

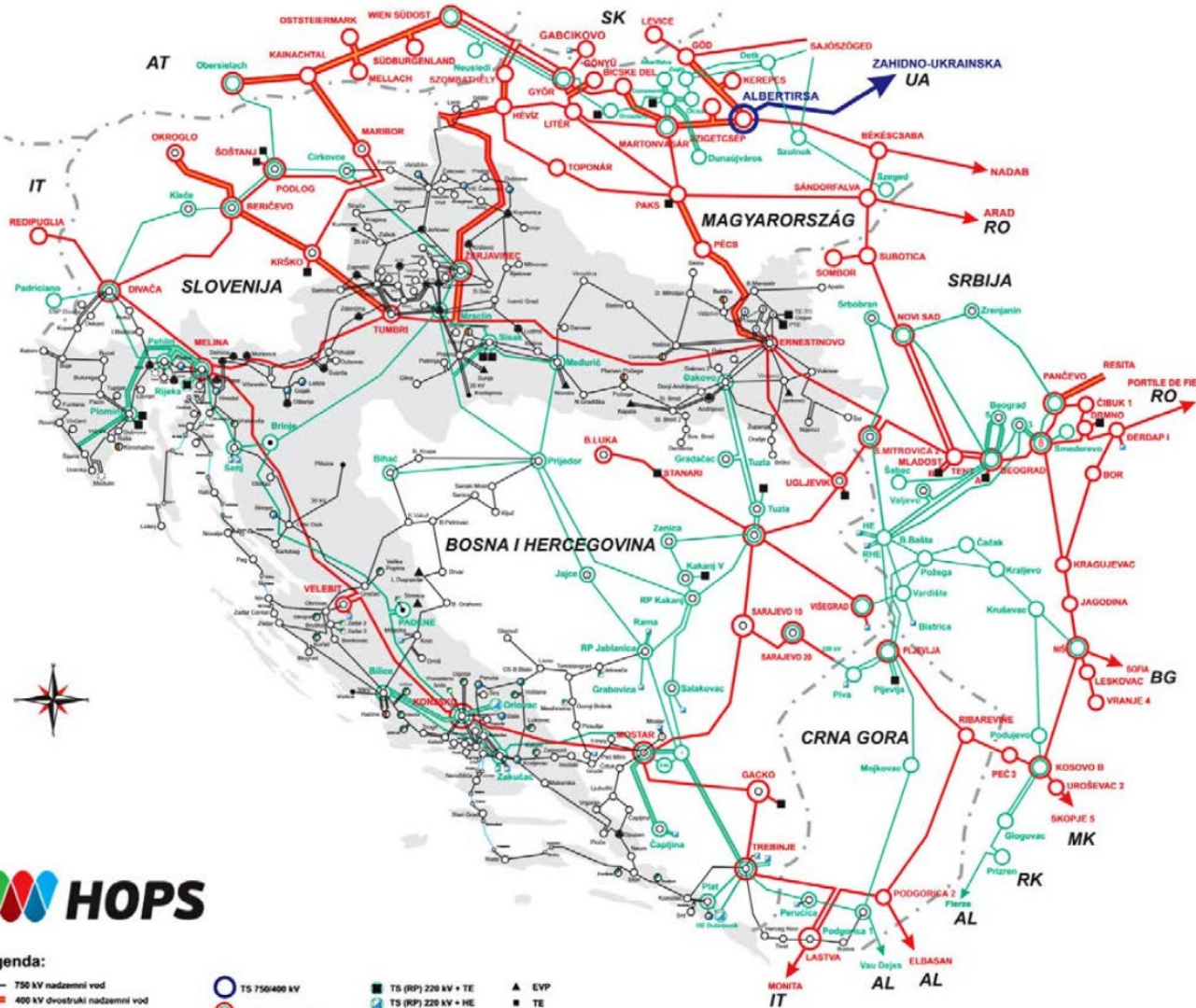
Powering Progress FOR

30 YEARS

Energy institute Hrvoje Požar

Tbilisi, June 2024





Legenda:

- 750 kV nadzemni vod
 - 400 kV dvostruki nadzemni vod
 - 400 kV nadzemni vod
 - 220 kV dvostruki nadzemni vod
 - 220 kV nadzemni vod
 - 220 kV kabelski vod
 - 110 kV nadzemni vod
 - 110 kV kabelski vod
 - 110 kV podmorski kabel
- TS 750/400 kV
 - TS 400/220/110 kV
 - TS 400/220 kV
 - TS 400/110 kV
 - TS 220/110 kV
 - TS 220/110 kV
 - TS 110/35 kV
 - TS (RP) 110 kV + EVP
 - TS 110kV kV U IZGRADNJI
 - TS 35kV kV
- TS (RP) 220 kV + TE
 - TS (RP) 220 kV + HE
 - TS (RP) 110 kV + VE
 - TS (RP) 110 kV + HE
 - TS (RP) 110 kV + TE
 - TS (RP) 110 kV kupca
 - 110 kV Kabelsko postrojenje
- ▲ EVP
 - TE
 - HE
 - VE

Legenda:

- DV 400 kV
 - DV 220 kV
 - DV 220 kV (rekonstruirani/ HTLS vodič)
 - - - U IZGRADNJI
 - NOVI ILI REVITALIZIRANI OBJEKT
 - NOVI ILI REVITALIZIRANI OBJEKT (fondovi EU, priključenja)
- 400/220/110 kV
 - 400/110 kV
 - 220/110 kV
 - TE
 - HE
 - VE

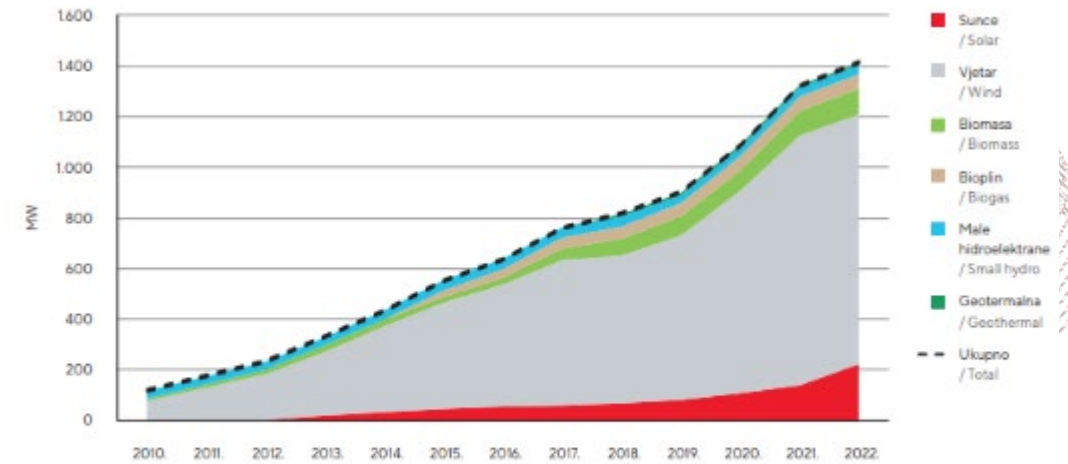


Veljača, 2021.

