

DEVELOPMENT OF BIOMASS PROJECTS IN CROATIA - EXAMPLES AND CURRENT STATUS OF DISTRICT HEATING SYSTEMS

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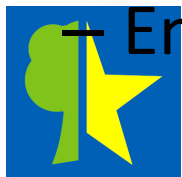


Sustainable Energy Finance and Investment Summit

Cavtat, 21 October 2011

Biomass district heating: current status, projects built

- Croatian woods
 - Gospić (1 MW)
 - Ogulin (1 MW)
- Municipalities?
- Cities?
- Forest owners?
- Entrepreneurs?
- Energy contracting???



Biomass district heating: vision for the next 5 years

Projects initiated by



Beratungsgesellschaft für Holzenergiesysteme
A-8160 Weiz • Florianigasse 9
<http://www.holzenergie.net>



dezentral - nachhaltig

in partnership with



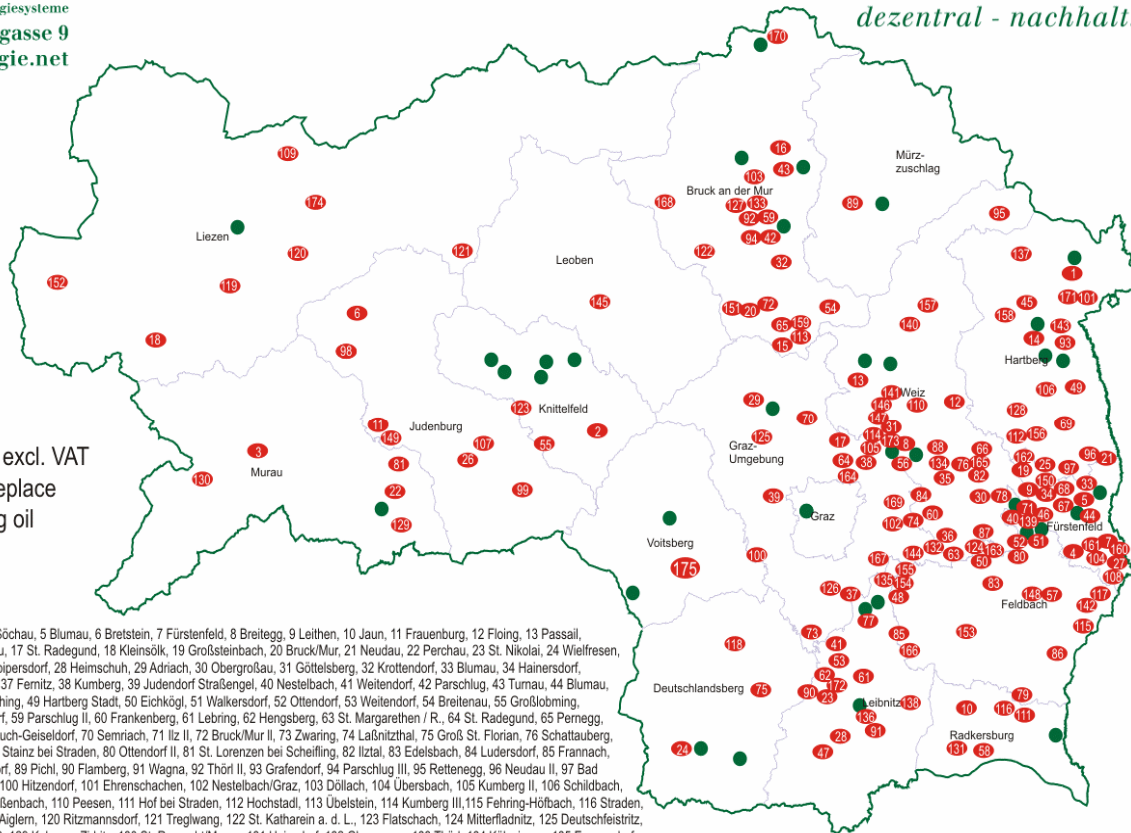
Status: Oktober 2006:

175 projects in styria
17,3 MW power
€ 11,5 Mio. investment excl. VAT
49.600 m³ wood chips replace
3,8 Mio. Litres of heating oil

● In operation:

