

Providing Affordable Housing with a Low Environmental Impact - in Croatia -



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CROATIAN HOUSING INSIGHT



MCPP → policy maker

- ApolitikA
- Sustainable & Green
- EPBD directive

Central State Office for
Housing Care and
Reconstruction →
post-war care (after the
Homeland War)

**EE IN
BUILDINGS**

Sector for EU
Programmes,
International and EU
Affairs (MCPP)

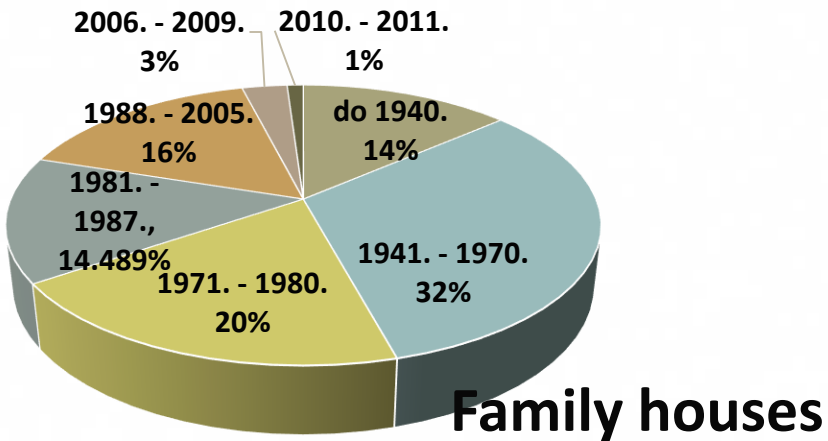
APN (Agency) →
implementation state
agency for housing
programmes

<https://mgipu.gov.hr/about-the-ministry-139/scope-of-the-ministry/housing-8652/8652>

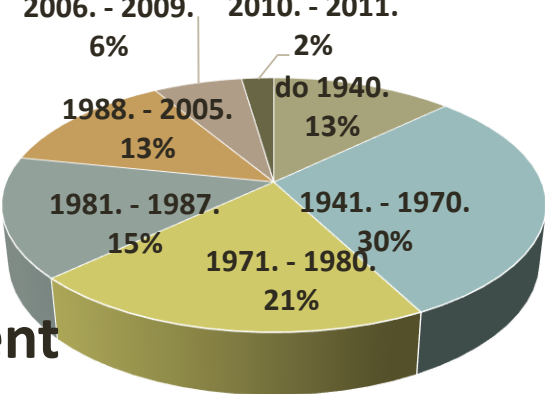
OVERVIEW OF THE NATIONAL BUILDING STOCK BY CONSTRUCTION PERIOD

Residential building stock of the Republic of Croatia by year of construction

Year of construction	Multi-residential buildings		Family houses	
	No.	Floor area (m ²)	No.	Floor area (m ²)
up to 1940.	37201	5830983	64391	10092805
1941. - 1970.	85959	13473337	151507	23747572
1971. - 1980.	59882	10398113	93109	16167887
1981. - 1987.	44434	9401527	68348	14461473
1988. - 2005.	38358	8177401	75615	16120249
2006. - 2009.	18256	6199252	13762	4673079
2010. - 2011.	6600	1957449	4976	1475551