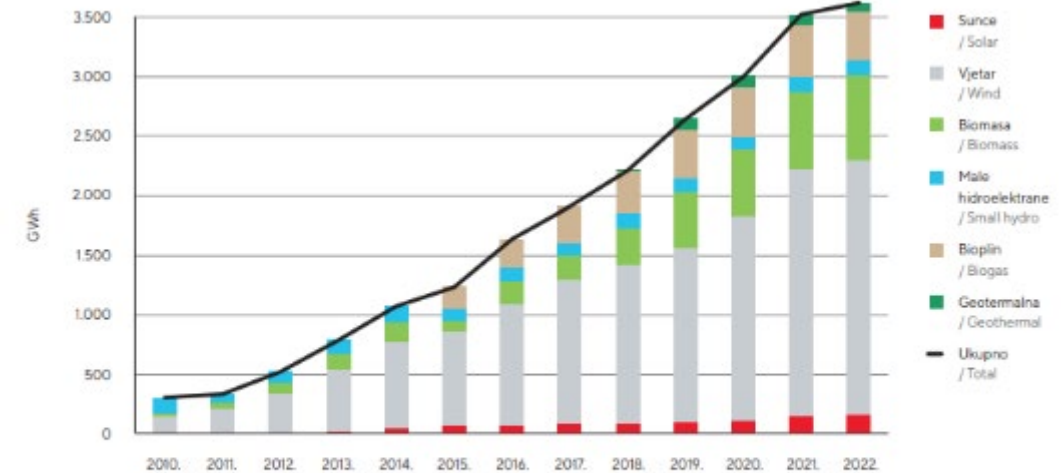
RE in Croatia



	2022	Target 2030
RES-E	55.52%	73.6%
RES-T	2.42%	21.6%
RES-H&C	37.21%	47.1%
RES	29.44%	42.5%



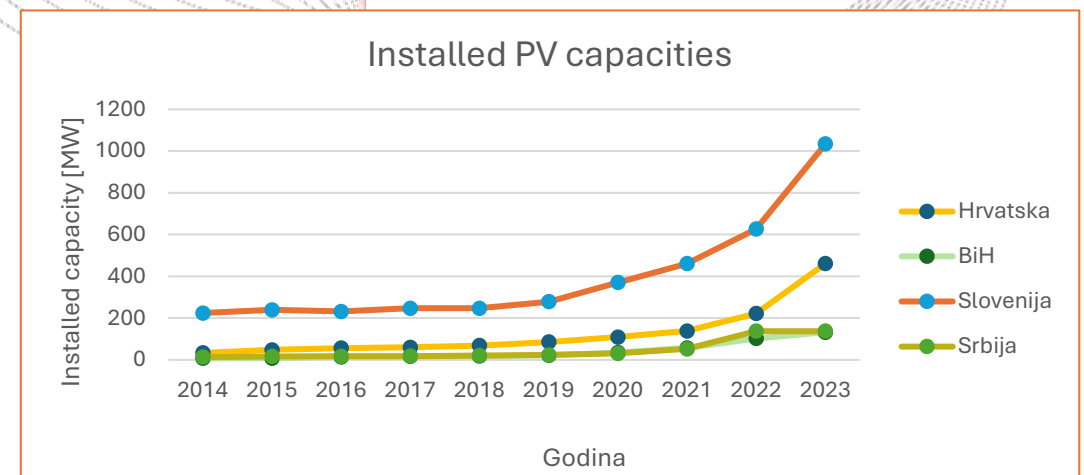
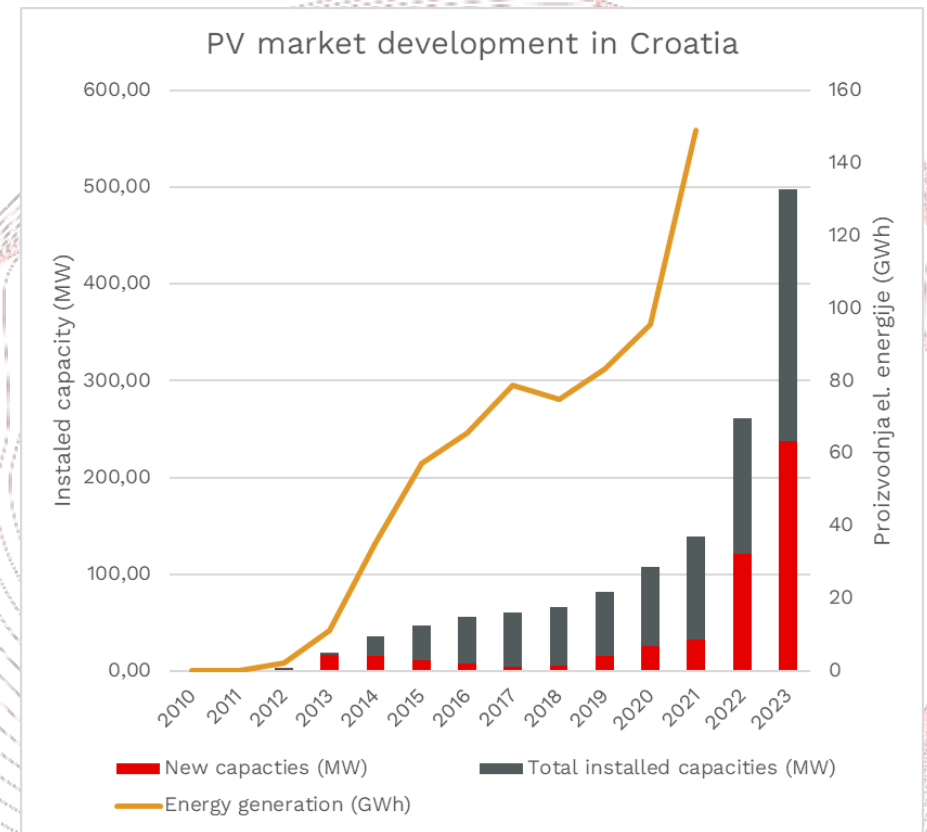
Slika 8.1.2. Instalirani kapaciteti za proizvodnju električne energije iz obnovljivih izvora energije u Hrvatskoj
/ Figure 8.1.2. Installed capacities for RES-E generation in Croatia
Izvor: EIHP / Source: EIHP



Slika 8.2.1. Proizvodnja električne energije iz OIE u Hrvatskoj
/ Figure 8.2.1. RES-Electricity generation in Croatia
Izvor: EIHP / Source: EIHP

