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Community Wind Energy and Bioenergy

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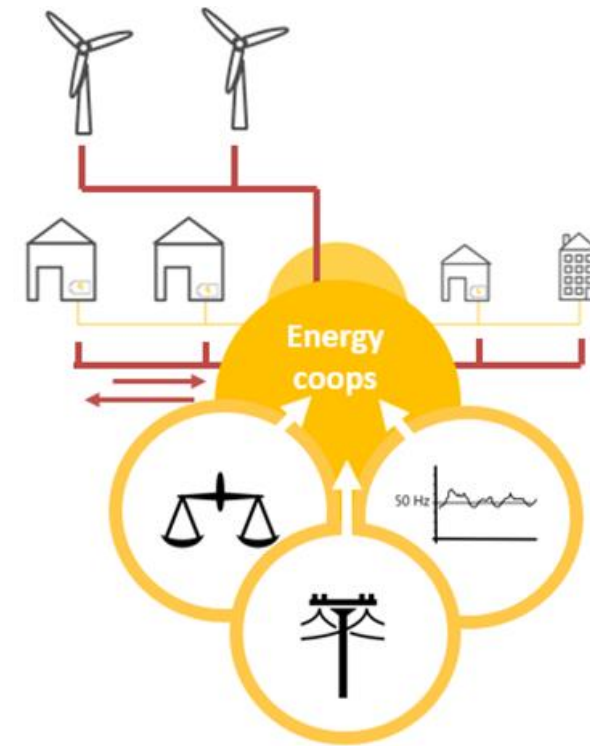


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Energy community in general

- Today, more and more citizens are becoming „**energy prosumers**” (both, individuals and collectives)
- These communities contribute to increasing social acceptance and investments linked to local energy projects
- The main key is in formation of **energy communities**.
- In Croatia – interest exist, especially at the local level!
- The main interest is in solar energy communities, but there are some burdens in Croatia’s legislative as well as administrative and technical barriers.

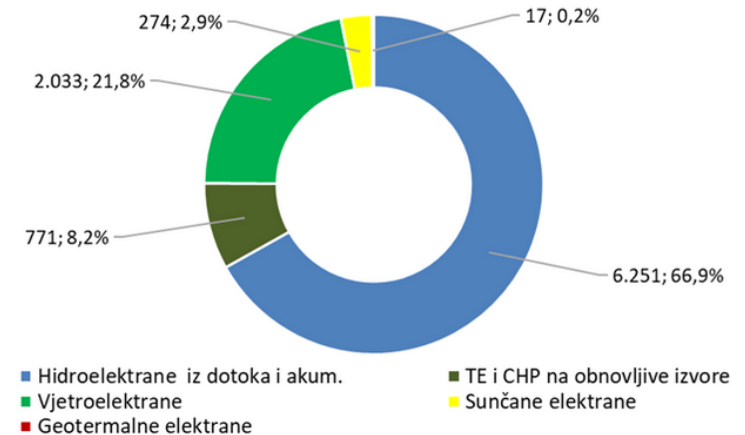


RES in the first ten months of 2023.

- RES accounted for 58.5% of the available energy production
- The main energy production derives from hydropower plants - 39,1%
- Other RES measures (WPP, solar PP, etc.) – 19,4%
- Fossil fuels make up a share of 27%
- Total production of RES measures in first 10 months 2023 – 9.346 GWh