1 Dechantskirchen, 2 Rachau, 3 Rinegg, 4 Söchau, 5 Blumau, 6 Bretstein, 7 Fürstenfeld, 8 Breitegg, 9 Leithen, 10 Jaun, 11 Frauenburg, 12 Floing, 13 Passail, 14 Staudach, 15 Mixnitz-Heuberg, 16 Turnau, 17 St. Radekund, 18 Kleinsölk, 19 Großsteinbach, 20 Bruck/Mur, 21 Neudau, 22 Perchau, 23 St. Nikolai, 24 Welfresen, 25 Groß Hartmannsdorf, 26 Mitterdorf, 27 Loipersdorf, 28 Heimschuh, 29 Adriach, 30 Obergroßau, 31 Göttelsberg, 32 Krottendorf, 33 Blumau, 34 Hainersdorf, 35 Wollsdorferegg, 36 St. Margarethen / R., 37 Fernitz, 38 Kumberg, 39 Judendorf Straßengel, 40 Nestelbach, 41 Weitendorf, 42 Parschlug, 43 Turnau, 44 Blumau, 45 Vörs, 46 Neudorf, 47 Großklein, 48 Pirching, 49 Hartberg Stadt, 50 Eichkögl, 51 Walkersdorf, 52 Ottendorf, 53 Weitendorf, 54 Breitenau, 55 Großlobming, 56 Oberdorf, 57 Lödersdorf, 58 Ratschendorf, 59 Parschlug II, 60 Frankenberg, 61 Lebring, 62 Hengsberg, 63 St. Margarethen / R., 64 St. Radekund, 65 Pernegg, 66 Pischeldorf, 67 Jobst I, 68 Jobst II, 69 Buch-Geiseldorf, 70 Semriach, 71 Ilz II, 72 Bruck/Mur II, 73 Zwaring, 74 Laßnitzthal, 75 Groß St. Florian, 76 Schattauberg, 77 Kleinfelgitschberg, 78 Sinabelkirchen, 79 Stainz bei Straden, 80 Ottendorf II, 81 St. Lorenzen bei Scheifling, 82 Itzthal, 83 Edelsbach, 84 Ludersdorf, 85 Frannach, 86 Kapfenstein, 87 Hofstätten I, 88 Elzersdorf, 89 Pichl, 90 Flamberg, 91 Wagna, 92 Thörl II, 93 Grafendorf, 94 Parschlug III, 95 Rettenegg, 96 Neudau II, 97 Bad Waltersdorf, 98 Pusterwald, 99 Eppenstein, 100 Hitzendorf, 101 Ehrensachsen, 102 Nestelbach/Graz, 103 Döllach, 104 Übersbach, 105 Kumberg II, 106 Schildbach, 107 Judenburg, 108 Loipersdorf IV, 109 Weißenbach, 110 Peesen, 111 Hof bei Straden, 112 Hochstättl, 113 Übelstein, 114 Kumberg III, 115 Fehring-Höftach, 116 Straden, 117 Unterlamm, 118 Stainz LW-Schule, 119 Aiglern, 120 Ritzmannsdorf, 121 Treglwang, 122 St. Katharein a. d. L., 123 Flatschach, 124 Mitterladnitz, 125 Deutschesfeistritz, 126 Kalsdorf, 127 Thörl III, 128 St. Stefan/HB, 129 Kulm am Zirbitz, 130 St. Ruprecht/Murau, 131 Hainsdorf, 132 Glawoggen, 133 Thörl, 134 Kühwiesen, 135 Empersdorf, 136 Leibnitz, 137 Mönichwald, 138 Leitersdorf, 139 Nestelbach/Ilz IV, 140 Haslau, 141 Naas, 142 Hohenbrugg, 143 Stambach, 144 Krumegg, 145 Kammer, 146 Dürntal, 147 Mortansch II, 148 Raabau, 149 Unzmarkt, 150 Neudorf/Ilz, 151 Oberach, 152 Schladming, 153 Wörth, 154 Pirching/T. II, 155 Pirching/T. III, 156 Hartl, 157 Waisenegg, 158 Schachen, 159 Pernegg III, 160 Loipersdorf V, 161 Übersbach II, 162 Großsteinbach II, 163 Eichkögl II, 164 Weinitzen, 165 Itzthal, 166 Mitterlabitz, 167 Vasoldsberg, 168 Tragöß, 169 Präbach, 170 St. Sebastian, 171 Kroisbach, 172 St. Nikolai/S., 173 Greith, 174 Lassing, 175 St. Martin am Wöllmißberg

● In planning: 36 projects with 4,1 MW power



How to achieve the vision?

