

REGIONAL EDUCATION AND INFORMATION CENTRE
FOR SUSTAINABLE DEVELOPMENT IN SOUTH-EAST EUROPE
REGIONALNI CENTAR ZA OBRAZOVANJE I INFORMISANJE
IZ ODRŽIVOG RAZVOJA ZA JUGOISTOČNU EVROPU



Potential for GHG emission reduction in BH and needs for establishment of DNA

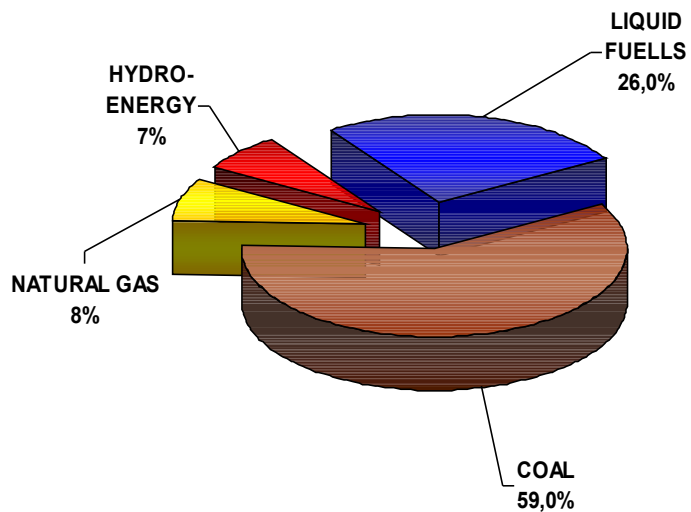
Azrudin Husika, dipl.ing.

Graz, 26 – 27 March, 2007

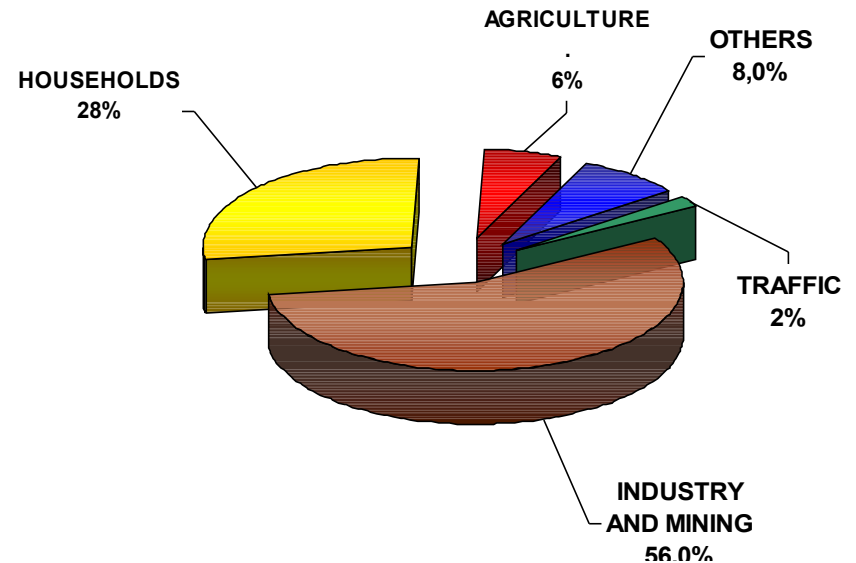


Energy in BH 1991 , 2005

TPES/ 1991 (7.8 Mtoe)
2005 (~5.0 Mtoe)



TFC/ 1991 (4.80 Mtoe)
2005 (3,15 Mtoe)



Source: Hilmo Šehović "Energy efficiency and renewable energy: priorities of energy strategy in BH" Sarajevo 18 November 2006



Energy in BH 1991 , 2004

	<u>1991</u>	<u>2004</u>
1.1 BH		
Inhabitants (mil.)	4,37	3,83 (88%)
GDP - mld. (US\$/cap)	10,60(~2400)	8,24(~2150, 89%)
TPES - Mtoe(PJ)	7,8 (326,2)	4,71 (60%)
EI - (kgoe/1000 US\$ GDP)	734	571 (78%)
(kgoe/cap.)	1785	1234 (~70%)
Emission of CO₂ (tons/cap)	4,7	~ 3,0 (64%)

1.2. Capacity/Production /Consumption:

• El. energy	~ 4000 MW (HE/TE, 51:49 %)	----
	~ 300 MW (ind. CHP)	----
	~ 30 MW (male HE)	----
	~14000 GWh (production)	12714
	11315 GWh (consumption)	10557
		~2700 kWh/cap.