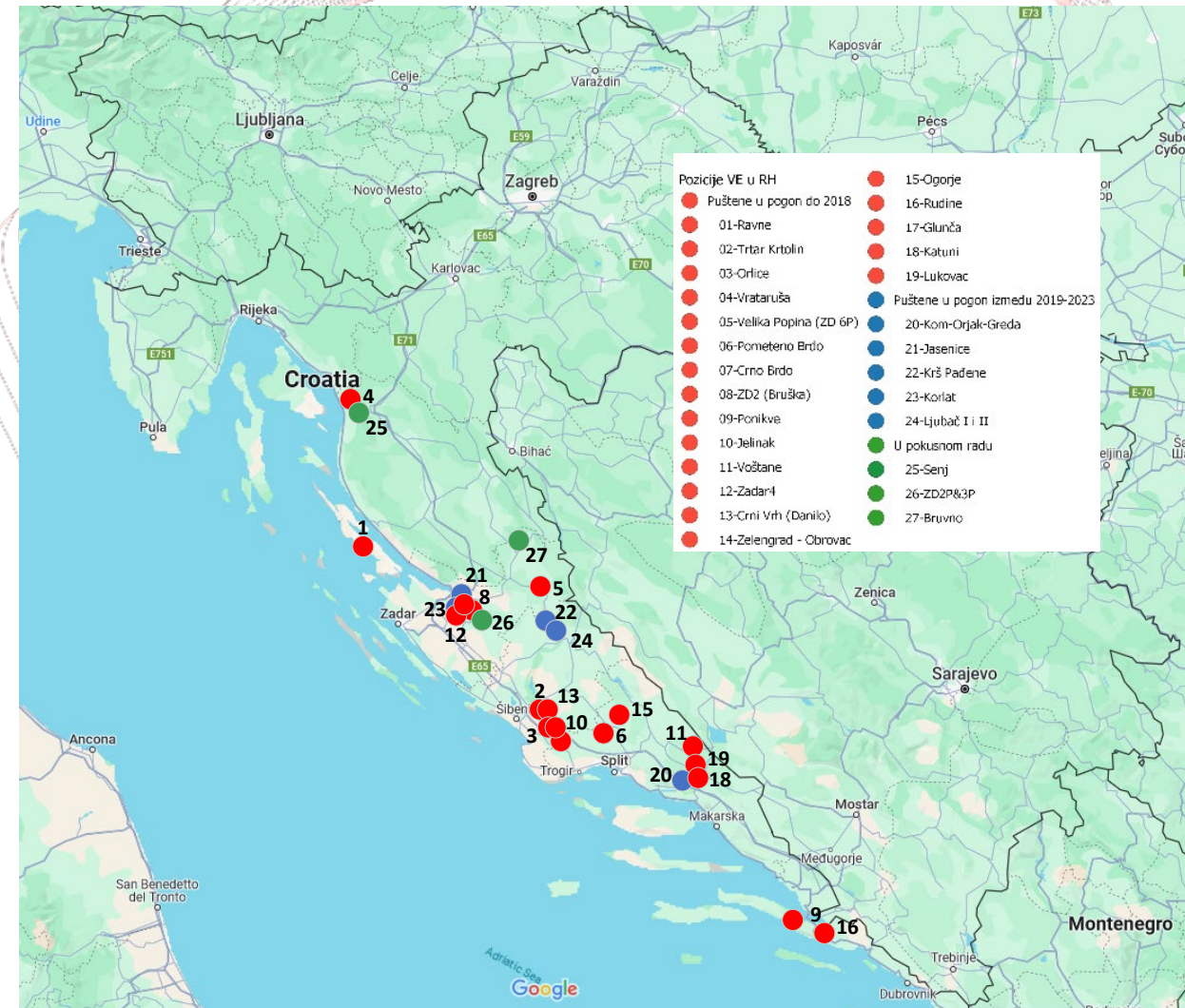
Solar energy

- Under 500 MW by the end of 2023 (only 222 MW in 2022)
- Noticeable growth in the last several years
 - Self-consumption and small-scale systems
- Market development hinges on legal framework
 - Driven by incentives (2007–2015) and a favorable legal framework (2019-2023)
 - Omitted by administrative procedure, formal barriers (quota), and undefined legal framework (2016-2019)
- 30 projects in installed capacity above 1 MW (end of 2023)
- 2022/2023 – the start of operation of larger PV plants
 - SE Drava is the first SPP connected to the transmission grid (110 kV), installed capacity of 12.4 MW