- Initiated projects for biomass district heating :
 - **Municipality Pokupsko (model example)**
 - Slunj City
 - Ozalj City
 - Donja Stubica City
 - Municipality of Žakanje
 - Municipality of Rakovica
 - Duga Resa City
 - Settlement Desinec (City of Jastrebarsko)
 - ...
- Entrepreneurs/Forest owners
 - Green energy for the County of Zagreb (energy contracting)
 - IEE Biomass Trade Centre II
 - IEE Solid Standards
 - Working activities: Green energy for the County of Karlovac, fast-crops,...



Heating in Pokupsko



Biomass district heating in the municipality of Pokupsko – why?

- Quality and comfort
- Environment protection
- Regional economic development
- Security of supply
- Price



Sources of funding: grants for municipalities and cities

- Environmental Protection and Energy Efficiency Fund
 - Up to 1.4 million HRK (40% of investment), there is no funding for the project documentation (in foreground)
- **IPARD measure 301** (5th component of the IPA programme)
 - Possible funding for district heating biomass plants up to 7 million HRK (100% of investment)
 - Only for cities and municipalities up to 10.000 of inhabitants according to the 2001 Census
 - Competent: Ministry of Agriculture, Fishery and Rural development
 - Complete project documentation needed (preliminary design, detailed design, investment study) and permits (location, building) – acceptable cost!



District heating Pokupsko: Dynamics of activities

- 06/2008: Start of the project
- 08/2008: Conceptual design, analysis of the 3 variants, selection of the optimal one
- 09/2008: Project applied for EPEEF funding
- 11/2008: Project approved by EPEEF



District heating Pokupsko: Dynamics of activities (2)

- 01/2009: Selection of a designer, preparation of the project documentation
- 02/2010: The Location permit
- 01/2011: Modification and complement of the location permit
- 01/2011: The construction permit
 - Confirmation of the major designer for the network CTS
 - The permit for construction of district heating biomass plant
- 01/2011: Registration for the call of the IPARD Programme 301



IPARD PROGRAMME:

The application documentation

- The application form(I-OOP-3)
- The identification documents
 - The decision on appointment of the mayor/prefect
 - copy of identity card
- Investment studies/business plan
 - Form I-OOP-6
 - Defined in detail, charts, explanations
 - Condition for the district heating biomass plants : profitability, but no more than 25% annual income
 - Costs of amortization included !



IPARD PROGRAMME:

The application documentation (2)

- Confirmations/verification/permit
 - Confirmation of the MZOPUG about compliance investment
 - Elaborate on the Environmental Protection
 - The construction permit or another appropriate document
 - The preliminary project – the location permit
 - major project – the construction permit
 - Network CTS
 - boiler rooms, buildings, fuel tanks
 - Estimated cost released and certified by authorized person
 - Land Register entry as proof of ownership rights or right to build (sheet A, B, C) not older than 3 months



IPARD PROGRAMME:

The application documentation (3)

- Documents about the financial status of the applicant
 - The budget plan (1-3 years)
 - FPDP (The financial plan for the development programs)
 - The form on the website of the Ministry of Finance
 - Note: Total VAT should be provided in budgeting and in FPRP
 - Regulations about VAT (OG 149/08), Article 102: Costs of IPARD program released of the VAT
 - Bank obligatory Letter of intent or credit contract
 - Selection of the bank: public procurement
 - Certificate of gyro account number



IPARD PROGRAMME:

The application documentation (4)

- The price offers
 - For each general costs created before submitting an application greater than € 10,000: Form I-OOP-8
 - Invitation to tender (Form I-OOP-7) certified by the tenderer for any general cost created before the submission
 - One bid for the cost less than € 10,000
 - The Elaborate of environmental protection, business plan,...
 - Three bids for the cost greater than € 10,000
 - Preliminary and major project



IPARD PROGRAMME:

The application documentation (5)

- The contract for the supply of organic waste (wood chips) for investment in power plants, a minimum of two years
 - Hrvatske šume d.o.o.
 - **Private entrepreneurs**