2756

• Coal	14.5 mil. tons, 10.6 MJ/kg	8,58
	lignit : brown = 60 % : 40 %	



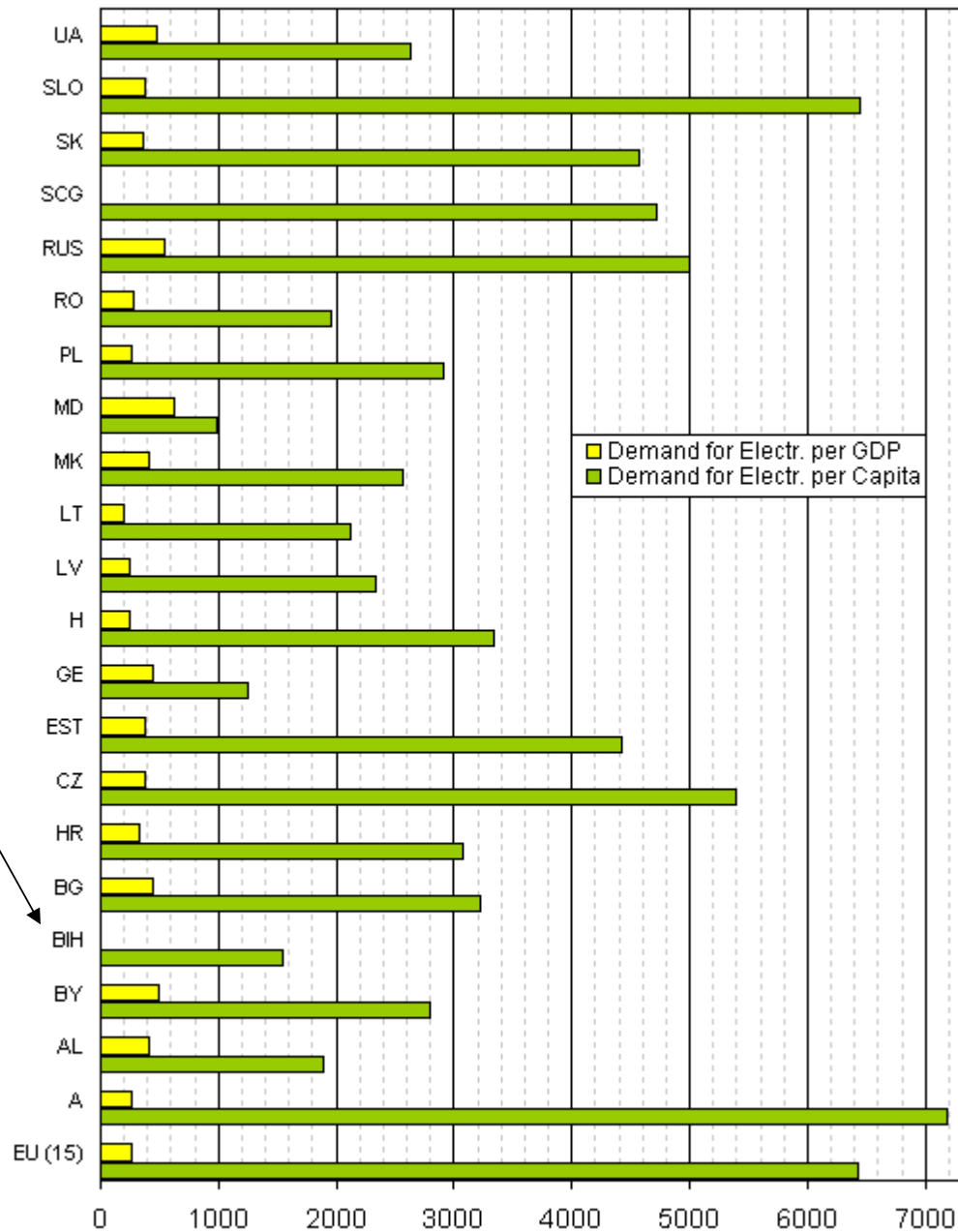
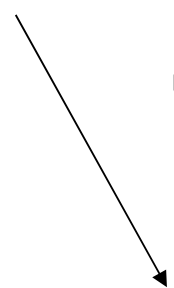
Energija u BiH 1991, 2004