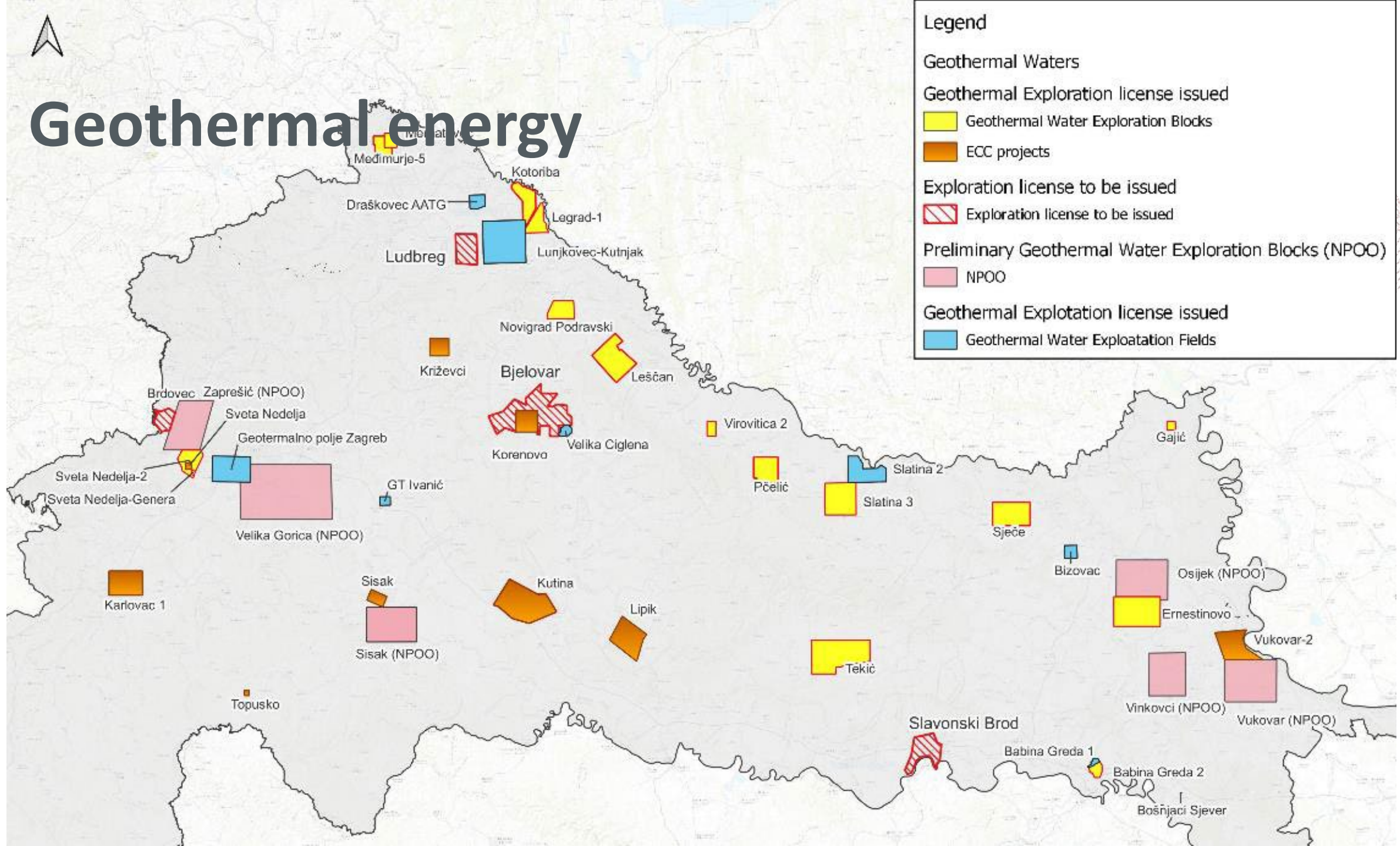


Wind energy

- 1160.15 MW installed capacities
 - around 326 MW in trial run
- First steps towards the development of offshore projects
 - Many unknowns (marine area, sea depth issues, choice of foundation for wind turbines, insufficient measurements, etc.)
- Production of 2.533 TWh in the year 2023

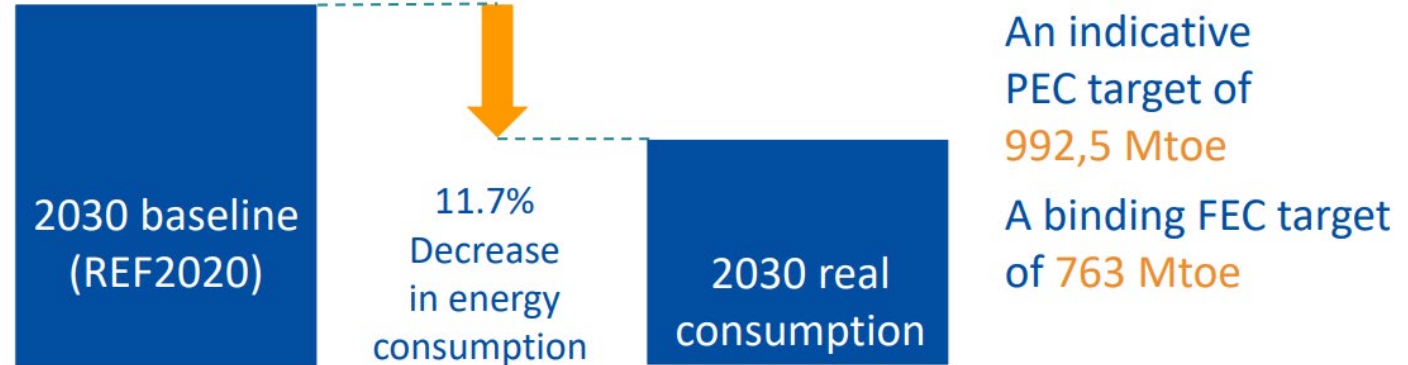


Geothermal energy



EED

- RH – NECP2023: **FEC 6,55 Mtoe**; PEC 8,14 Mtoe
- RH – EC*: **FEC 6,01 Mtoe**; PEC 6,83 Mtoe (with 2,5% deviation)



*Based on Annex I of the EED3 “ambition gap” mechanism

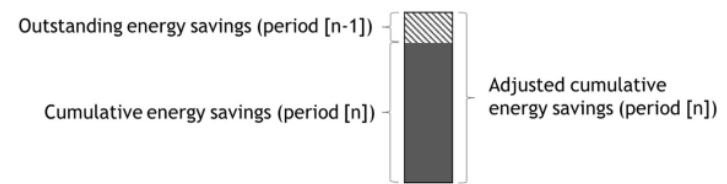
Article	Description	Assessment	Grading	
	Energy efficiency contribution	Croatia notifies an energy efficiency contribution in 2030 of 6.55 Mtoe for final energy consumption and 8.14 Mtoe for primary energy consumption.	The objectives for final and primary energy are not in line with the EED formula (even taking into account the possibility to deviate from the formula's result by 2.5%). Final energy consumption should not be higher than 6.01 Mtoe (EED formula result for final energy with 2.5% deviation) and 6.83 Mtoe (EED formula result for primary energy without 2.5% deviation).	Insufficient

EED

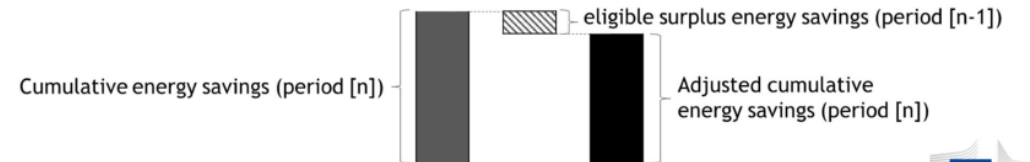
- Chapter III – Efficiency in energy use
 - Article 8 – Energy savings obligation
 - Article 9 – Energy efficiency obligation schemes
 - Article 10 – Alternative policy measures
- New savings each year from 1 January 2021 to 31 December 2030, **four obligation periods**:
 1. 01.01.2021. do 31.12.2023. -> **0.8 %**
 2. 01.01.2024. do 31.12.2025. -> **1.3 %**
 3. 01.01.2026. do 31.12.2027. -> **1.5 %**
 4. 01.01.2028. do 31.12.2030. -> **1.9 %**(of annual final energy consumption (FEC) averaged over the most recent three-year period preceding 1 January 2019)



Underachievement by 2030: impact on 2031-2040 obligation period (n)