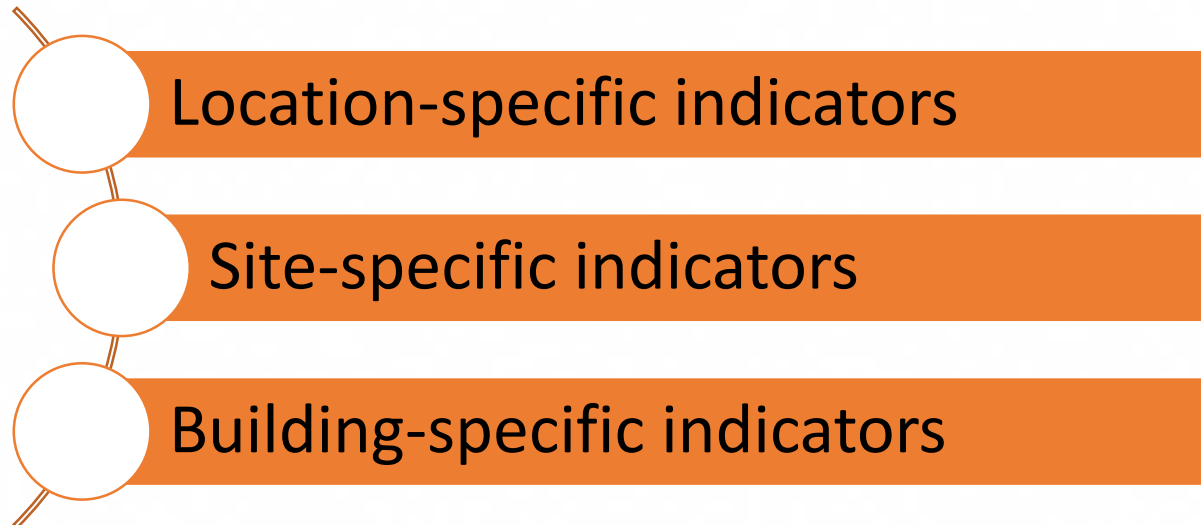


Multi-apartment buildings



GUIDELINES FOR GREEN AND SUSTAINABLE CONSTRUCTION

- In progress
- Define impact factors & indicators of construction works on sustainable development, environment **and quality of life**
- HRN ISO 21929-1 - Sustainability in building construction -- Sustainability indicators
- The basic indicators:



IMPACTFUL ACTIVITIES



On 1 January 2018, the Presidency of the CEI was assumed by Croatia - CEI Member since 1992.

The Chairmanship of the CEI rotates annually at the beginning of the calendar year and is based on the English names of CEI Member States, unless decided otherwise. It convenes the meetings of the Ministers of Foreign Affairs, the Political Directors, the CNC and other meetings of interest for the Foreign and European Affairs of the Republic of Croatia: <http://www.mvnp.hr/en/>



2018 Croatia assumed the Presidency of the CEI
Central European initiative (CEI)
MCPP organized an expert conference:
„Energy efficiency in buildings - for a better tomorrow“ - 26 and
27 September 2018

- > **250 participants from 14 CE countries**

Germany, Belgium, Austria, the Czech Republic, Ukraine, the Netherlands, Poland, Italy, Slovakia, Lithuania, Hungary, Romania, Serbia, Bosnia and Herzegovina and Croatia.

- 37 speakers and presenters in 2 days

- **Dimitrios Athanasiou**, European Commission Representative
- **Adrian Joyce**, Director of campaign "*Renovate Europe*"
- **Prof. Brenda Boardman**, Prof. Emeritus, Oxford
- **Oliver Rapf**, Director of Building Performance Institute Europe (BPIE)



IMPACTFUL ACTIVITIES



CONCLUSION

SAME GOAL FOR ALL!

To involve all stakeholders in building sector, encourage the initiation and active participation, adopt a national policy with a focus on increasing energy efficiency and the use of RES in buildings.

- Good laws and regulations are essential for EU funding

A screenshot of the CEI website showing a news article titled 'Expert Conference: Energy Efficiency in buildings - for a better tomorrow held in Zagreb'. The page includes a navigation menu with links like 'OPPORTUNITIES', 'PRIZES', 'PUBLICATIONS', 'CONTACT', 'WHO WE ARE', 'WHAT WE DO', 'HOW WE DO IT', and 'NEWS'. The article text discusses the conference organized by the Ministry of Construction and Physical Planning of Croatia, focusing on energy efficiency and the use of renewable energy sources. It also mentions the CEI's role in promoting EU enlargement and knowledge transfer. A sidebar on the right lists 'Upcoming events' for May, including 'Bologna (Italy)', 'Koper (Slovenia)', 'Minsk (Belarus)', 'Brussels (Belgium)', 'Bratislava (Slovakia)', and 'Belgrade (Serbia)'.

CEI
CENTRAL EUROPEAN INITIATIVE
30 years

OPPORTUNITIES PRIZES PUBLICATIONS CONTACT
WHO WE ARE WHAT WE DO HOW WE DO IT NEWS

Expert Conference: Energy Efficiency in buildings - for a better tomorrow held in Zagreb

Home / News / Expert Conference: Energy Efficiency in buildings - for a better tomorrow held in Zagreb

Wed, 03/10/2018 **Economic growth**

A photograph showing a group of people, mostly men in suits, seated in an audience during the conference.

Presidency
On 26-27 September 2018, the Ministry of Construction and Physical Planning of Croatia organised the international expert conference "Energy Efficiency in buildings - for a better tomorrow" in Zagreb.

