- ✓ ***the CEI Cooperation Fund***
- ✓ ***the CEI Trust Fund at the EBRD***

For more information about CEI funding opportunities, please visit our website: www.cei.int

CEI is a proxy to involve a growing number of stakeholders from the region in EU projects also in the field of R&I and with a focus on BIOENERGY and the BIOECONOMY





... regional cooperation for European integration and bridge between macro-regions ...

In the framework of Danube-INCO.NET, CEI contributed to:

- ✓ **promoting clustering and «triple-helix» networking**
- ✓ **identifying synergies and complementarities**
- ✓ **implementing two pilot activities in collaboration with**

PANNON PRO INNOVATIONS, BOKU, ZSI, BIOS AUSTRIA, ICA-CASEE

Danube-INCO.NET
Advancing Research and Innovation in the Danube Region

- ➢ **Towards a Danube Bioeconomy RTI strategy for appropriate regional added value chains**
- ➢ **Building a Bioeconomy Research and Advocacy Network in the Danube Region**

The Pilot Activities have produced two Position Papers, which include a number of RECOMMENDATIONS for the development of Bioeconomy in the EUSDR. The recommendations could be further developed so to EMPHASIZE THE PERSPECTIVE OF BIOECONOMY STAKEHOLDERS FROM THE WESTERN BALKANS.

To this end, we could support by replicating the questionnaire in order to channel bottom-up information from WB6. This could help making producers' voice heard in the Bioeconomy debate, and sustain a shift in the focus from industrial development to a more holistic area based approach.

The support of institutional stakeholders would be crucial in this exercise. This is made possible also owing to our interactions with the BIOEAST initiative, EIP-AGRI, ICA-CASEE and other networks.

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Promoting the advancement of Bioeconomy in CEI region: THE RECOMMENDATIONS

R1: **PREDICTABILITY**

To ensure stable and consistent policy outlook for investments in Bioeconomy, coordination mechanisms shall be deployed to harmonize policies developed by different line ministries and at different levels of governance, incl. the transnational dimension. This will increase investors' confidence and stakeholders' motivation to uptake innovative technologies and business models1

R2: **SUBSIDIARITY**

To take full advantage of the Bioeconomy as a driver for local development, enhanced bi-directional interaction between national and sub-national governments shall be pursued. This will facilitate capitalizing on local material and immaterial assets, while contributing to the transition to Bioeconomy in the Danube macro-region

R3: **COOPERATION**

Action shall be taken to favour cross-sectoral cooperation and clustering among Bioeconomy stakeholders from the EUSDR, in line with S3 and the Quadruple Helix approach. This is expected to enhance research, deployment of new technologies and uptake of innovative business models

R4: **COMPETITVENESS**

Harmonized measures shall be developed to prioritize the socio-economic development potential of Bioeconomy and enhance the competitiveness of the bio-based sector. In order to underpin the new socio-economic model, particular efforts shall be invested in increasing entrepreneurial literacy and capacities, and in supporting technology transfer and innovation

R5: **ACCESS TO FINANCE**

Action shall be taken to facilitate access to finance for activities and initiatives related to Bioeconomy. This shall include extensive awareness raising and training on existing instruments, but also exploration of innovative mechanisms to accelerate deployment

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Promoting the advancement of Bioeconomy in CEI region: THE RECOMMENDATIONS

R6: **FEEDSTOCKS**

Regional quantitative biomass assessments shall be performed periodically to ensure sustainability. Policymakers, academia and stakeholders shall enhance cooperation to optimize existing monitoring practices and indicators. Dialogue with the bio-based industry shall be fostered to assess needs and trends to better respond to the challenges of Bioeconomy

R7: **SUSTAINABILITY**

Policymakers, academia and stakeholders along the bio-based value chains shall enhance cooperation to elaborate shared innovative soft- and hard-measures to favour the shift to Bioeconomy. While increasing the competitiveness and resilience of agriculture, forestry and ecosystem services, this is expected to enhance sustainability and foster rural development.

R8: **MOBILIZATION**

Policymakers, academia and stakeholders along the bio-based value chains shall enhance cooperation to optimize existing, and elaborate innovative (smart), logistical concepts for sustainable mobilization of biomass. This shall reduce the impact of infrastructural weaknesses and significantly broaden the areas benefiting from the transition to Bioeconomy

R9: **TECHNOLOGIES**

Policymakers, academia and economic operators shall enhance cooperation to define shared methodologies to assess new technologies. This shall promote technology neutral decision-making and objective cost-benefit benchmarking

R10: **MARKETS**

Policymakers, academia and stakeholders shall enhance cooperation to develop shared approaches to promote market pull for bio-based products, with particular regard to certification schemes, quality controls, labelling and consequent awareness raising. This is expected to foster internal demand for domestic products and promote high added value exports

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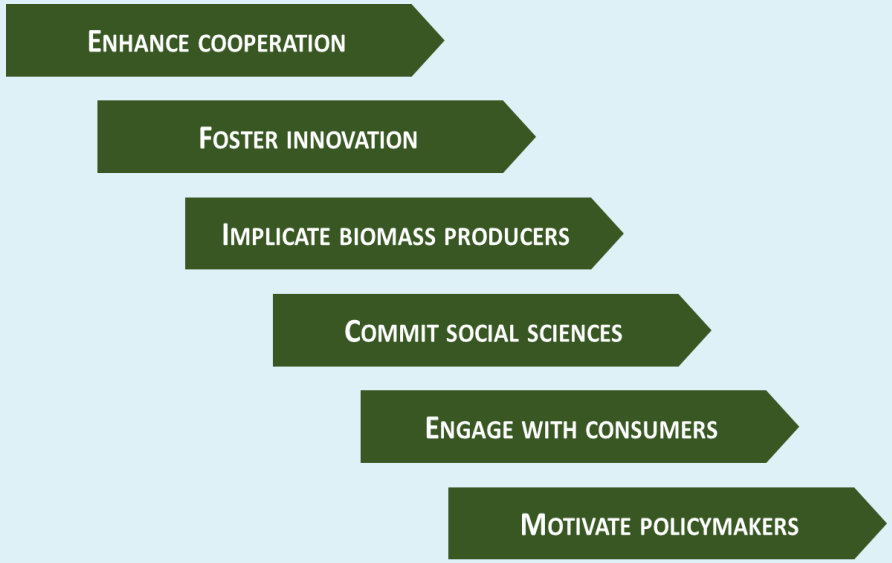
Central, East and South-East Europe, and particularly the Danube Region and Western Balkans, could have a competitive advantage by shifting to Bioeconomy as a comprehensive, innovative and sustainable economic paradigm. This would give impulse to wide-ranging modernization, with positive impacts on economic growth, job creation, rural development, environment, etc.

- **Strengths:** solid academic tradition and capacities, important primary sector & biomass availability, industrial tradition, proximity and strong cultural ties
- **Weaknesses:** lack of coordination among stakeholders, limited access to finance, infrastructural weaknesses and depletion, instable regional/cross-border cooperation among stakeholders
- **Opportunities:** wide market with similar characteristics, openness to innovation and room for deployment of new industries, untapped biomass potentials, much needed agricultural renaissance and industrial rejuvenation, potential to develop regional networks and markets
- **Threats**: demography, political ambiguity, scarce purchasing power, high dependency on foreign capitals and imports, centripetal tendencies



***R**EALISTIC*

in the estimation of opportunities

***I**NTERDISCIPLINARY*

and cross-sectoral approach

***C**OMMITTED*

stakeholders along the value chains

***H**OLISTIC*

development strategies

THANK YOU FOR YOUR ATTENTION !

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