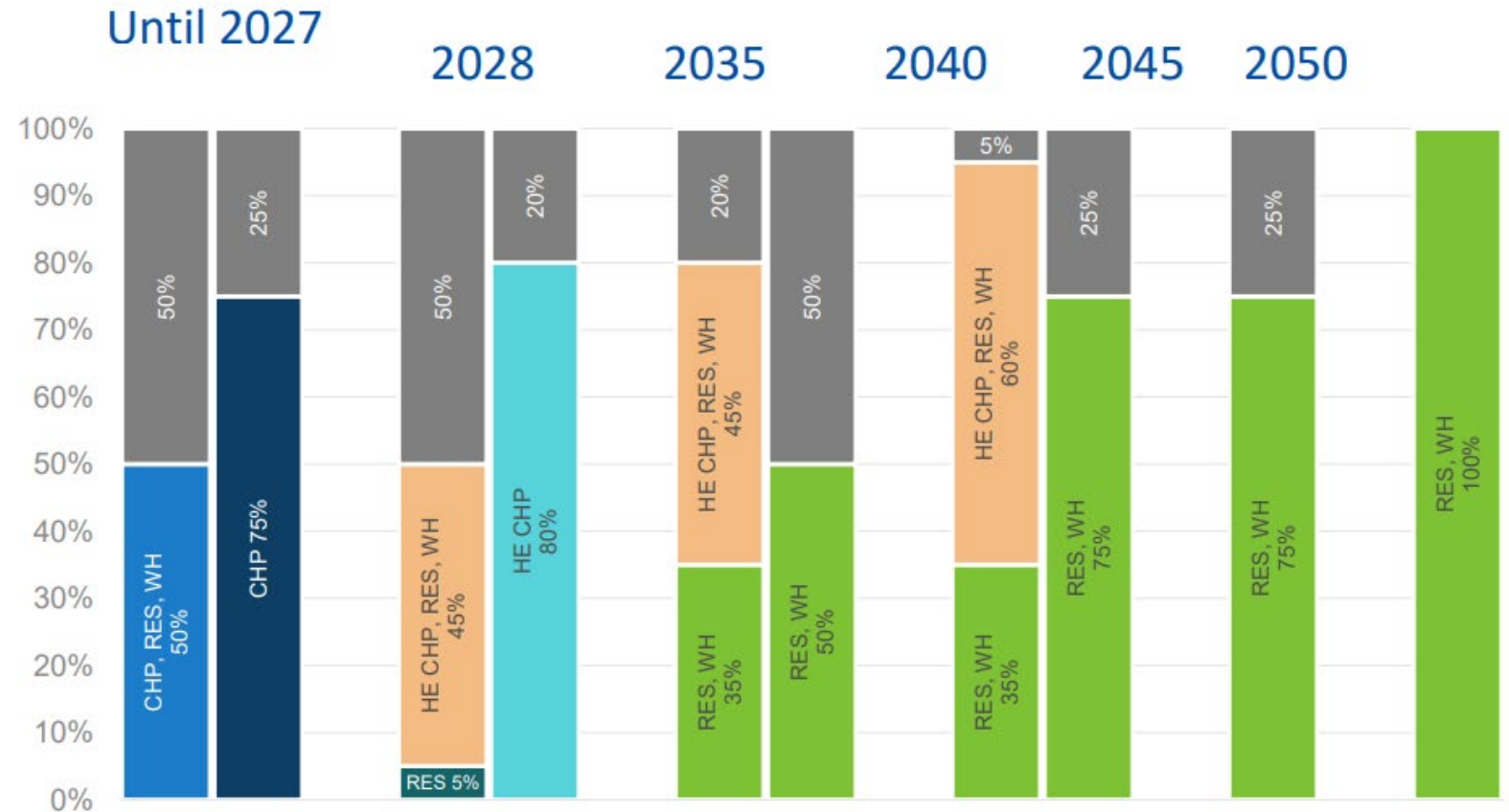


Overachievement by 2030: impact on 2031-2040 obligation period (n)



Heating and cooling

- EU-level obligation for district heating system decarbonization
- Energy Efficiency Directive (EED) recast defines „efficient” district heating system” criteria
 - Cogeneration (CHP)
 - Waste heat
 - Renewables
- Member states must develop plans for reaching EE DHS status



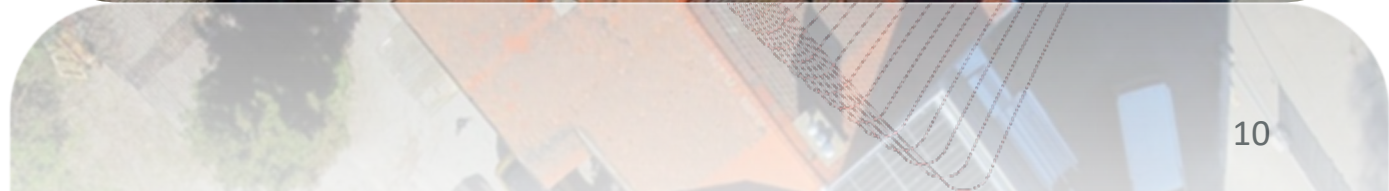
WH – waste heat; HE CHP – high-efficiency cogeneration

About us

Energy Institute Hrvoje Požar (EIHP) is an institution owned by the Republic of Croatia, self-financed by providing services to the public and business sectors.

Our activities include:

- Implementing scientific research in the energy field
- Providing professional support to public authorities
- Providing advisory services in the domestic and international markets



Areas of activity



Energy balance and statistics

Energy and climate planning

Energy production and markets

Power grid planning and development

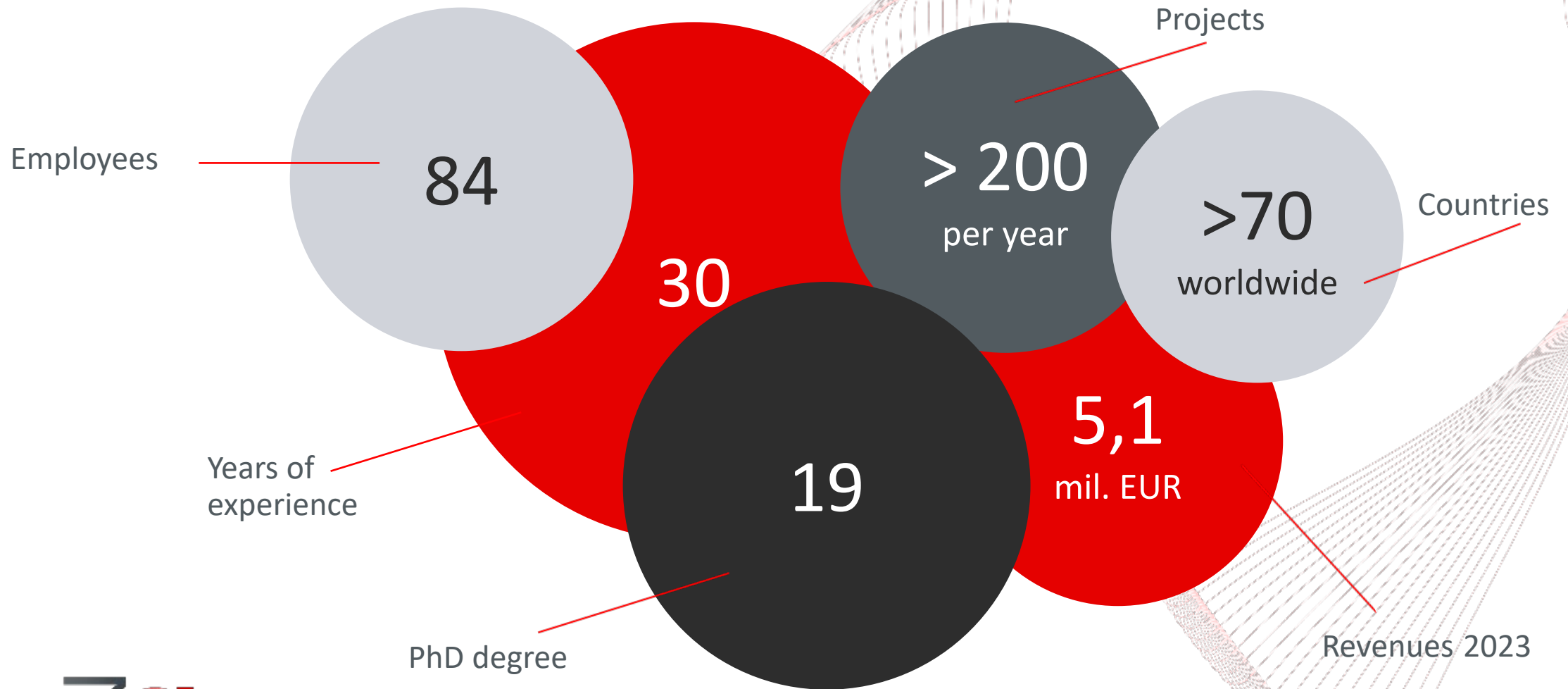
Renewable energy, climate and environmental protection

