Republic of Macedonia
Short Survey

Inhabitants	2.1 million
Energy supply:	
domestic fossil fuel and hydropower	50%
import of gas, liquid fuel and coal	50%
Gross energy demand is approximately	120 000 TJ
GJ per capita	57
Electricity consumption	8900 GWh
Electricity import	2900 GWh
M€/year for energy import	587

Energy Agency of the Republic of Macedonia

- **Established by the power of Law** 2005
- **First 5 employs** 2007
- **Responsibilities**
  - To support Ministries for preparation of strategically documentation
  - To prepare data base for each municipality
  - To manage GEF EE Project donated by WB 5 M$
  - To lead and participate into multinational projects
  - To control and issue certificates for power origin
  - To control and issue certificates for buildings

- The Agency have to become a powerful center for control of all projects in the field of energy, avoiding duplication, supporting harmonization of our legislation with EU
- Should increase participation of the Macedonian institution in international funds (UNDP, UNECE, EU)
- Have to become main factor in determination of hierarchy and dynamic of development of different sectors in the field of EE and renewable
- Will become a center for promotion of EE measures, wider application of renewable and environmental protection

MACEF

- Established 2002 under generous support of USAID and Alliance to Save Energy as Local Focal Point in the RENEUER network as NGO
- Today:
  - 5 persons full time engagement
  - 1 expert from Germany engaged on 2 years contract with GTZ/CIM
  - 25 persons under volunteers contracts engaged
- Training courses for EE measures realization
- Lecturing in Primary schools (65 schools passed)
- Performing energy audit of buildings (escorted with diagnostic measurements – data loggers, thermal camera, light, moisture, noise, ear velocity, boilers efficiency etc)

- Issuing monthly e- bulletin InfoMACEF (No 61) to 970 addresses
- Participating in different EE projects as local partner, mostly financed by USAID
- Technical support and consulting services for municipalities
- Study works for medical centers offering EE measures as a tool to reduce pollution (client Ministry for environment)
- Technical designs for boiler rooms, heating, ventilation, air-conditions, technological processes (food industry, tobacco industry), small scale cogeneration power plants etc.
- Foundation of MAMNEE - Macedonian Municipal Network for Energy Efficiency (11 municipalities as members till now)

- Organization of promotional activities as Energy Days lasting from 3-6 days, escorted with symposiums, products promotion, quiz for school children, drawing competition for schools with special awards (as a part of kid's corner of managenergy network),
- Partner in 2 years PPP project financed by STO AG and ADA, concerning facades of buildings
- The last one to prepare **Book of Rules** for energy efficiency of new erected buildings and major renovations for existing buildings (building certificates).

MACEF is not receiving State support!

Perspective

- Establishment of regional centers for training and education in the field of EE and RES
- Higher engagement for technical standards, directives and strategic documents preparation (Action plan for EE, Strategy for RES development etc)
- Introduction of EE measures into State macroeconomic policy as a tool to cope with energy poverty
- MAMNEE strengthening
- Regional collaboration
- Education of energy auditors
- Energy audit of buildings and technical documentation preparation

Renewable Energy Sources

The RES application are treated in the articles of the Energy Law and Local Self-government Law

There is no Agency or Fund for RES support and promotion

There are feeding tariffs for “green” electrical energy production

Energy Sector Development Strategy for Macedonia was prepared in 2000 mostly directed to RES (USAID/Electrotek/ MANU)

This year is open a tender for preparation of RES Strategy

RES potential presentation

Fire wood participate with 7-10 % of total primary energy used

theoretical 6000 GWh/year
technical 3670 GWh/year

Total average energy potential of agricultural residues (0.95%)

theoretical 2 000 GWh/year
technical 286 GWh/year
radius of transportation of 10 km

Municipal waste can participate with 1.5% in the state energy balance

theoretical 910 GWh/year
technical 830 GWh/year

Geothermal energy participate with 0.5% of total primary energy used (cca 80 GWh/year – greenhouses heating).

There are appointed more than 400 locations for small scale hydro power plants. 40 of them were offered for realization.

The average solar irradiation is 4.2 kWh/m^2/day, or cca. 885-926 kWh/m^2/year.

There are no proven data on wind velocity/frequency measured on places higher than 5 meters over ground.

RES installations

Kotchany geothermal field	373 l/s flow	75°C	greenhouses, a few buildings
Istibanja geothermal field	22 l/s flow	65°C	greenhouses
Gevgelija geothermal field	200 l/s	65°C	Greenhouses, plastic houses
Strumica geothermal field	50 l/s	70°C	Hotels, greenhouses, plastic houses

A lot of individual thermal solar collectors

A few geothermal heat pumps in Skopje

Fire wood is used in all rural places (individual houses, schools etc.)