IPARD PROGRAMME:

The application documentation (6)

- Regulation on implementation of measures 301:
 - ‘In addition to the documentation from paragraph 1. of this article the applicant shall in a separate envelope deliver the Tender dossier which contains, depending on the type of procedure, the Tender call, Procurement notification, Summary procurement notice and tender dossier in original and copy’
 - Practical Guide (PRAG) to contract procedures for EU external actions

http://ec.europa.eu/europeaid/work/procedures/implementation/practical_guide/index_en.htm



IPARD PROGRAMME: The application documentation (7)

- PRAG notes
 - Documentation exclusively in English language
 - Supply
 - Works
 - Services
 - The project documentation – must be translated into English(!)
 - The main project for biomass boiler (7 folders)
 - The main project for district heating network CTS (5 folders)
 - All drawings





Preliminary results of the 1st call for the measure 301

SECTOR	No. of applications	Needed investment	No. of applications in the process	Inadequate applications	
				Number	% from all applied
PUBLIC UNCLASSIFIED ROADS	35	88.754.366,05	7	28	80,00%
SEWAGE AND WASTE WATER	31	186.453.086,71	6	25*	80,65%
PLANTS	1	6.996.242,50	1	0	0%
TOTAL	67	282.203.695,26	14	53	79,10%

* One application added to the total because of the withdrawal of the applicant (52+1)

District heating Pokupsko: Dynamics of activities (3)

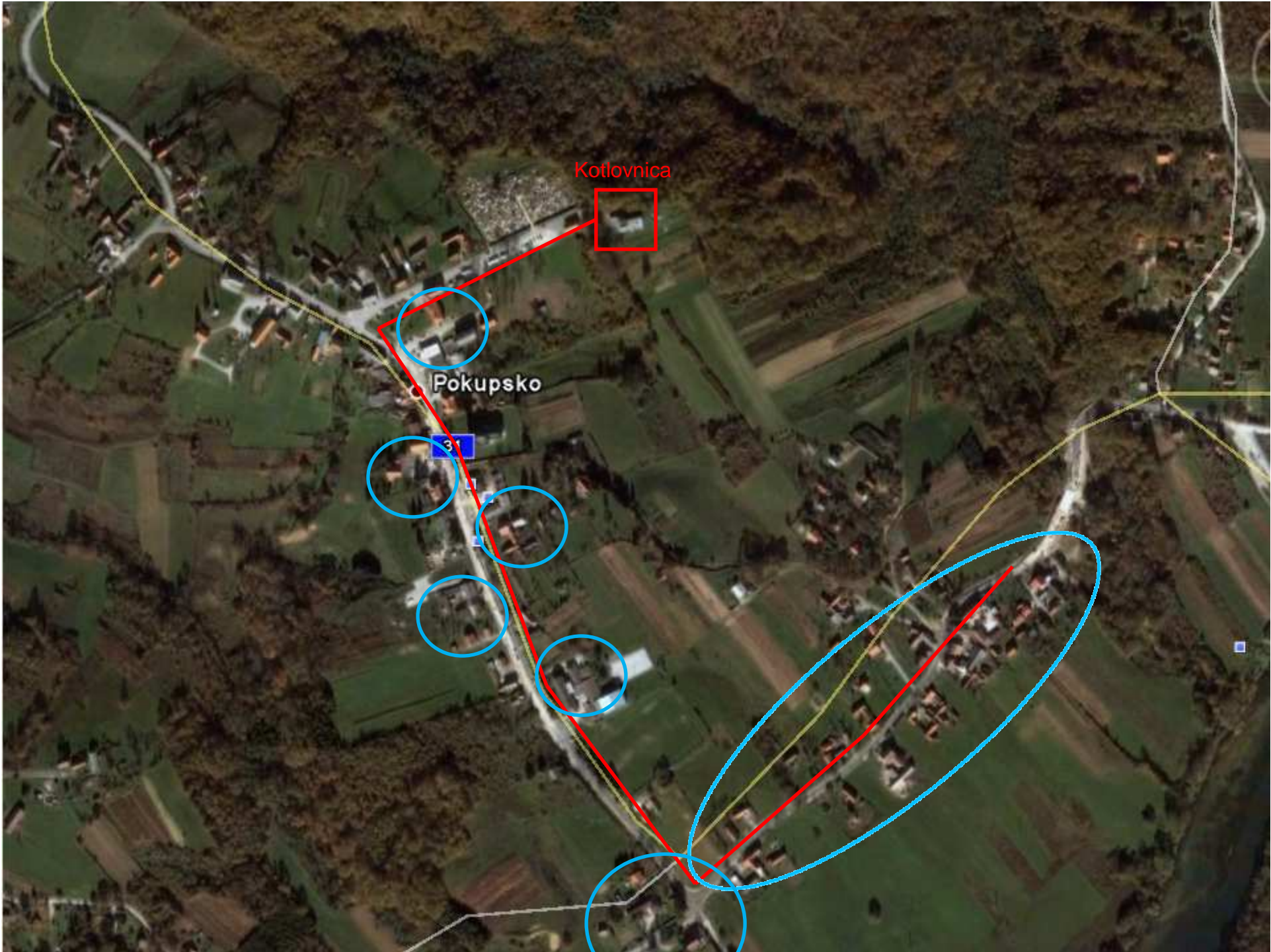
- 07/2011: Memorandum of Understanding APPRRR – Municipality of Pokupsko (!)
- 07/2011: The public procurement started
- 01/2012: Deadline for submission of tenders
- 03/2012: Selection of contractors, contract
- 04/2012: Start of works
- 07/2012: Completion
- 10/2012: Plant operation



