EU4Energy

Sustainable Bioenergy for Georgia: A Roadmap

Learn how to transform the use of biomass in Georgia to create a sustainable bioenergy industry for the future.

Experience the full roadmap at
iea.org/programmes/eu4energy

Georgia Bioenergy Context

2018 BIOENERGY

6% of total primary energy supply

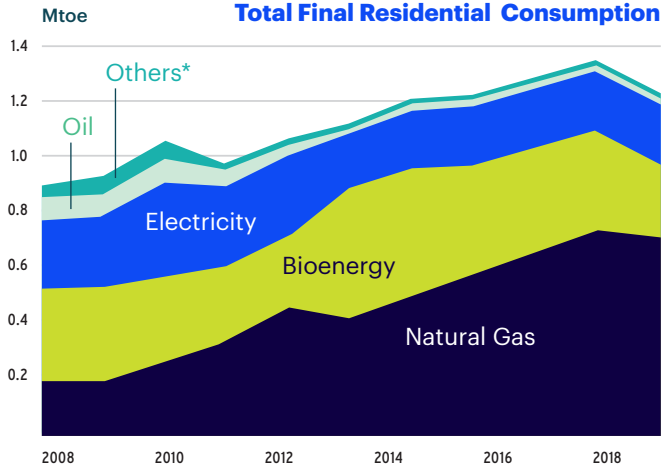
1/5 of all domestic energy production

2nd largest indegenous energy source after hydropower

Biomass use in Georgia has implications not only for the energy sector, but far beyond.

A co-ordinated approach to policymaking, governance and market development is required.

What does domestic energy consumption in Georgia look like?



 NOTES: Mtoe = million tonnes of oil equivalent (1 Mtoe = 41.9 PJ); *Includes coal, solar, thermal, geothermal and district heat; not visible at this scale. Sources: IEA (2020), World Energy Balances 2020 (database), iea.org/statistics; Geostat (2017), Energy Consumption in Households

Rural Areas:

+ **~80%** of biomass consumption occurs in rural areas
+ Low energy efficiency firewood stoves are the main form of heating in rural areas

3.7 Million inhabitants

500,000 households

approximately **1/2** of households use **BIOMASS** fuel for heat

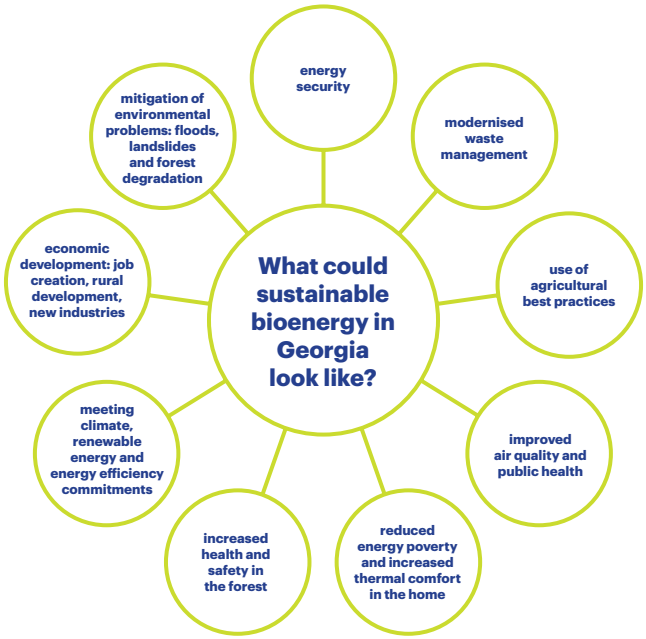
Forest resources in Georgia are overexploited:

Forests cover 40% (3 million hectares) of Georgia's landmass

Firewood consumption far exceeds the sustainable level of supply, degrading forest resources

Negative environmental & social impacts include:

- Forest degradation results in **loss of biodiversity**
- Reliance on firewood raises the risk of **fuel poverty** in rural areas
- Increased **soil erosion** leads to landslides and flash floods
- 3,000+ settlements in danger of **environmental disasters** in Georgia
- **Indoor air pollution** leads to 2.5 million premature deaths worldwide every year



Ensuring sustainable forestry management

How?