		<u>1991</u>	<u>2004</u>
• Crude oil	Refinery Bosanski Brod: 3 mil. t/a		
	Consumption (mil. tona)	1.7	<u>1.32</u>
	Oil Refinery, Modriča: 110.000 t/a		
	Petrol stations:	221	~ 770
• Natural gas	max. 610 mil. m ³ (<u>1990</u>)		
	mil. m ³ :	490	321
	households/industry.	20:80 %	46:54 %
• District heating	towns with 25.000 and more - 170,000 flats (640.000 inhabitants - 15 % population) - production of heating energy, except Tuzla and Kakanj TE (CHP)		
• Renewable energy	- hydro energy (biomass-waste)- (estimation)	~ 12 PJ	~7.6 PJ

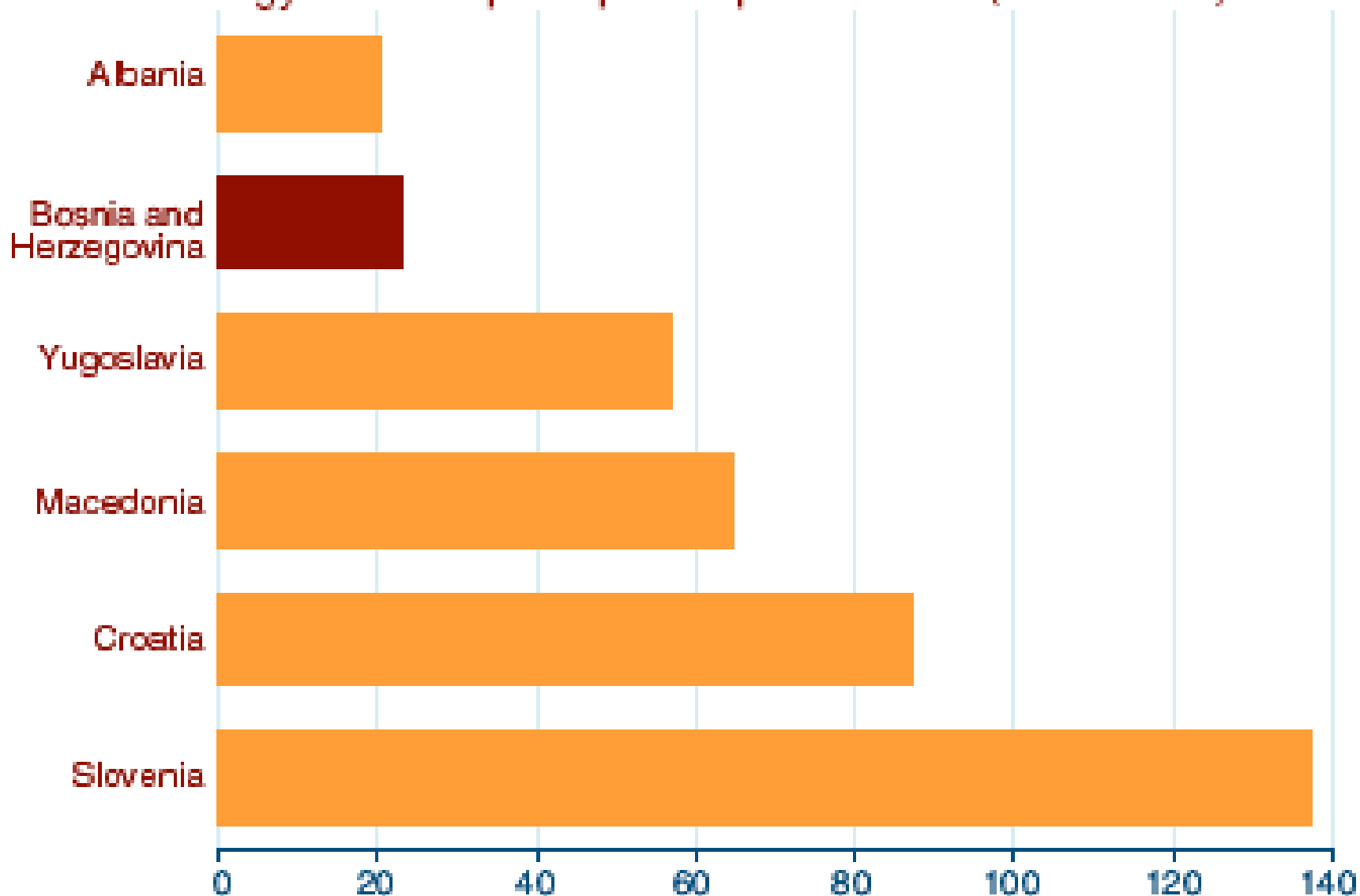
Source: Hilmo Šehović "Energy efficiency and renewable energy: priorities of energy strategy in BH" Sarajevo 18 November 2006