The conference was organised within the framework of this year's Presidency of the Central European Initiative (CEI) by the Republic of Croatia, with the priorities of the Croatian Presidency focused on EU enlargement and the transfer of knowledge and experience from the (pre)accession process, economic cooperation, cooperation in the field of culture, migration challenges, intensification of CEI cooperation with other regional and international organisations and continuation of parliamentary cooperation.

The theme of the conference is topical for all of Europe, and energy efficiency is one of the strategic priorities of the European Union. The EU's objective is independence in terms of energy, as well as slowing down overall climate changes.

The task for all stakeholders and protagonists in the construction sector is to give impetus to active action, using all available potentials, aimed at the adoption of national policies of energy efficiency increase and use of renewable energy sources in the building sector.

CEI-ES representative Elisabetta Dovier highlighted that "buildings are responsible for over one-third of CO2 emissions globally but due to the fragmented nature of the market and the split incentives that exist, it is difficult to be financed at scale. The CEI is looking to finance operations related to policy and regulatory reform in the sector, for scaling up of buildings energy efficiency financing also through buildings energy efficiency legislation and regulations".

Upcoming events

MAY 13-16	Bologna (Italy) SULPITER PROJECT: Final Event on planning and urban logistics
MAY 13-16	Koper (Slovenia) IX Spring School on "IoT, economic management challenges for e-health in the enlarged Europe"
MAY 15-17	Minsk (Belarus) Adolescent Parenting and Education for Future Digital World
MAY 15	Brussels (Belgium) Committee of National Coordinators
MAY 20-22	Bratislava (Slovakia) Trends in Medicinal and Pharma Biotech in Europe: Towards Strengthening Cooperation Including CEE Countries BT in EU/CEE
MAY 22-24	Belgrade (Serbia) Geosciences applied to solve human problems all over the world

STAKEHOLDER PARTNER DIALOGUES

- Decarbonization in buildings by 2050
- MCPP initiated *Charter of Co-operation for the Decarbonisation of Buildings by 2050* - transforming the exis.build.stock into a highly energy efficient one → 45 partners in total
- The importance of communication → underway in the preparation of the *Long-term renovation strategy for the Reconstruction of the National Fund of Buildings and the transition to the standard of building nearly zero-energy buildings (nZEB).*



State government

Local governments

Academic community

Professional public

Construction sector

Energy and power sector



...& accompanying industries

STAKEHOLDER PARTNER DIALOGUES

1ST → New Long-term renovation strategy (27/9/18)

- Decarbonisation by 2050
- Smart finance for smart buildings
- Electromobility
- One Stop Shop
- Automation and control systems
- Fire safety and seismic activity risks

2ND → Energy poverty (1/2/19)

- 100 participants
Goal:

defining criteria for vulnerable citizens / citizens in danger of energy poverty and allocate the maximum % of non-refundable funds for the reconstruction of energy-poor households

3RD → Fire and seismic activity risks (23/4/19)

- Connecting energy renovation measures with protection against fire and seismic activity risks
- Presentations and panel discussion

ENERGY POVERTY CRITERIA

- Selected for **immediate use:**
 - number of people in household * min. surface per person * Qhnd * kn / kWh;
 - 15 m² / per household member;
 - 70 m² + 20m² for each member of the household

For later use:

- Low household income / income per household
- Energy class of a building (QHnd i.e. heating needs)
- Guaranteed minimum fee
- Personal disability benefits
- Real consumption of particular energy product proven by invoices (in m²)
- Energy basket share in household's income (energy for heat, warm water, lighting and electricity included)
- Total household energy costs in comparison to total household income
- Retired people with retirement pension less than ...
- Single-parent families
- Recipients of a child benefit
- Total heat costs in comparison to total household income
- Index rate of territory development

ENERGY POVERTY – RECENT GOVERNMENT ACTIONS

- 23/01/2019: Croatian Government **adopted the Conclusion on supporting the drafting of the Programme for the Suppression of Energy Poverty**, which includes the use of renewable energy sources in residential buildings in assisted areas of special state concern for the period 2019 – 2021.
- Critical are houses and residential buildings → urgent renovation needed

The responsible institutions participating in the development of this programme are:

- Ministry of Construction and Physical Planning
- Central State Office for Reconstruction and Housing
- Ministry of Regional Development and EU Funds
- Ministry of Environment and Energy
- Fund for Environmental Protection and Energy Efficiency

