RENEWABLE ENERGY IN ARMENIA

Women in Europe for a Common Future
WECF
www.wecf.eu

Republic of Armenia

Population: 3,229,900

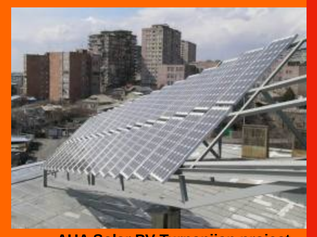
Area: 29,800 km²

Wind Power

According to obtained results theoretical wind power potential of the Republic of Armenia is assessed as 2426 - 4900 MW. Estimated tariff: 35 AMD =11.3 cents for 1 Kwh without VAT

Solar Power

Due to its geographical conditions Armenia possesses a significant solar energy potential. There are 2500 sunny hours per year and the average annual solar radiation on horizontal surface is about 1720 kWh/m^2. The average data for Europe, for example, is 1000 kWh/m^2. The area surrounding Lake Sevan and Ararat Valley is considered as one of the best regions for high solar radiation potential.



AUA Solar PV Turpanjian project

Solaren
www.solaren.com

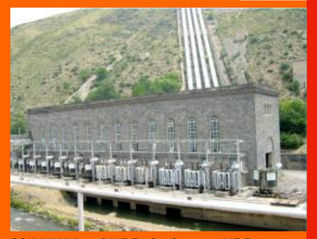
TECHNOKOM
www.technokom.am

SunEnergy

Hydro Power

The economically justified hydropower potential is around 3.6 billion kWh. From this amount, 1.5 billion kWh (or about 42% of economically justified hydropower potential) has been developed already.

Currently, the total installed capacity of the Hydro Power Plants (HPP) in Armenia is about 1000 MW. Installed HPPs are grouped in two main hydro cascades: Private owned Sevan-Hrazdan HPP and state owned Vorotan HPP Cascades.



224 MW Argel HPP, the largest HPP of Sevan-Hrazdan hydropower cascade

Biomass

The market for utilization of wood and straw in Armenia is assessed as limited, the present amount of straw is available in limited quantity and being used by local population mainly for agricultural purposes. Much more promising is the potential of landfill gas utilization. Currently, about 2.3 mln cubic m of solid municipal waste is annually generated in Armenia. Another perspective area of biomass energy development in Armenia is related to Waste water treatment and animal waste processing.

Lusakert Biogas Plant Construction Site

THE NUCLEAR POWER PLANT provides about 35% of the country's energy needs.

THERMAL POWER PLANTS in Armenia, using a combination of oil and natural gas, provide approximately 45% of the country's needs and hydropower provides the balance.

HYDRO POWER PLANTS generate approximately 20% of energy needs.

Other sources - about 1 %.

"All electricity (capacity) generated at small hydro power plants, as well as from renewable sources of energy within the next 15 years shall be purchased pursuant to the Market Rules".

"Energy Law of the Republic of Armenia", Article 59, Clause 1.c

Source: http://www.renewableenergyarmenia.am

OUR ACTIVITIES

Armenian Women for Health and Healthy Environment
AWHHE
www.awhhe.am

THE COST OF POVERTY FILM

The film presents rural Armenia where about 50% of population in particular in rural areas live below the poverty line and regularly use biomass fuels for heating and cooking.
Cooking and heating with solid fuels on open fires or traditional stoves results in high level of indoor air pollution. Indoor smoke contains a variety of health-damaging pollutants and people living in conditions of poverty are not informed about the health risks.
The film shows how children in schools work in classrooms full of diesel smoke, and how a poor female-headed household with two children hardly can survive the winter, burning waste materials such as tar - for heating and cooking.

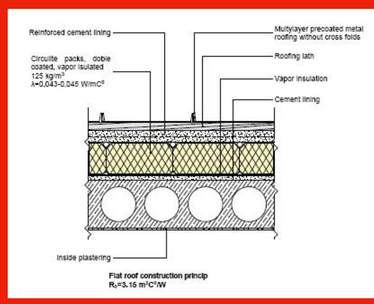
CONCEPTUAL DESIGN FOR HAYANIST AND FANTAN SCHOOLS BUILDINGS

QUELQUE-CHOSE ARCHITECTS

Hayanist Village School

The main educational block is turned towards morning- and midday-sun, so the classrooms will be insulated longer, than now. All common classrooms have the same sunlight conditions.
It will help to reduce yearly energy consumption.
The high level of ground water and flowing water drainage channel offers an opportunity of the geothermal energy usage in future.
Windows on the northern side are smaller than on the southern, to minimize the heat loss in winter time. On the southern side windows have maximal possible sizes, taking into account the specific features of stone walls.
The bearing tufa stone walls, due to their own high insulation properties together with circulit infill will create a very high level of heat loss resistance R_o=2.5 m^{2}C°/W.
The heat loss resistance of the roof slab is calculated R_o=3.15 m^{2}C°/W.
The large area of the flat roof can be used for the installation of PV elements and solar heat collectors.

Fantan Village School



In our proposition we tried not only to reinforce the buildings of the school, but also solve the problem of classrooms insulation, and the lack of space. For that reason the attic floor is added to two of school blocks, where classrooms windows are directed towards the sun. In this case all rooms will be insolated.

Wide tufa stone walls of the old block, after being reinforced and injected will have normal level of heat insulation. The yard looking walls will be insulated from inside with circulit slabs to preserve the natural stone facade.
To insulate the roof above the classrooms the circulit packs will be used. They will be laid on wooden deck above metal rafters. The roofing will be made of multilayer precoated metal bands without cross folds. The heat loss resistance of the roof is calculated R_o=3.15 m^{2}C°/W.
The double glass packs will be used for all glazed surfaces on outside walls to minimize the heat loss in winter time.