ENERGY IN BH

BH has small consumption of energy per capita



Potrošnja energije po glavi stanovnika u 1999 (milijon Btu)
Energy Consumption per Capita in 1999 (Million Btu)



Izvor/Source: Energy Information Administration. International Energy Database July 2001.



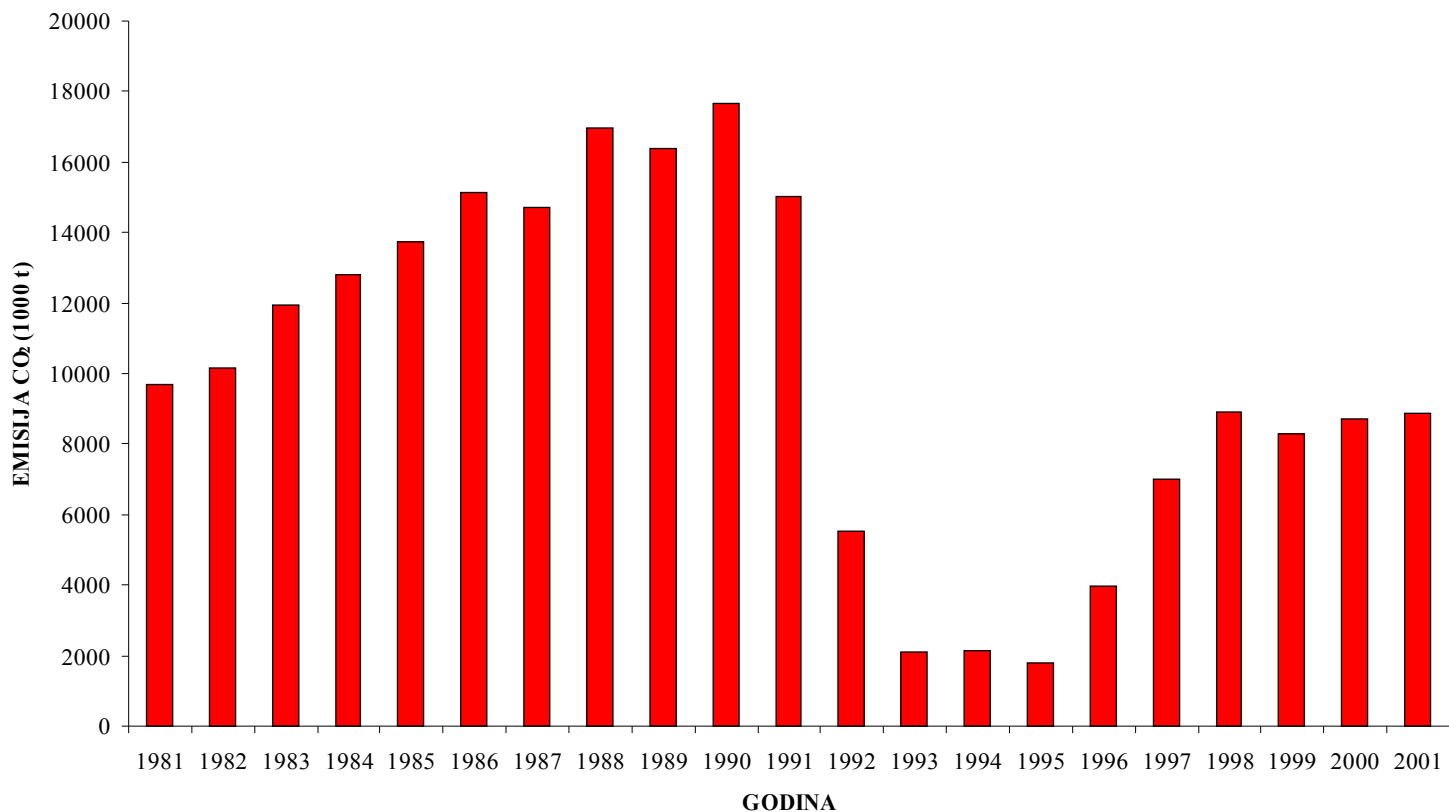
Energy indicators in BH (2004-2005)

