

ESTONIA



Country at a glance

- Population: 1.34 million (2010) [1]
- Total area: 45,228 sq. km [2]
- Carbon emissions per capita: 13.77 metric tons (2010) [3]
- Energy consumption per capita: 48.3 MWh (2010) [4]
- Percentage of global carbon emissions: 0.06% (2010) [3]



Excavating oil shale in Estonia

Estonia has significant oil shale resources and is the only country in the world that uses oil shale fired power plants to supply most of its electricity and can export power to neighboring countries as well. The oil shale comes from two underground mines and two opencast mines which use large dragline excavators

Dragline excavator in the Baltic Oil Shale Basin by PjotrMahh1. Permission Under CC BY-SA 3.0 commons.wikimedia.org/wiki/File:Dragline_excavator_in_the_Baltic_Oil_Shale_Basin.jpg

Table 1 Breakdown of energy use, electricity and heat generation, 2010

	Primary energy sourced within country		Energy imports minus exports	Primary energy used within the country ^(a)			Electricity Generation ^(b)		Heat Generation ^(c)		
	unit	ktoe		%	ktoe	ktoe	GWh	%	GWh	%	
Coal, including brown coal & peat		3,943	80	-16	3,921	45,606	67	11,576	89	1,929	27
Oil fuels		0	0	737	517	6,018	9	41	0	487	7
Natural gas		0	0	562	562	6,540	10	303	2	3,026	43
Nuclear		0	0	0	0	0	0	0	0	0	0
Hydroelectric		2	0	0	2	27	0	27	0	0	0
Biofuels and waste		961	19	-154	820	9,539	14	740	6	1,654	23
Solar photovoltaics		0	0	0	0	0	0	0	0	0	0
Solar thermal		0	0	0	0	0	0	0	0	0	0
Tide, wave and ocean		0	0	0	0	0	0	0	0	0	0
Wind		24	0	0	24	277	0	277	2	0	0
Geothermal		0	0	0	0	0	0	0	0	0	0
Electricity (imported)		0	0	-280	0	0	0	0	0	0	0
Sub total Renewables		987	20	-154	846	9,843	14	1,044	8	1,654	23
Totals		4,930	100	850	5,848	68,007	100	12,964	100	7,097	100

Source: Based on World Energy Statistics and Balances Database 2012, "World Energy Balances." © OECD/IEA, 2012.

Notes:

Standard conversion used is 1 ktoe = 11.63 GWh

(a) Sum of energy sourced within country, energy imports minus exports, international marine and aviation bunkers and stock change flows.

(b) Includes all electricity generation, including any exported.

(c) Does not include electrical heating. Includes waste heat recovery from electricity generation plants.

Table 2 Breakdown of transport fuel use, 2010

(in ktoe)	Total transport mix	%	Domestic aviation	Road	%	Rail	Pipeline transport	Domestic navigation	Non-specified (transport)
Oil products	744	99	1	684	100	51	0	8	0
Natural gas	0	0	0	0	0	0	0	0	0
Biofuels and waste	0	0	0	0	0	0	0	0	0
Electricity	5	1	0	0	0	0	0	0	4
Sub total Renewables	0	0	0	0	0	0	0	0	0
Total	749	100	1	684	100	51	0	8	4

Source: Based on World Energy Statistics and Balances Database 2012, "World Energy Balances." © OECD/IEA, 2012.

Stand on climate change

Estonia signed the Kyoto Protocol on 3 December 1998 and ratified it on 14 October 2002. However, it was not entered into force until 16 February 2005.

National climate change programmes

For the first phase (2005-2007) of the European Union Emissions Trading Scheme (EU-ETS), the Estonian National Allocation Plan included 43 installations and allocated the emission allowances in the amount of approximately 14.2 Mt CO₂ equivalent per year. For the second phase (2008-2012), Estonia proposed reducing the country's total amount of allowances to 12.7 Mt CO₂ equivalent per year. However, it was rejected. Hence, on 8 February 2011, Estonia revised its National Allocation Plan and resubmitted it.