Energy regulations and economics

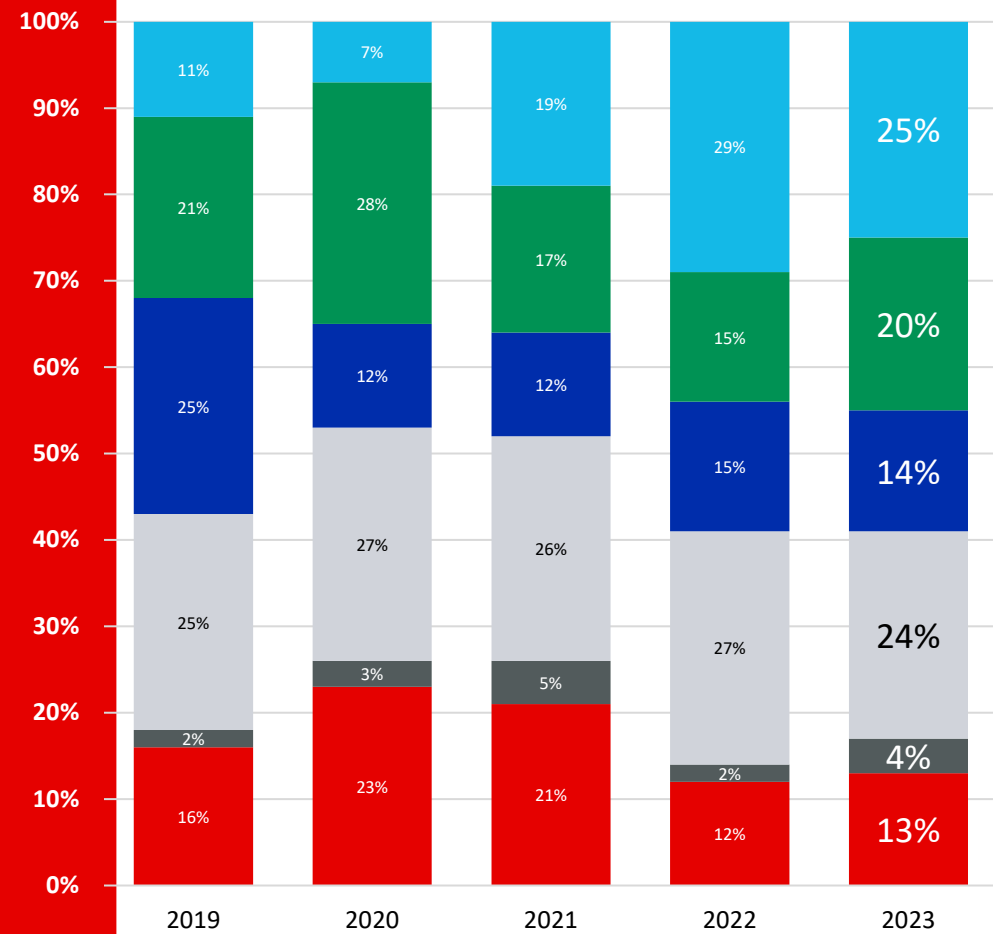
E-mobility

Energy efficiency

Highlights



Revenues



- Revenues from grants from the Republic of Croatia, the EU and third countries
- Revenues from the sale of services to foreign companies
- Revenues from the sale of services to foreign state bodies and organizations
- Revenues from the sale of services to companies in the Republic of Croatia
- Revenues from the sale of services to local and regional self-governments
- Revenues from the sale of services to government bodies and agencies

We are recognized in Southeast Europe and active in other parts of the world. Through our partnerships, we constantly strive to strengthen our presence in the global market.

Global clients



Energy companies

HEP d.d.

INA

PLINACRO
OPERATOR PLESKOVA TRANSPORTNOG SUSTAVA

ANAF d.d.

epcg

LNG
HRVATSKA

EPC
Електропривреда Републике Српске

ЕЛЕКТРОПРИВРЕДА СРБИЈЕ

EVN
macedonia

OSHEE
OPERATORI I SHPERNDARJES SE ENERGJISE ELEKTRIKE

kcstt

HEP OPERATOR DISTRIBUCIJSKOG SUSTAVA d.o.o.

KEDS

JP "Komunalno Brčko" d.o.o.
Brčko distrikt BiH
JP "Komunalno Brčko" d.o.o.
Brčko distrikt BiH



EP JP ELEKTROPRIVREDA HRVATSKE ZAJEDNICE HERCEG BOSNE d.d. Mostar

BH-GAS

HOPS
ЕЛЕКТРОПРИЈЕНОС БИХ
ЕЛЕКТРОПРЕНОС БИХ

MEPCO
MANUJAVANJE ELEKTROENERGIJSKIM SISTEM OBLASTI

DUBROVNIK PLIN

PETROZIM LINE (PVT) LTD

NOS BiH
НОС БиХ

KEK

КОРПОРАТА ЕНЕРЖИТИВЕ И ВОДОПРЕСНА
ПРЕДПРИЈЕМАЊИЈА ТЕРНА
ENERGIJSKA KOMPANIJAZA S.S. S.C.
ENERGIJSKA KOMPANIJAZA ASSOCIATA S.R.L.

Terna
Rete Elettriche Nazionali

AND NUMEROUS GOVERNMENTS, MINISTRIES, ENERGY REGULATORY AGENCIES, LOCAL AUTHORITIES...