	<u>2004</u>	<u>2005</u>
➔ Energy market value (mld EUR)	~ 2,0	~2,1
➔ BDP-GDP (mld EUR)	~ 7,4	~ 7,9
➔ Ratio of energy costs /GDP (developed countries)	~ 27 % (~ 6÷7%)	~26,5% (~ 6÷7%)
➔ Energy intensity(toe/000 USD) (World; OECD)	~ 0,6 (~0,3; ~ 0,18)	0,6 (~0,3; ~ 0,18)
➔ District heating (kWh/m2a) (Europe –some countries)	120÷200 (30÷50)	120÷200 (30÷50)



CO2 EMISSION IN BH

PRORAČUN EMISIJE KARBON DIOKSIDA IZ TERMOELEKTRANA U BiH
METODOLOGIJA: CORINAIR
PERIOD: 1981-2001.god:





Renewable energy in BH

➤ Hydro energy:

- Technical potential (356 small HE and HE)- about 24.000 GWh/a (about 2.600 GWh/a in small HE); capacity 6.800 MW
- Economic - about 90% of technical potential
- Used potential (1991): about 9.000 GWh (38%) and 2.400 MW (35%) – **undermost in Europe**
(small HE – used 4,4% of available capacity)
First HE in BH – 1895, 7 MW

➤ Wind energy – economic potential for developing approximately 600 MW (source - GTZ)

➤ Biomass – unexploited potential of approximately 1 million m³/a of residual wood and wood waste (source - GTZ)

Solar energy – solar irradiation figures of 1,240 kWh/m²/a in the north of the country and up to 1.600 kWh/m²/a in the south

Geothermal energy - potential of 33 MWth, only for heating

➤ Energy efficiency

Final consumption:

EU – 25: **buildings heating- 40%**, transport – 31%, industry –29%

BiH (assesment); **buildings heating - 50%**; transport –25%, industry – 25%

↗ Possibilities for reduction of energy consumption in buildings up to 70% (min. 20%). CO₂ emission up to 50% (min. 10%)

Renewable energy in BH



- **There is no strategy for development of renewable energy – type and capacity, (Government of FBH is defined price for el. energy from renewable sources, capacity up to 5 MW; small HE, biogas, biomass, wind, geothermal and solar)**
- **Priority is given to HE,**
- **Pilot projects of wind energy, about 130 MW (Herzegovina)**
- **Stimulation, subsidy, premium are not introduced yet**

Kyoto protocol – opportunity for BH



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- BH does not access to Kyoto Protocol yet
 - BH can access to Kyoto Protocol according to the model for developing countries – without obligation for emission reduction in the first Kyoto period (2008-2012)
 - Accession according to the model for developing countries BH can participate in CDM projects
 - Taking into account potential for emission reduction of GHG, BH can attract significant foreign investment (financial and advisory)

Preconditions for Kyoto protocol accession



✓ In order to participate in CDM projects, BH has to fulfill the following requirements:

(2) Establishing of DNA (CDM biro) and

(3) Ratification of Kyoto protocol

At this moment, there is agreement of experts regarding ratification of the protocol (presidency made decision and council of ministers should adopt it), but there is no discussion about DNA establishment

The roles of DNA should be:



1. Working with local stakeholders on identification and development of CDM projects draft
2. Promotion of these project drafts in order to attract foreign investors
3. Connection with local and international experts for development of CDM projects, investors, governmental and non governmental agencies
4. Clearing house



Focal point for CDM projects in BH

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