- Sensitive category of residential buildings is located in areas of special state concern
- The assisted area is based on the development index
- The programme also applies to the regional and local level
- 413 resid.buildings with 5,100 apartments, mostly owned by Croatia



State-subsidised Housing Construction Programme (POS)

Programme of state-subsidised rent of dwellings (PON)

Housing Programme for Victims of the Homeland War

Programme of reconstruction of buildings and remediation of flood consequences in the territory of Vukovar-Srijem county

Housing Programme for Returnees, Former Holders of Tenancy Rights

Stimulation of sale of dwellings & Subsidies and state guarantees for housing loans

Programme POS for providing loans for family houses

Housing Loan Subsidies





State-Subsidised Housing Construction Programme (POS)

- since 2001
- Act on State-subsidised Housing Construction
- Ordinance on minimal technical requirements for the design and construction of apartments under the state-subsidised housing construction programme
- 8 272 apartments, 253 buildings

Programme of state- subsidised rent of dwellings (PON)

- 442 apartments rented
- 664 gar/parking places rented

Programme POS +

- 458 applications approved

Housing Programme for Victims of the Homeland War

- since 1997

Programme of reconstruction of buildings and remediation of flood consequences in the territory of Vukovar-Srijem county

- since 2014

Housing Programme for Returnees, Former Holders of Tenancy Rights

Stimulation of sale of dwellings & Subsidies and state guarantees for housing loans

Programme POS for providing loans for family houses

Housing Loan Subsidies

NATIONAL PROGRAMMES OF ENERGY RENOVATION OF BUILDINGS IN THE REPUBLIC OF CROATIA



ZEnU / Energy Efficiency Act
NAPEnU / National Energy Efficiency Plan

Programme
of energy
renovation
of public
sector
buildings
2014-2015

Programme
of energy
renovation
of family
houses
2014-2020

Programme
of energy
renovation
of **multi-
residential
buildings**
2014-2020

Programme
of energy
renovation
of
**commercial
buildings**
2014-2020

Programme
of energy
renovation
of **public
sector
buildings**
2016-2020

**Long-term
strategy** for
mobilising
investment in
the national
building stock

2014

2020

2050

PROGRAMME OF ENERGY RENOVATION OF PUBLIC SECTOR BUILDINGS 2014-2015

ESCO MODEL
ENERGY PERFORMANCE
CONTRACTING

**60% PRIVATE ASSETS OF
ESCO COMPANY**

**40% NATIONAL
CO-FINANCING**

- **Environmental Protection and Energy Efficiency Fund** - co-financing with grants (40% of eligible costs to the public sector)
- **69 buildings** covered by active contracts
- **Total surface area : 257 000 m²**
- **604 million kuna (82 M€)** (VAT excluded)
- **Annual savings: 70 GWh**

