

	<p>Experience of Renewable Investments and Project developments in Croatia</p>	
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	 <p>INTERDISCIPLINARY</p>
	<p>Core competencies in numerous disciplines permit our top experts to view matters from different perspectives, to analyse based on various criteria and to find holistic beneficial solutions.</p> <p>Sectors</p> <ul style="list-style-type: none"> ENGINEERING & ECONOMICS BUILDINGS & STRUCTURES MECHANICAL & ELECTRICAL ENGINEERING TUNNELLING & GEOTECHNICS ENERGY & ENVIRONMENT WATER & WASTE MANAGEMENT TRANSPORT & LOGISTICS INFORMATION & TECHNOLOGY
	



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Client

Project Investor



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RENEWABLES in CROATIA; DATA

- 2010 Target was 5,8% = 1,1TWh from RES (excl. Hydro)
- 2020 Target is 20% from RES (excl. Hydro)
- Achieved feed-in (2010): rd. 1% (excl. Hydro) mainly wind energy
- No electricity production facilities from forest residues in Croatia
- For public energy production only 2 heating plants in operation till date
- Approx. 800.000 m³ Biomass transported to neighboring countries; potential > 2 Mio. m³; Biomass can be used in own country; Forest harvestation is underutilized
- General Foreign direct investment was very weak throughout 2010 due to unfavourable frame conditions for investors
- Obstacle is biomass supply from Hrvatske Šume that needs to be bankable → e.g. price escalation factor; **no transparent tender procedures, precontract are not being met**



TWO CHP Plants: JASENOVAC & VRBANJA



Fuel Input: 23 MW
Biomass: 60.000 t/y
Heat: 13 MWth
Electricity: 7,2 MWeI

Investment two plants
Rd. 58 M€

iC LOCATIONS



iC INVESTMENT ASPECTS

UPSIDES:

- Excellent potential for RES and interesting feed in tariff system
- The Croatian Chamber of Commerce provides useful english information for investors
- Property rights generally assured
- Constitution guarantees free money transfer to/from Croatia

DOWNSIDES:

- Complex bureaucratic procedures cost time & money
- Risk of investment during extension permission procedure
- Risk to obtain operation permit due to corruption
- Relative high costs for the administration of businesses
- With a backlog of over 1 million judicial cases, the legal system remains a point of insecurity for investors
- Often negative resentments against foreign investment leads to local party as partner, but local expectation often out of reality
- Awareness of Renewables potential is selective, mainly low



RES PERMISSION PROCEDURE

▪ Step 1	Preliminary Energy Approval		MGORP
		3 months	
▪ Step 2	Location Permit		MZOPU
	Energy Approval		MGORP
	Pre-contract for grid connection		HEP
		6 months	
▪ Step 3	Construction Permit		MZOPU
	Preliminary eligible producer status		HERA
		4 months	
▪ Step 4	Electricity purchase contract		HROTE
		0,5 month	
▪ Step 5	Plant implementation		Investor, GC
	Grid usage contract		HEP
	Usage Permit		MZOPU
	License for energy activity		HERA
	Decision on eligible producer status		HERA
		14-18 months	
Total: step 1 to step 4: approx 13,5 month: costs 1-1.5 M€			



PERMISSION DOCUMENTATION

Example: Documentation to get Building Permission in Croatia





MINGORP OIEKPP DATABASE

Over 400 Projects registered, 40 with Energy Approval, 14 in operation

■ Wind power	137 no's	38%
■ Hydro power	91 no's	26%
■ Solar power	61 no's	17%
■ Biomass power	31 no's	10%
■ Biogas power	21 no's	6%
■ Cogeneration	2 no's	1%
■ Landfill gas	2 no's	1%
■ Geothermal	1 no'	0%

www.mingorp.hr/UserDocsImages/Tablica_OIEK.xls



INVESTORS EXPERIENCE/ Financing phase 1/2

- Low inflation / steady exchange rate to Euro, generally a well developed infrastructure
- Exchange rate risk is considered a main factor by banks to finance projects with Euro investment and Kuna turn-over
- Due to the banking/financial crisis the equity portion is typically 30%, raised from previous 20% for RES projects
- DSCR > 140%
- Amortisation period < feed in tariff period (12 years)
- HBOR funds do not reach projects at all; procedure is endless and due diligence is made by people with little to no RES experience
- In Croatia like in Austria **NO** Environmental Impact Assessment Study is to be conducted for small biomass CHP < 10MWel but for some funds (GGF, IFC..) it is a requirement, makes no sense but costs 50 k€ (charged from investor)



INVESTORS EXPERIENCE/ Financing phase 2/2

- Due diligence procedures (legal and economical) of European funds endless (6-12 month), costs time, effort and money
- Mezzanine through funds financing costs approx. 15% interest for RES projects with very high management fees
- Infrastructure for grid connection, large connection distances with high costs to investor
- Municipalities have no money, infrastructure required for plant location (water, waste water, road access, etc.) to be paid by investor
- Feed in tariff regulation: 60% local share from CAPEX, unclear regulatory status



INVESTORS EXPERIENCE/ Permission phase

- The permission procedure is clearly structured, it is administratively very complex, requiring enormous effort and time („Torture“)
- Effort to obtain construction permit is 10x higher than e.g. in Austria
- Mixture of norms between EU and US (e.g. fire safety); copy paste of existing plants in Germany or Austria not possible
- Unharmonized sublaws between competent authorities (spatial planning, building, environmental protection, water mgmt.....)



INVESTORS EXPERIENCE/ Permission phase

Thank you for your attention