

UN ECE - Committee on Sustainable Energy Energy Efficiency 21 Project, Steering Committee

Energy Efficiency Investment for Climate Change Mitigation
Geneva, 1-2 December 2005

BiH Experience in Energy Efficiency Financing

Hilmo SEHOVIC
Bosnia and Herzegovina, Country Energy Expert
e-mail: anibas@bih.net.ba

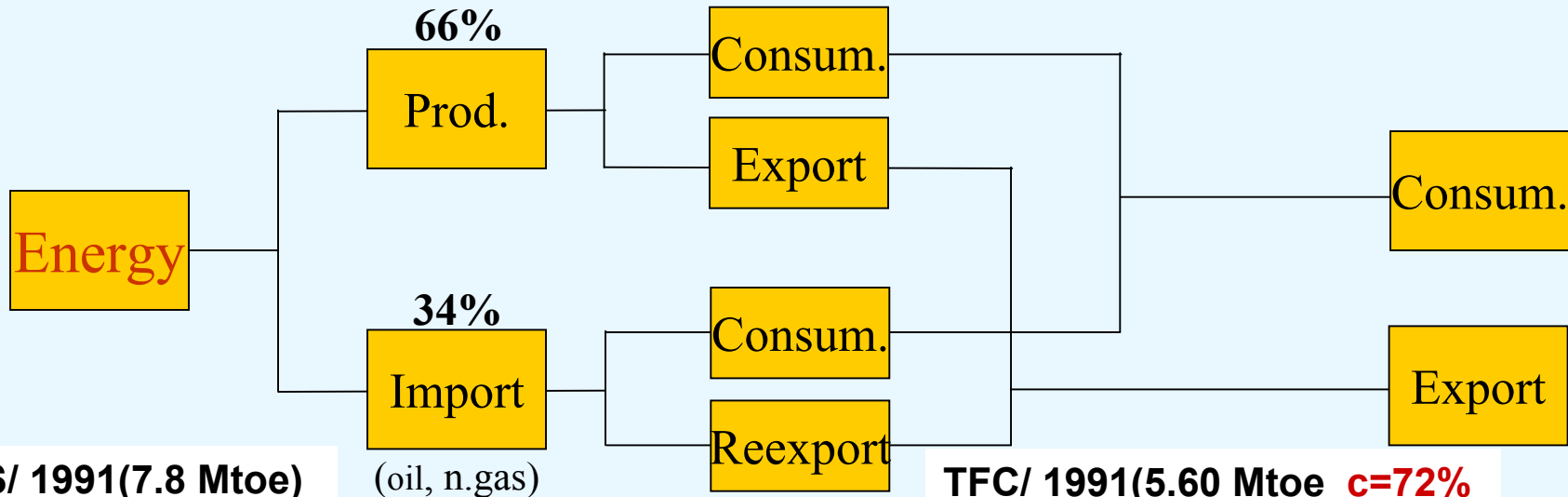


EE 21 Project, Geneva 1-2 Dec. 2005

- **Energy situation in BiH**
- **Main barriers**
- **Financing possibilities**
- **EE Pilot projects**
- **Urgent steps**
- **Feasibility study - CHP Example**
- **Comments**



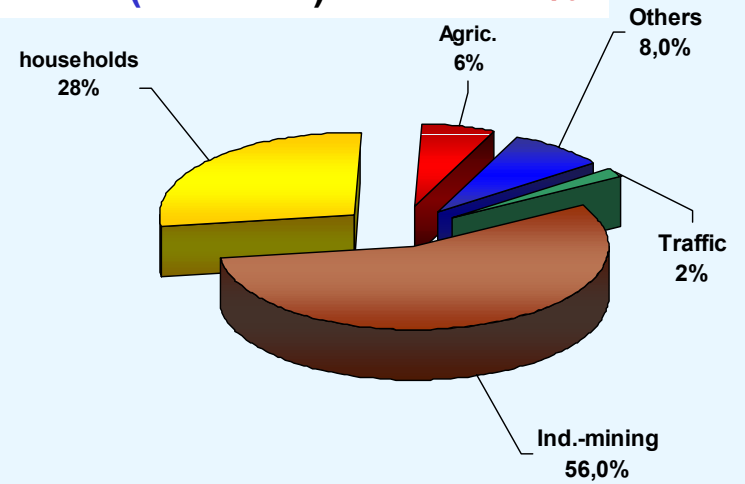
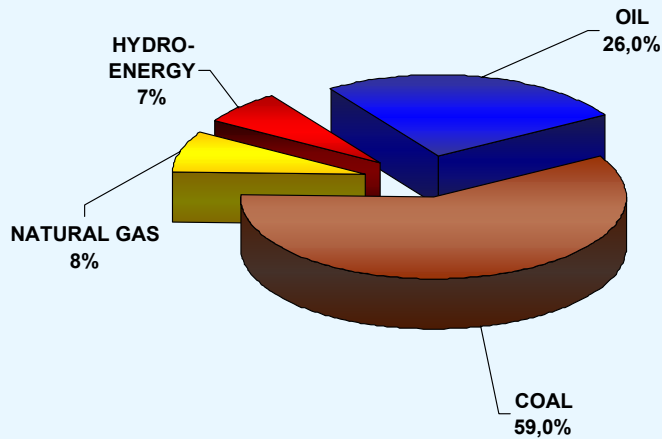
BiH Energy 1991, 2004



TPES/ 1991(7.8 Mtoe)
2004 (4.71Mtoe)

(oil, n.gas)

TFC/ 1991(5.60 Mtoe c=72%)
2004 (3.0 Mtoe c=64%)





Main barriers

- Insufficient institutional and human component
- No Strategy and Legislation in the field of EE
- Inadequate financing investment in EE
- Poor practical experience
- Costs for energy consumption are low
- EE field is not yet in focus of decision makers interest

State/Entity/Municipalities/Donor and Financial Institutions capital Investments are non-related to EE



Financing possibilities

- | | |
|---------------------------|------|
| - From institutions/funds | some |
| - International programs | some |
| - Leasing Companies | none |
| - From Banks | some |
| - EPC/ESCO | none |

Third Party Financing and ESCO approach could be good samples of effective usage of local, private and international financial means



Financing possibilities

cont'd

- The banking sector is liquid with much more potentials for lending the money
- Lack of creditworthy municipalities presents the obstacle for the banks to lend money
- Primary lending dominated by several foreign banks providing maturities up to 15 years and rates ca 10%.