Swimming pool - Poljud, Split

50 years

AVERAGE
BUILDING AGE

79,5 mil €

NON-
REFUNDABLE

E → C

BEFORE -
AFTER

52%

AVERAGE
SAVINGS

20%

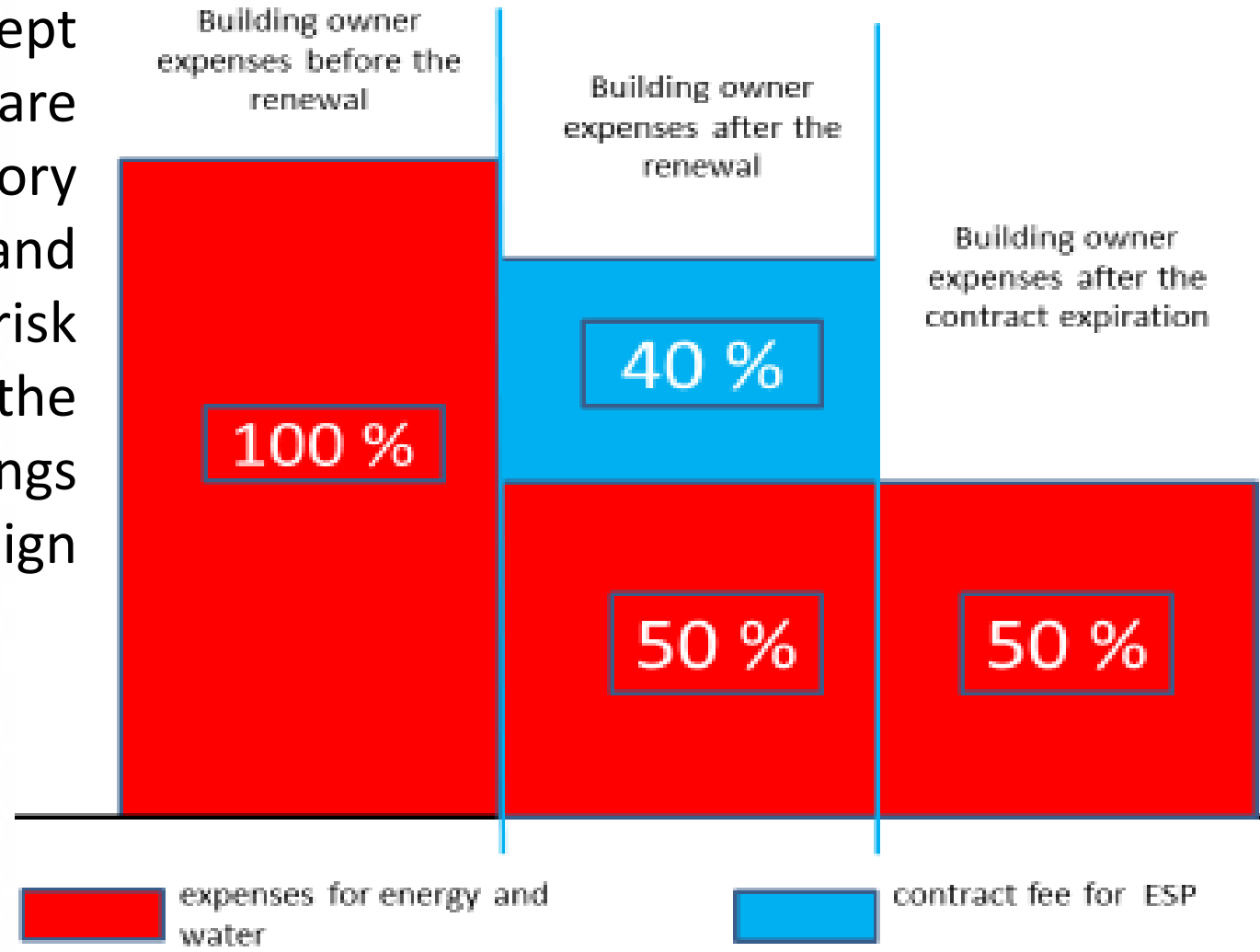
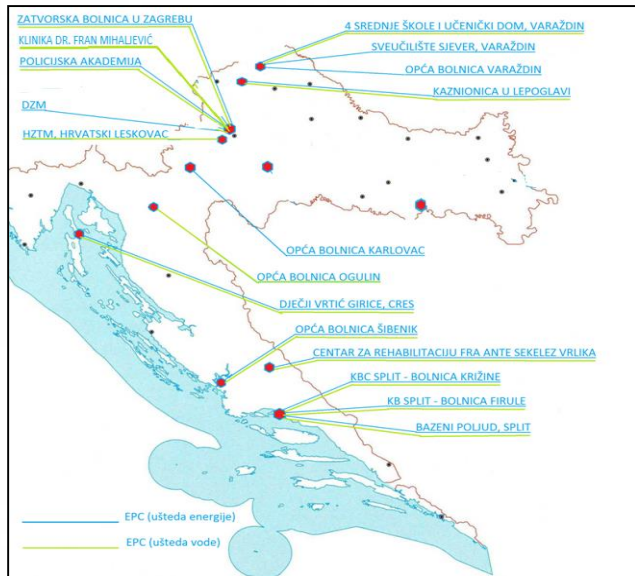
RES
ENERGY

60 GWh/a

AVERAGE
ANNUAL
SAVINGS

PROGRAMME OF ENERGY RENOVATION OF PUBLIC SECTOR BUILDINGS 2014-2015- SETTINGS

- Integrated renovation concept
- Building envelope measures are mandatory
- ESCO invests and takes technical and economic risk
- The service fee shall not exceed the savings
- Energy savings are proven by the design



Legend: ■ expenses for energy and water; ■ contract fee for ESP

PROGRAMME OF ENERGY RENOVATION OF PUBLIC SECTOR BUILDINGS 2016-2020

Model 1

- **For public educational buildings**
- For pre-school/elementary /secondary school education
- For college/university education
- **Co-financing by allocation of grants from ESI funds**