EHP 30

Numerous EU projects

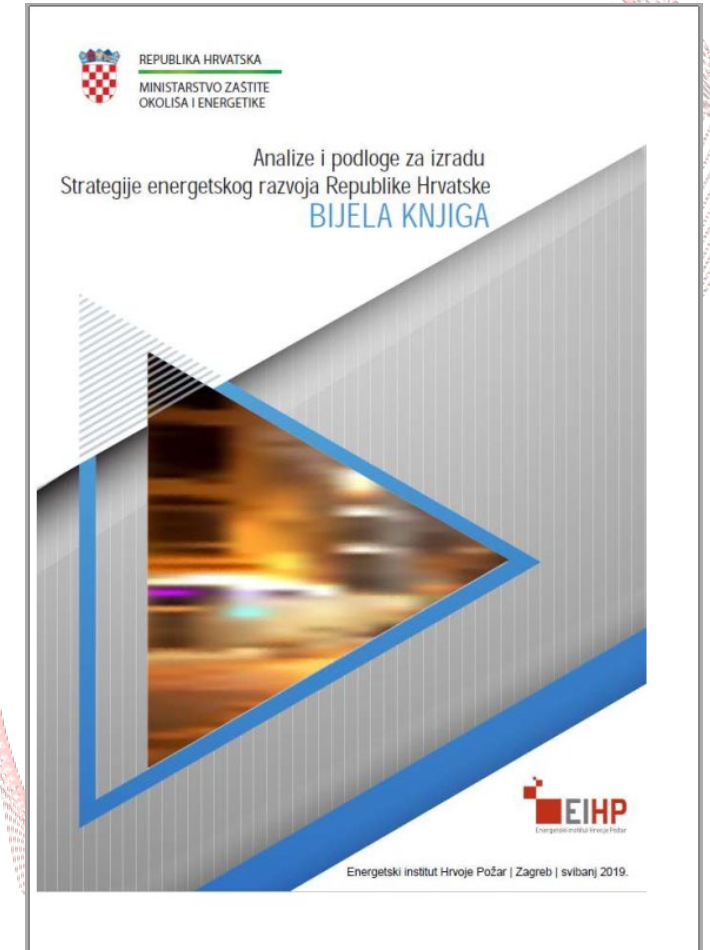


References

Energy Strategy of the Republic of Croatia

Client: Ministry of the Economy, Croatia

These projects have prepared detailed budget groundwork and proposed strategic goals for Croatia's energy development in the next 20 years.

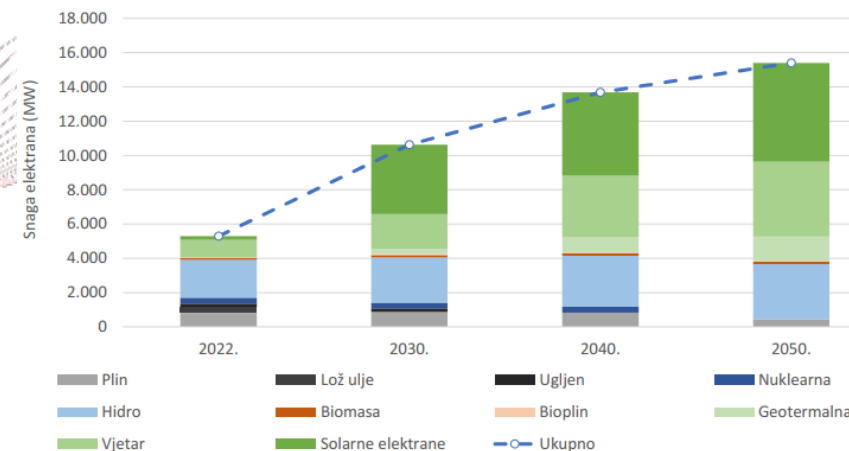


References

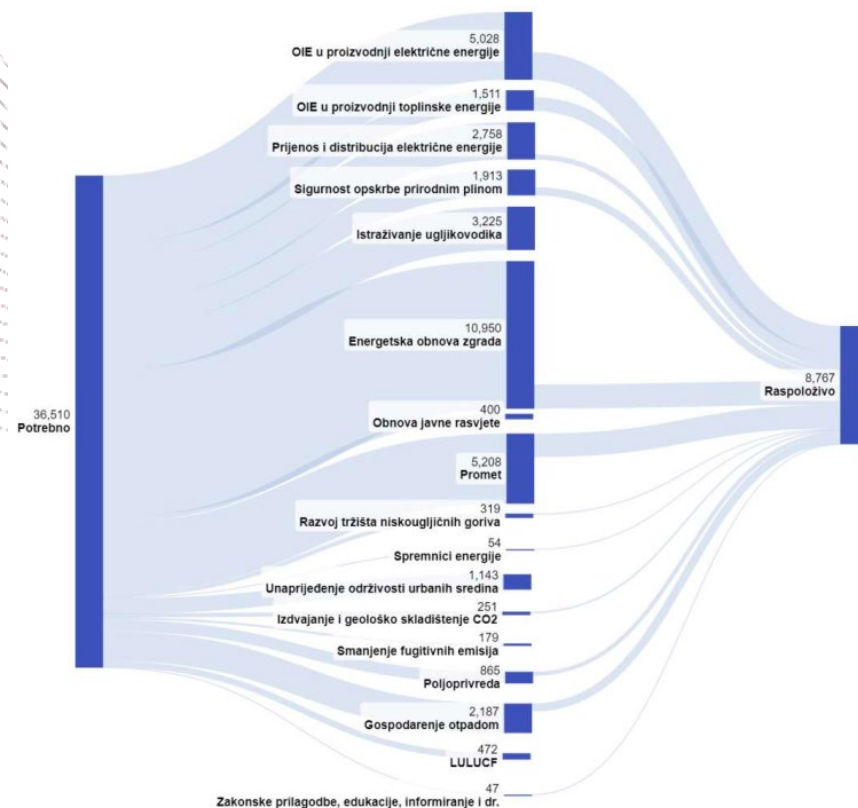
Integrated National Energy and Climate Plan of the Republic of Croatia (NECP) for the period from 2021 to 2030

Client: Ministry of the Economy, Croatia

NECP provides an overview of the current energy system, energy and climate policies, an overview of national targets and appropriate policies and measures to achieve these targets. The document outlines the targets to be achieved by 2030, which include reducing greenhouse gas emissions, renewable energy, energy efficiency and electricity interconnection.