Consumers

	Capacity needed (kW _t)	Heath needed (MWh _t /year)
Municipality building	57	136
Residential building	75	180
Public building - House of Culture	32	77
Public bulding- Forestry	32	77
Elementary school Pokupsko	142	340
Offices of HEP Elektra	10	25
Parish building	12	29
Shop	64	153
Veterinary station	16	38
Households (aproximately 60)	450	1.078
Total	890	2.133





Green energy for Zagreb County

- ‘Biomass heat contracting’ – business model developed and applied in Austria, Finland, Sweden, Slovenia, ...No example for Croatia yet!
- Primary and secondary schools in the area of Zagreb County
 - Currently heating on: oil
 - Investor: biomass heating (wood waste!)
 - County agrees to sign a long term contract for the supply of thermal energy (10 years or more). The investor is obliged to supply heat at a price lower than the current (oil) for a typical 10-20%



Green energy for Zagreb County(2)

- Project activities:
 - Preparation of project documentation and business plan for replacing the boiler with fuel oil with biomass boilers in 10 schools
 - Education of forest owners / entrepreneurs and representatives of the County
 - Workshops
 - Field trips
 - Preparation and implementation of public procurement, contracting and installation



IEE Biomass Trade Centre II

- Partners: SI, AT, IT, IE, DE, ES, RO
- Activities
 - Education of forest owners / entrepreneurs (workshops, brochures and publications, field trips, ...)
 - Collection centers for biomass (Trade Centres)
 - Contractual sales of heat from biomass
 - Preparation of a feasibility study for setting up a collection center for biomass (3x)



IEE Solid Standards

- Partners: DE, AT, FI, PO, BG, NL, DK, CZ, LT, AEBIOM
- Activities
 - Education of manufacturers of fuels from solid biomass
 - Standards for quality control of the fuel
 - Certification and quality assurance of the fuel
 - In Croatia there are no standards for quality fuels from solid biomass!



Current status – started projects and projects in implementation



www.regeea.org

English language Ispis stranice Mapa stranice



ENERGETSKA AGENCIJA SJEVEROZAPADNE HRVATSKE



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Energetska agencija sjeverozapadne Hrvatske



European Commission

Energetska agencija sjeverozapadne Hrvatske osnovana je od strane Zagrebačke, Karlovačke i Krapinsko-zagorske županije te Grada Zagreba, a uz potporu Europske komisije u sklopu programa Inteligentna Energija za Europu.

Osnovni cilj i uloga agencije jest promoviranje i poticanje **regionalnog održivog razvoja u području energetike i zaštite okoliša** kroz korištenje obnovljivih izvora energije i uvođenje mjera povećane energetske efikasnosti.

Osim toga, podržava se i uvođenje 'dobre prakse' gospodarenja energijom, potiče koncept održivog razvoja, pružaju informacije i savjeti te niz drugih usluga baziranih na specifičnim lokalnim potrebama za energijom.