Programme objective:
→ *Integral renovation*
→ *Energy consumption reduction up to 70%*
→ *Annual energy savings about 50 GWh*

Model 2

- **By standardized EPC**
- ESCO funds for the entire investment (60% own funds + 40% grant)
 - **Grants from ESI funds are allocated to the ESCO company (ESCO is the beneficiary of the grant)**

Financing:

→ **ERDF (OPCC 2014-2020)**

→ **211 810 805 EUR allocated**

Model 3

- Public sector receives grants from ERDF; with own share:
 - **(1) By contracting the energy service; (2) By a financial instrument; (3) With funds from the Fund for co-financing implementation of EU projects; (4) Own funds allocated in the budget**

RESULTS

PROGRAMME OF ENERGY RENOVATION OF PUBLIC SECTOR BUILDINGS 2014-2015 (82 M€)



Clinical Hospital Centre Split - location Križine

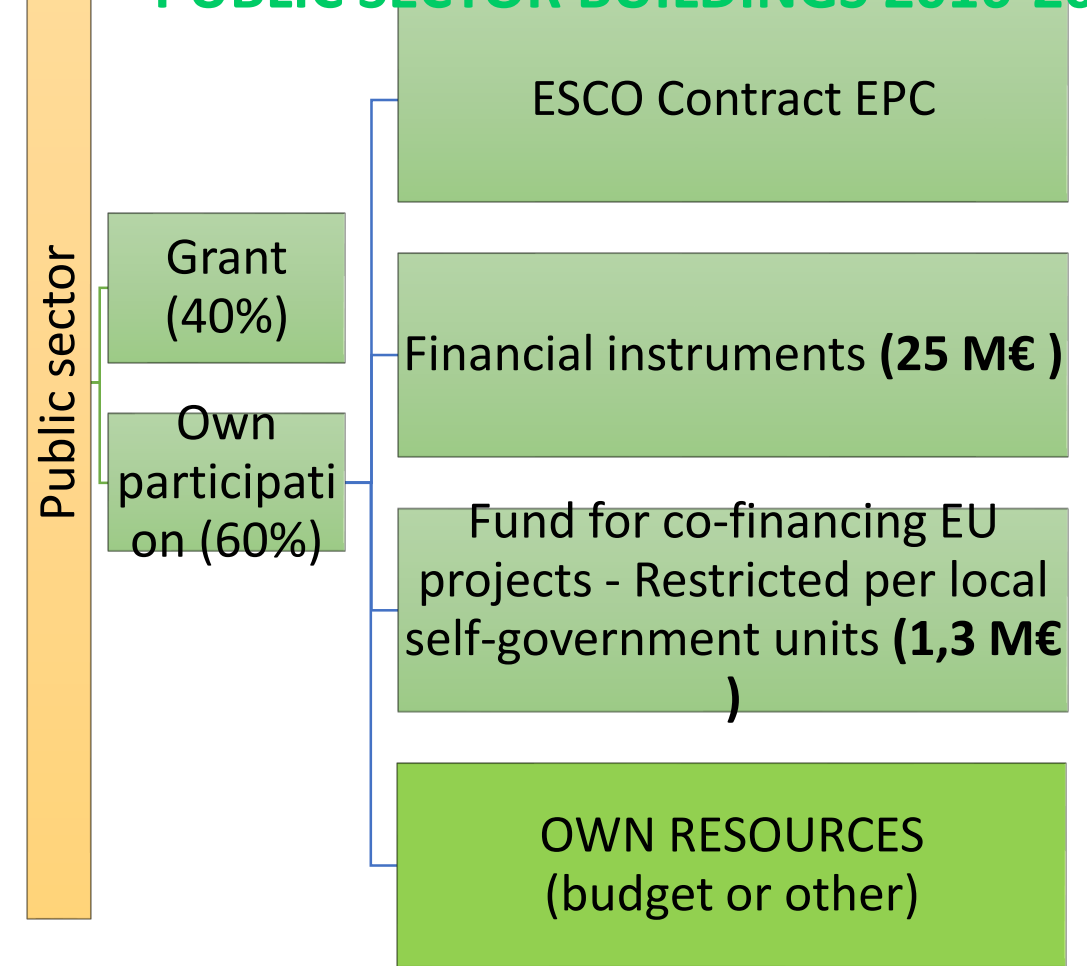


Clinical Hospital Centre Split – location Firule



University North, Varaždin

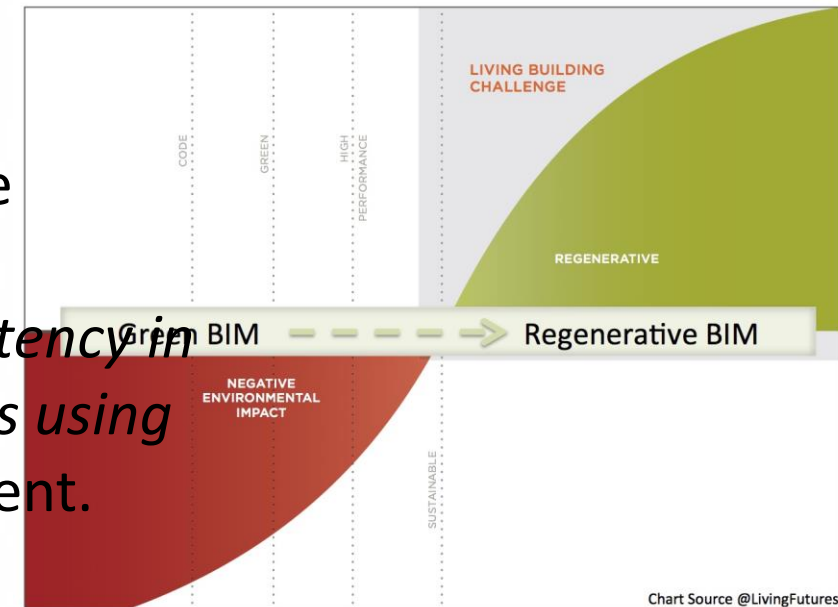
PROGRAMME OF ENERGY RENOVATION OF PUBLIC SECTOR BUILDINGS 2016-2020



<https://www.youtube.com/watch?v=FYefVxgsDE4&feature=youtu.be>

TODAY & TOMMORROW

- ✓ BIM + Sustainability = **GREEN** BIM
- ✓ Building energy efficiency optimizing