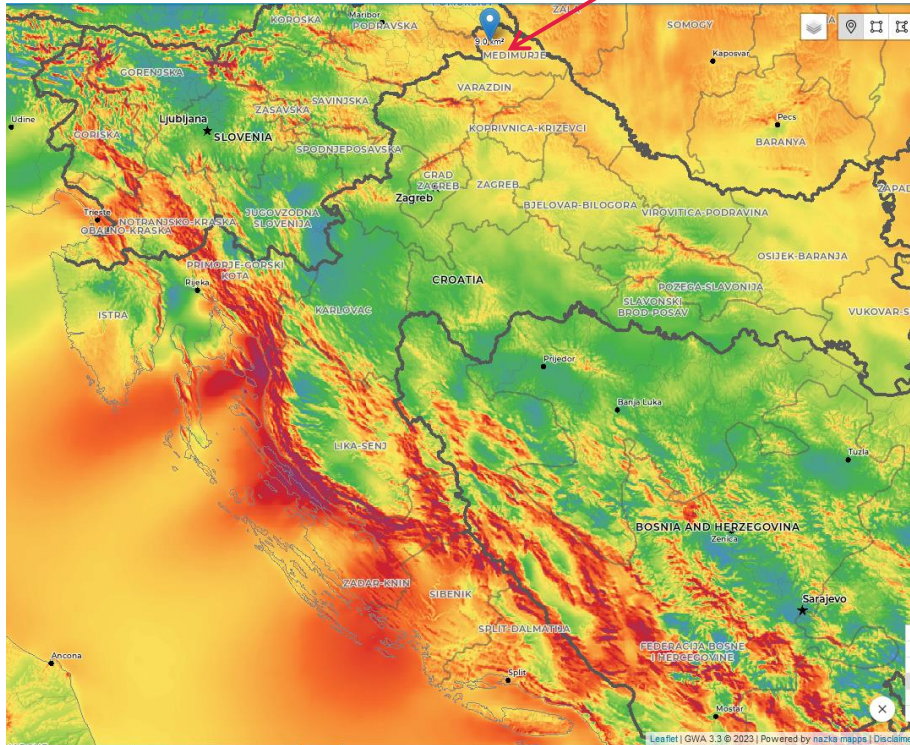


Proizvodnja električne energije OIE
za razdoblje **siječanj-listopad** 2023. godine (GWh ; %)
Ostvareno 9.346 GWh i pražnjenje akumul. -440 GWh
-ukupna izdašnost OIE 8.906 GWh

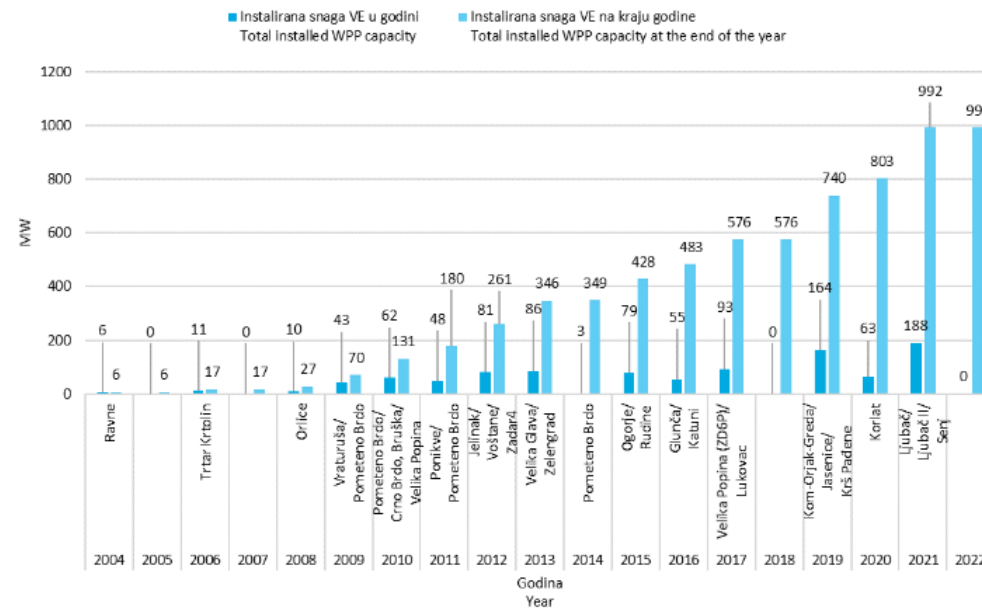


Wind potential in Croatia

Međimurje region



- The most suitable areas for harnessing wind energy in Croatia are the coastal regions.
- There are 29 locations suitable for development of wind power plants (groups of wind turbines)
- Total WPP generation in Croatia in 2022. was 2301.38 GWh.



Slika 2 Vremenska dinamika izgradnje VE u Hrvatskoj

Figure 2 Time horizon of wind power plant construction in Croatia

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Wind energy production



- The latest data shows:
- In October 2023 - 25 wind power plants in regular operation
- Total installed capacity – 834,15 MW
- WPP integration in Croatia is specific for its low geographical dispersion (largest distance ~ 300 km)
- 19 out of 22 WPPs with 81% of total WPP installed capacity is located on the area with similar wind climate (110 x 70 km²).

Slika 1 Lokacije VE u Hrvatskoj
Figure 1 WPP locations in Croatia



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Bioenergy production - biogas

BIOGAS

- It is estimated that the potential of energy production in biogas plants is 300 MW, but only 48 MW is being produced (corresponds to app. 100.000 households consumption)
- Production in biogas facility in Međimurje County – EKO KOTOR Ltd. with installed power of 0,1086 MW
- Energy crisis had a big impact on the Croatian biogas sector – significant increase in operational costs (raw material)!
- Result: reduction of production
- Subventions were app. 170€ /MWh (not enough), so half of the producers left national operator to sign with different (external) operators.



Biogas facility in Međimurje County - EKO KOTOR Ltd.



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Bioenergy production - biofuel

BIOFUEL

- There are both liquid and solid biofuel production.
- Solid biofuels production includes – wood pellets, briquettes, charcoal, wood chips and fuelwood.
- The 28 facilities produced pellets in 2021.
- Only one industrial producer of charcoal - 92% of the total annual production in its capacities.
- Liquid biofuels production includes – biodiesel
- In 2021. - 390 t of biodiesel was produced (while the capacity is 41 000 t!)

Instalation subsidies

- In Croatia, the use of RES measures is encouraged through various subsidies;
- Initial investments are co-financed typically up to 40%
- Grants were given under ERDF and CAP Programme (both for entrepreneurs and farmers)



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Javna ustanova za razvoj Međimurske županije REDEA

Thank you for your attention!



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