Financial barriers in municipalities

- Low budgets and limitations
- Priorities in investment are not in EE
- Creditworthiness of municipalities to access private sector municipal credit market is low yet
- Modest co-financing funds and high interest rates
- Poor ability to prepare project documents, feasibility studies and business plans
- Lack of energy policy and demand planning tools



EE Pilot Projects

A/ Positive example - local and international resources for ABD program of UNDP EE housing projects developed in 21 municipalities

B/ USAID/UNDP and others

- Initiative on municipal level

(in couple of municipalities, USD 100,000 as co-financing)

Co-Financing - Partners



Urgent steps

1) Building state and local capacity and raise awareness for sustainable and efficient energy management on:

- state and entity levels
- municipalities
- industry and communal service enterprises

to establish Center or Agency for Energy and EE



Urgent steps

cont'd

“Center for Energy, Environment and Resources in BiH” - CENER 21

would be created soon to help overbridge above mentioned gaps.

One of the goals will be to move the market by helping the state, regions and municipalities in BiH energy sector to learn how to use contemporary financial tools to upgrade their infrastructure.

Energy Efficiency must be on the short list of state, entities and municipal priorities



CENER 21

cont'd

Contact:

Hilmo SEHOVIC

Country Energy Expert

anibas@bih.net.ba

tel: +387 61 154-864

CENER 21

Center for Energy, Environment and Resources

Bosnia-Herzegovina, BA-71000 Sarajevo, Nova 24



Urgent steps

cont'd

2) Developing and implementing the Energy policies

that lead to energy efficiency improving and energy saving (sustainable development, tariff and subsidy reforms etc.)

3) Developing the projects

- Help cities to meet the banks and understand lending criteria
- Develop innovative financing instruments-leasing, vendor-credit, micro credit and municipal bonds
- Assist in project design, feasibility studies, etc.



Urgent steps

cont'd

- Develop local - international loan guarantee instruments
- Hold workshops between banks/leasing companies and cities to better understand each other,
- Develop projects for possible ESCO financing.

4) Demonstrate benefits

of Energy efficiency investments – pilot projects and programs



Feasibility Study

Energy Efficiency Improving
-CHP Example in BiH-

**CONSTRUCTION OF CHP PLANT
IN EXISTING NATURAL GAS FIRED
BOILER STATION**

KD III-2 Dobrinja, Sarajevo



CHP Example in BiH

cont'd

Example 4.7 MW - Industrial plant

Before CHP application

No	Energy	Power MW	Fuel MW	Efficiency %
1.	Heat	7.0	10.1	70
2.	Electricity	4.7	13.5	35
	Total	<u>11.7</u>	<u>23.6</u>	50



CHP Example in BiH

cont'd

After CHP application

No	Energy	Power MW	Energy MWh/h
1.	Heat	7.0	0
2.	Electricity	4.7	15.9
	Total	<u>11.7</u>	<u>15.9</u>

- Energy of fuel = 15.9 MWh/h
 - Efficiency of system = **74 %**
- Energy Efficiency increasing 24%**



CHP Example in BiH

cont'd

Proposal - Feasibility study:

TGS of power 4.0 – 4.5 MWe with Waste Heat Recovery Boiler (WHRB)

“Topping System” ⇒ Electricity production priority, with low ratio heat-power, 1.21

- **Net electric power** $P_{\text{net}} = 4.27 \text{ MW}$
- **Heat power of exhausting gases** $H = 5.18 \text{ MW}$
- **Total power** $(P_{\text{net}} + H) = 9.45 \text{ MW}$
- **Total efficiency** $\eta_{\text{CHP}} = 81,71 \%$



CHP Example in BiH

Cont'd

A/ In the case of heating season operation

- **IRR = 14.83% and PBP = 4.99 years**

B/ In the case of whole year operation

IRR = 19.66% and PBP = 4.18 years

**Investment is cost-benefit with short terms of paying off
for this kind of CHP plant**



CHP Example in BiH

cont'd

- Priorities:**
- **To adopt L&R framework, Strategy in Energy Sector, Regulatory system of prices**
 - **Energy efficiency improving, control and metering system introducing**
 - **Introducing Cogeneration (CHP) as basic priority**



COMMENTS

- **Urgent steps in Energy Sector in BiH, all levels:**
 - Institutional structure - state, local (municipal) level (Agency, Center)
 - Development of human capacity in E&EE field
 - Coherent mid- longterm energy strategy
 - Legislation on energy efficiency and energy saving
 - Removing of financial barriers (budget for EE..)
 - Awareness of policy makers and population with EE benefits and advantages of EE projects
 - Ability to prepare feasibility studies, project documents and energy management



Energy Efficiency Investment for Climate Change Mitigation
Geneva, 1-2 Dec. 2005

**THANK YOU
FOR ATTENTION**