- ✓ design phase, facility management, reconstruction → Life cycle
- ✓ Murphy M.E.; Nahod, Maja-Marija, (2017). *Stakeholder competency in evaluating the environmental impacts of infrastructure projects using BIM.* // Engineering, Construction and Architectural Management. (2016/2017)



NZEB BUILDINGS – CURRENT SITUATION IN CROATIA

MCPP Register:

from 1.1.2014 to 30.06.2018

52 - buildings

62.811 m² - gross floor area

51.375 m² - net floor area

Home / Opinions / Energy & Environment / Energy / Energy performance of buildings / Croatia's renovation projects can teach us as much as their football

Croatia's renovation projects can teach us as much as their football

DISCLAIMER: All opinions in this column reflect the views of the author(s), not of EURACTIV.COM Ltd.

By Adrian Joyce | Renovate Europe

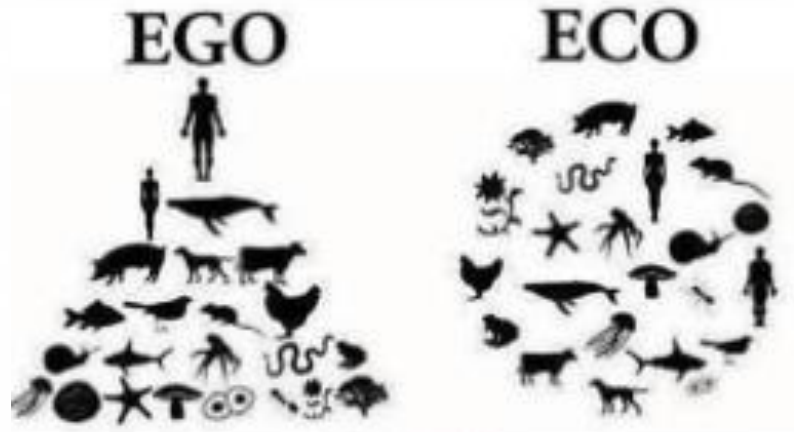
17. srp 2018.



Members of the Croatian national soccer team celebrate together with their supporters on their arrival in Zagreb, Croatia, 16 July 2018. [EPA-EFE/ANTONIO BAT]

Popular articles

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THANK YOU...

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