Slika 2-9. Očekivana snaga elektrana u scenariju s dodatnim (WAM) mjerama



Slika 5-7. Investicije potrebne za provedbu mjera definiranih NECP-om

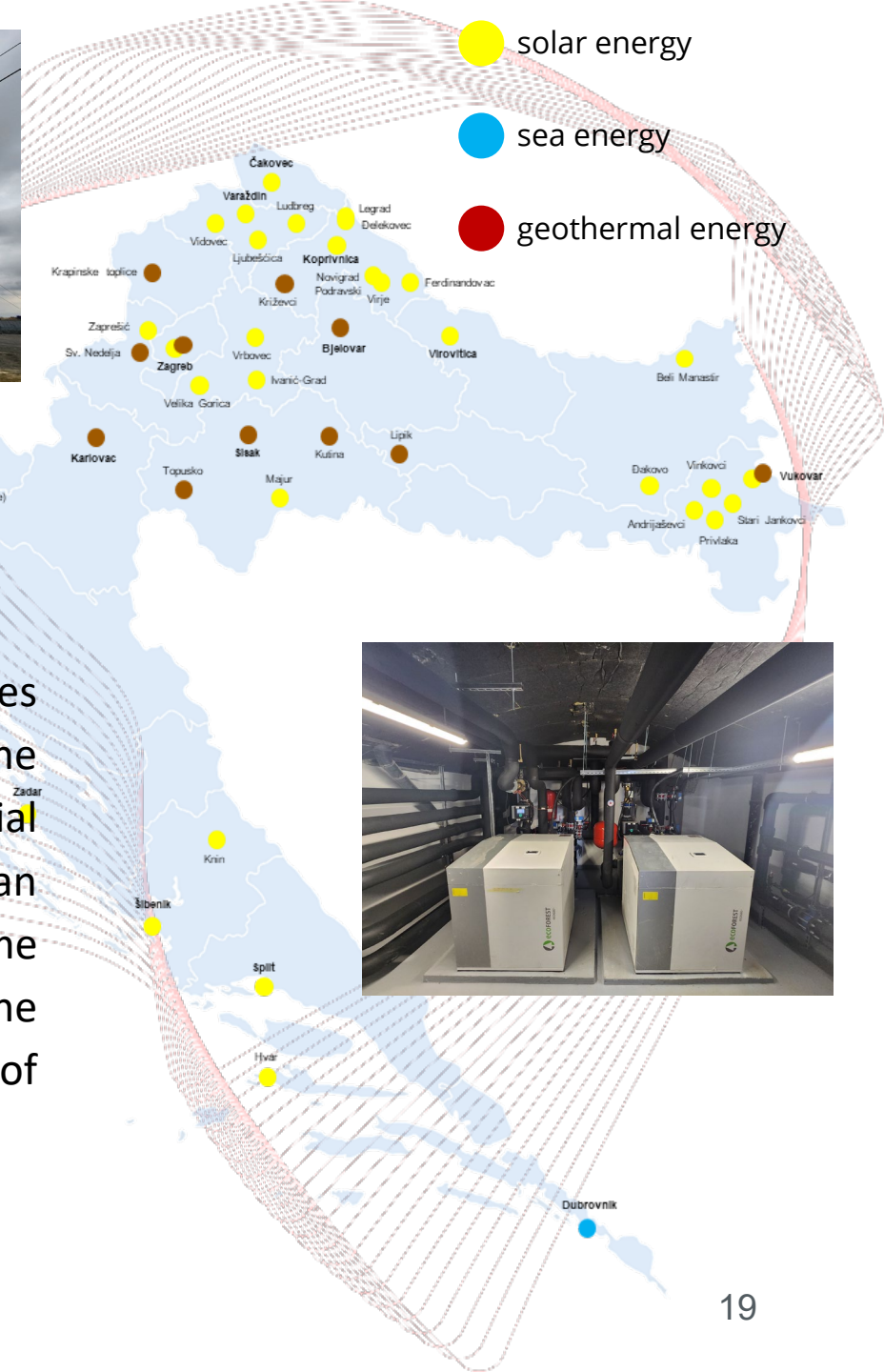
References

Energy and Climate Change

Programme - EACC (EEA grants)

Client: Ministry of Regional Development and EU Funds, Croatia

The main objective of this Programme is to increase energy technologies with lower carbon emissions and increased security of energy supply in the Republic of Croatia, following the key objectives of the Financial Mechanism of the European Economic Area (EEA) and the Norwegian Financial Mechanism. The Energy Institute Hrvoje Požar was a Programme Partner that provided technical support to the Programme Manager, the Ministry of Regional Development and EU Funds at all levels of implementation of Programme and project activities.

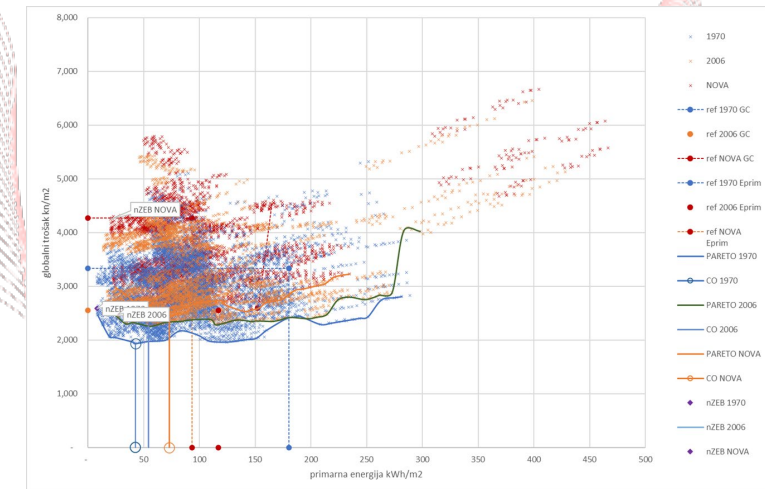
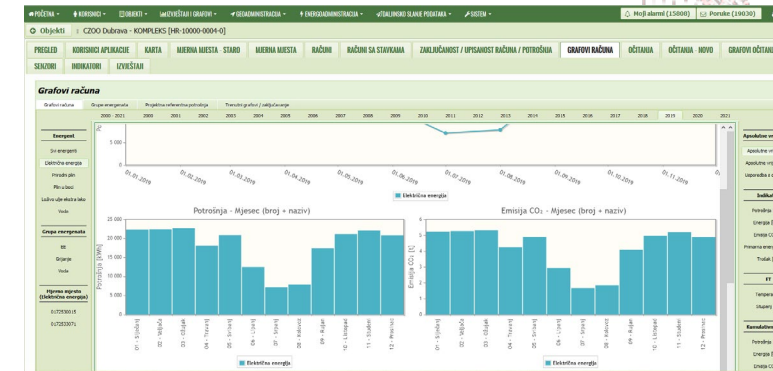


References

Establishing minimum requirements for the energy performance of buildings in Croatia

Client: Ministry of Physical Planning, Construction and State Property

The project aimed to establish cost-optimal and minimum requirements for all types of buildings, according to their age, purpose, and climatic area, including nZEB requirements, following the requirements of the Energy Performance of Buildings Directive (2010/31/EU and 2018/844), Regulation 244/2012 and Guideline 2012/C 115/01 on the framework of the methodology for the calculation of cost-optimal levels of minimum energy performance requirements for buildings. The project results will update the Technical Regulation on Rational Use of Energy and Thermal Protection of Buildings. It should be noted that the Institute performed the first such analysis back in 2014.



Powering Progress FOR **30** YEARS

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