

Renewable Energy and Energy Efficiency In Georgia

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SYNENERGY



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energoefeqturobis centri saqarTvelo ENERGY EFFICIENCY CENTRE GEORGIA HYDRO ENERGY RESOURCES OF GEORGIA

Full annual energy potential	Annual technical potential	Economical potential
TWH/year	TWH/year	TWH/year
159	81(7.5 - small rivers)	32



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Number of units Capacity operating Generation Range of Capacity Commissioning dates Tariff

55 86 MW 400 TWh 5 -10,000 KW 1928- 2007 0.025-0.035 €/KWh



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ANNUAL INSTALLED CAPACITY 3730 MW

GENERATION - 19.5 TWH

% of WORKING TIME -60%

1 kw construction cost - 1500 - 2000 USA \$



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- •Small Hydro Power Plants has the following privileges according the law:
- Do not need licenses;
- Not subject to tariff regulation;
- •Right to sell energy directly to any customer;
- •ESCO is obliged to buy the whole energy left above direct contracts





WIND ENERGY





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" Georgian Wind Energy Atlas"

Multiyear data from 43 meteostations;

3-5 year measurements conducted in prospective locations using meteorological stations

The atlas was developed with the use of methods and WAsP software of Danish laboratory RISO

Estimated resources

5 TWh/year (60% of today's for electricity consumption in Georgia)



Capacity -2000 MW

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100W and 7m2 SWH in children's department of TB treatment center



45W in Ganisa Village 45W in Mta-Tusheti- Village Dartlo





45W in Akhmeta Bukhrebi village ¹⁰



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Biomass resources

- •Wood and wood wast-2.7GWh;
- •Residues from wheat, corn and legume cultures crops -1.3 GWh;
- •Residues of farming 6.9GWh = 760G m3 NG;
- •Residential waste -0.6 GWh;
- •From Tbilisi sewage-1.0 GWh;

Total Energy Potential of Biomass - 12.5 GWh





In Georgia there are about 600 000 small farms According to the statistic data the growth of the animal husbandry in the period 1997-2006 is estimated at 29,8%, which means the growth of bio energy potential in the country. Currently the total number of cattle on these farms is about – 1265100

Constructed of 337 family biogas installations









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Geothermal Potential of Georgia

Predicted reserve of geothermal water in Georgia is 960000m³ per day;

At present there are 250 geothermal wells in Georgia with hot water of 30-108° C;

The total flow rate of geothermal water is 160000m³ per day

Current State of Tbilisi deposit

6 production wells-4000m3/day

79/15 block buildings supplied with geothermal hot water 55°C/70°C

Price 1.7 GEL/person

Collection rate - uncontrolled



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- Hydroelectric generation of fifty three HPS constitutes about 6.48 TWh 90% of Georgia's electricity balance,(7.15 TWh);
- Capacity of 40 SHP is 90 MW (or 5% of the total hydropower capacity) and annual generation of 530GWh;
- Between 1984 and 1990, approximately 300 solar water heaters (SWH) were installed in residences, hotels and industrial sites with a total volume of more than 140,000 m²;
- 20,000 W capacity PV installation are working in Georgia;
- Presently there is no wind farm exist in Georgia;
- Only 1 Geothermal well 4000 m³/ day 50-70 ° C, from existing 50 is exploiting for hot water supplying purposes in Tbilisi in Saburtalo district;

ere are several biogas installation in operation currently.

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- the economical potential for energy savings is estimated in the range of 30-50%;
- cost of used energy for big industrial units exceeds 50% of the cost of final products;



usually it varies from 15 to 25%.

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Importance of EE development

Considering energy efficiency as a critical indigenous energy resource the Georgian government declares high importance to its development.

 Poverty Reduction and Economic Growth Program of Georgia;

 National Action Plan For Environmental Protection;

National Energy Strategy of Georgia





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ENERGY EFFICIENCY CENTRE GEORGIA Effect of EE Measures

	Now	After EE Measures
Country TPES (1000 toe)	3210	2888
Indigenous Production	1669	1502
Import	1541	1387
Indigenous Production/ TPES	0.52	0.58



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The Barriers

Legal, regulatory and political barriers:

- prolongation of comprehensive liberalization of energy market;
- absence of regulatory incentives for economical stimulation of energy efficiency measures and actions;
- Iack of national energy efficiency strategy, policy, action plan and regulation.





The Barriers

Barriers on consumer level:

Iack of energy managerial skills;

Iack of top management understanding;

absence monitoring and targeting practice.



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The Barriers

Informational-educational barriers:

- absence of energy efficiency awareness complains;
- Imited availability of information;
- Iack of general understanding on the no or low cost energy efficiency measures;
- Imited training availability for energy mangers;
- no mass-media motivation for dissemination of best practices achieved;
- Iack of "success" stories.





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Recommendations

Creation of attractive environment to the energy efficiency should be achieved trough the introduction of legal, administrative and economic measures for EE stimulation.

- integration into the international treaties;
- work out energy efficiency action plan;
- introduction of soft taxation for EE products;
- finalize liberalization of energy market;
- liquidation of subsidies and cross-subsidies in the sector;





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Recommendations

- increase transparency;
- introduction of obligatory periodical energy auditing;
- permanent awareness campaigns;
- research and development activities in EE;
- creation of "revolving fund";
- support to effective operation of CDM and other international financial mechanisms.





THANK YOU

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