- **Implement Georgia's Updated Forest Code:** best-practice sustainable forestry management principles
- **Ending social cutting:** promote transition away from fuelwood
- **New methods:** harness the potential of sustainable forestry residues

Utilising waste and residues

Transforming agricultural residues into fuels

+ 35% of territory in Georgia is agricultural land
+ Vineyards, orchards and crops produce biomass residues that can serve as feedstock to produce fuels
+ A regulatory framework to guide the collection and use of agricultural residues can ensure they are valorised

Energy from municipal waste

+ Further fuel diversification will come from modernising waste management and developing Energy-from-Waste (EfW) projects
+ Policies that increase the cost of, or prohibit, landfill waste disposal encourage EfW

Why?

Georgia needs the ability to **produce its own biomass fuels** while avoiding deforestation & associated environmental impacts of firewood supply

By **diversifying the types of biomass** used as heating fuels, Georgia can:

+ Reduce pressure on forestry resources
+ Provide increased rural job opportunities
+ Provide an avenue for managing municipal, agricultural and forestry wastes and residues.

Encourage the adoption of more efficient biomass stoves and boilers

How?

- **Implementing support measures** that encourage more purchases of efficient stoves
- **Enhance public awareness** of the health and financial benefits
- **Launch focused initiatives** to establish upgraded-fuel production businesses
- **Using upgraded biomass fuels** such as wood chips, pellets and briquettes

More efficient stoves, significantly lower heating costs

Fuel	Fuel cost range (GEL/GJ)	Stove type and combustion efficiency	Delivered heat cost range (GEL/kWh)
Firewood	13-18	Basic, 25%v	0.18-0.26
Briquettes	23-32	Improved, 45%	0.19-0.26
Briquettes		Efficient, 75%	0.11-0.16

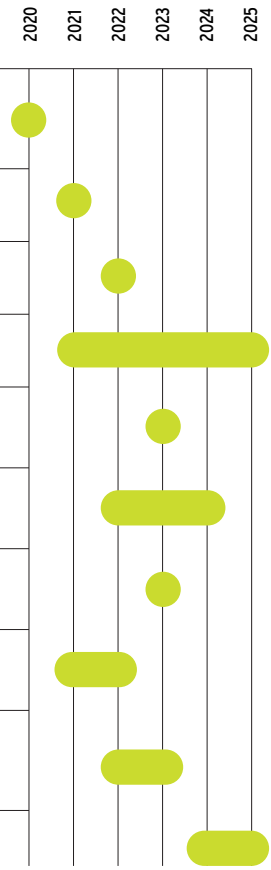
The cost of heat from briquettes in an efficient stove is less than firewood in a basic stove

Why?

The single most effective method to improve the sustainability of biomass use in Georgia is to transition to more efficient heating appliances.

+ Lowers fuel demand
+ Reduces pressure on forestry resources
+ Reduces indoor air pollution
+ Creates skilled jobs

ACTION	CATEGORY
Formally recognise the current use of biomass heating as an energy, social and environmental issue that must be addressed	Policy and Strategy
Elaborate a national bioenergy strategy	Policy and Strategy
Update and approve an upgraded-biomass fuel strategy	Policy and Strategy
Actively implement new Forest Code nationwide	Forestry
Introduce regulations for the collection and sustainable use of agricultural residues	Agriculture
Introduce programmes for urban green waste collection and source segregation of MSW	Waste Management
Introduce support measures for upgraded-biomass and waste-fuel supply businesses	Business Development
Improve national competencies in the production, maintenance and installation of efficient stoves	Heating Appliances
Introduce support programmes for national production and economic purchase of efficient stoves	Business Development
Introduce standards and certification for stove efficiency and upgraded fuels	Business Development



An extended set of policy recommendations is included in the full roadmap

The Vision for 2030

- **A modern bioenergy industry**
- **Diversified, sustainable production of biomass fuels**
- **Skilled jobs in fuel manufacturing, installation, maintenance, logistics created**
- **Decreased use of firewood heating stoves**
- **Low indoor pollution**
- **Low illegal forest activity**
- **Decreased deforestation**

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