Some notable regulations in Estonia:

- Fuel and Electricity Excise Duty Act: Electricity excise EUR 3.2 per MWh [5]
- Environmental Charges Act: Charge EUR 2 per t CO₂, penalty rate EUR 100 per t CO₂ [6]
- Electricity Market Act: for regulating generation, transmission, sale, export, import and transit of electricity, economic and technical management of national grid and electricity supply system [7]
- District Heating Act: It regulates heat production, distribution and sale in district heating networks, the terms for network connection and mitigation effect of renovation of district heating systems and residential buildings [8]
- Forest Act: This act regulates management of forests to serve as renewable energy sources [9]

Other policies and measures based on sectoral approaches are:

Energy sector:

- National Development Plan of the Energy Sector until 2020: It was implemented in 2009 and it sets priority on sustainable, efficient and environment friendly energy supply. It helps to guarantee that there will be continuous energy supply and at the same time helps improve efficiency of energy supply and use, yet still maintaining reasonable prices
- Development Plan of the Estonian Electricity Sector until 2018: The target of this plan is to reduce CO₂ emissions to 5Mt CO₂ by 2018 and the amount of expenditures will approximately be EUR 1.1 billion
- National Development Plan for the use of Shale Oil 2008-2015: This plan sets a limit on annual mining of oil shale to 15 million tons by 2015 to discourage the use of oil and slowly shift the dependency on oil towards renewable sources

Renewable energy sector:

- Development Plan 2007–2013 for Enhancing the Use of Biomass and Bio energy: This plan aims to increase the share of renewable energy sources used in district heating from 21% to 33% in 2013
- National Renewable Energy Action Plan: The target of this plan is to increase the share of renewable energy sources in energy consumption to 25% by 2020. This would be in line with the EU Directive 2009/28/EC on the promotion of renewable energy sources. It also includes plans for installation of wind generators [10]
- Energy Act: This act introduces an obligation for electricity network enterprises to purchase electricity from renewable energy sources
- Feed-in tariffs with purchase obligation and investment support for wind power plants

Energy efficiency sector:

- EU directive 2002/91/EC on energy performance of buildings: It introduces a regulation on minimum requirements for energy performance of buildings and a regulation on energy performance certificates [11]

Transport sector:

- Development Plan for Enhancing the Use of Biomass and Bio energy for 2007–2013: The target of this plan is to achieve an increase in share of biofuels in transport to 6% by 2013
- Estonian Transport Development Plan for 2006–2013: this plan aims to increase the number of new cars emitting less than 120g/km of CO₂ from 0.2% in 2005 to 30% in 2013
- Taking steps to increase the share of public transport by making public transport more appealing to the public: Increasing the number of lanes allocated to public transport in the city road infrastructure and increasing the speed of passenger inter-city train connections

Ministries involved in climate change/energy policy making:

Ministries involved	Web links
Ministry of Environment	www.envir.ee/?set_lang_id=2
Ministry of Education and Research	www.hm.ee/index.php?0
Ministry of Agriculture	www.agri.ee/
Ministry of Finance	www.fin.ee/
Ministry of Economic Affairs and Communication	www.mkm.ee/en
Estonian Research Council	www2.archimedes.ee/teadus/index.php

Education institutes involved in climate change/energy policy making:

Education Institutes involved	Web links
Tallinn University of Technology	www.ttu.ee/en
University of Tartu	www.ut.ee/et
Estonian University of Life Sciences	www.emu.ee/en/
Estonian Science Foundation	www.etf.ee/index.php?page=3
Estonian Meteorological and Hydrological Institute	www.emhi.ee/index.php?nlan=eng
Estonian Environmental Research Centre	www.klab.ee/en/about/estonian-environmental-institute/
Estonian Environment Information Centre	www.keskkonnainfo.ee/main/index.php/en
Environmental Investment Centre	www.kik.ee/en

References

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- [6] Environmental Charges Act – Ministry of the Environment. Government of Estonia. Available at: <http://www.envir.ee/1106192>
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