



Country profile – Estonia

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

For methodological details and other country profiles, see www.eea.europa.eu/themes/climate/country-profiles.

Key climate- and energy-related data — Estonia

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO ₂ -eq.)	18.4	20.5	19.2	21.1	4 544.2
GHG per capita (t CO ₂ -eq./cap.)	13.6	15.4	14.5	16.0	9.0
GHG per GDP (g CO ₂ -eq./PPS in EUR)	990	880	786	853	350
Share of GHG emissions in total EU-28 emissions (%)	0.4 %	0.4 %	0.4 %	0.5 %	100 %
EU ETS verified emissions (Mt CO ₂ -eq.)	12.6	14.8	13.5	15.9	1 848.6
Share of EU ETS emissions in total emissions (%)	69 %	72 %	71 %	75 %	41 %
ETS emissions vs allowances (free, auctioned, sold) (%)	- 24.6 %	- 7.1 %	- 4.9 %	n.a.	- 14.1 %
Share of CERs & ERUs in surrendered allowances (%)	0.0 %	1.1 %	18.8 %	n.a.	26.4 %
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO ₂ -eq.)	5.6	5.7	5.6	5.2	2 566.6
Key data on renewable energy	2005	2010	2011	2012	EU 2012
Share of renewable energy in gross FEC (%)			25.6 %	25.8 %	14.1 %
() = including all biofuels consumed in transport	(17.5 %)	(24.6 %)			
Share of renewable energy for electricity (%)	1.1 %	10.4 %	12.3 %	15.8 %	23.5 %
Share of renewable energy for heating and cooling (%)	32.2 %	43.3 %	44.1 %	43.1 %	15.6 %
Share of renewable energy for transport (%)			0.2 %	0.3 %	5.1 %
() = including all biofuels consumed (%)	(0.2 %)	(0.2 %)			
Key data on energy consumption	2005	2010	2011	2012	EU 2012
Primary energy consumption (Mtoe)	5.4	6.1	6.1	6.0	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	4.0	4.6	4.6	4.6	3.1
Final energy consumption (Mtoe)	2.9	2.9	2.8	2.9	1 104.5
Final energy consumption per capita (Mtoe/cap.)	2.1	2.2	2.1	2.2	2.2
Efficiency of conventional thermal electricity and heat production (%)	48.9 %	47.7 %	44.9 %	46.9 %	50.0 %
Energy consumption per dwelling by end use	2005	2009	2010	2011	EU 2011
Total energy consumption per dwelling (toe/dwelling)	1.50	1.58	1.57	n.a.	1.42
Space heating and cooling (toe/dwelling)	0.95	0.98	0.96	n.a.	0.96
Water heating (toe/dwelling)	0.31	0.31	0.31	n.a.	0.18
Cooking (toe/dwelling)	0.16	0.20	0.20	n.a.	0.08
Electricity (lighting, appliances) (toe/dwelling)	0.08	0.09	0.10	n.a.	0.20

Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)

2013 ESD target (% vs base year)	+ 8.1 %	2020 ESD target (% vs base year)	+ 11.0 %
2013 ESD emissions (% vs base year)	- 7.4 %	2020 ESD projections WEM (% vs base year)	+ 6.2 %
		2020 ESD projections WAM (% vs base year)	+ 1.7 %

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be below the annual ESD target in 2013. Projections also indicate that 2020 ESD emissions are expected to be below the 2020 ESD target, with the current existing measures.

Progress towards renewable energy targets

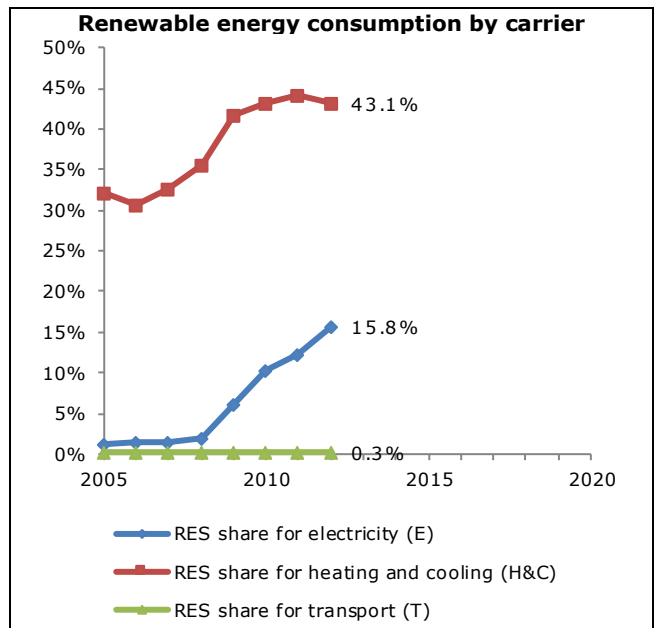
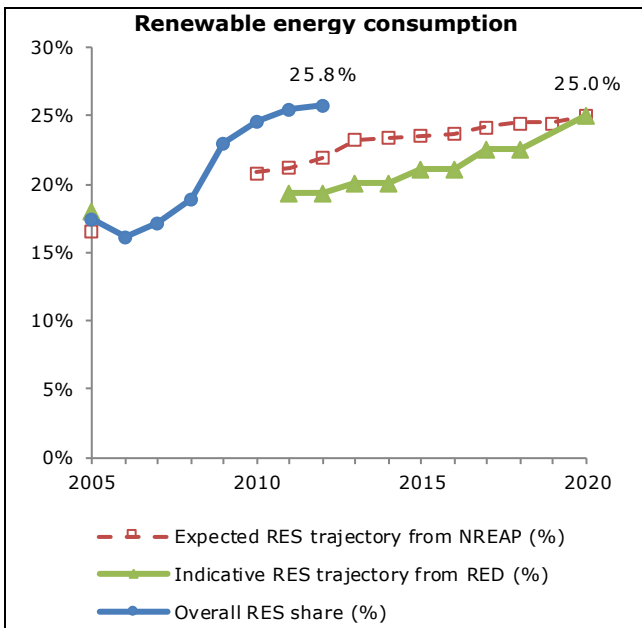
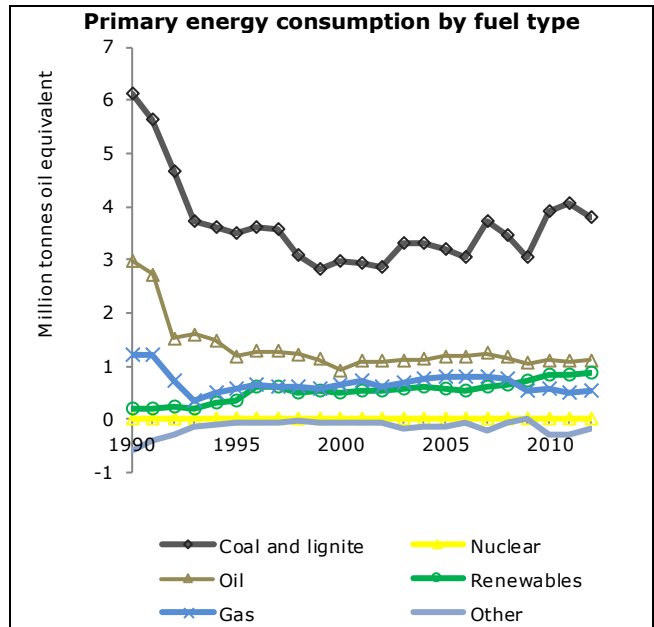
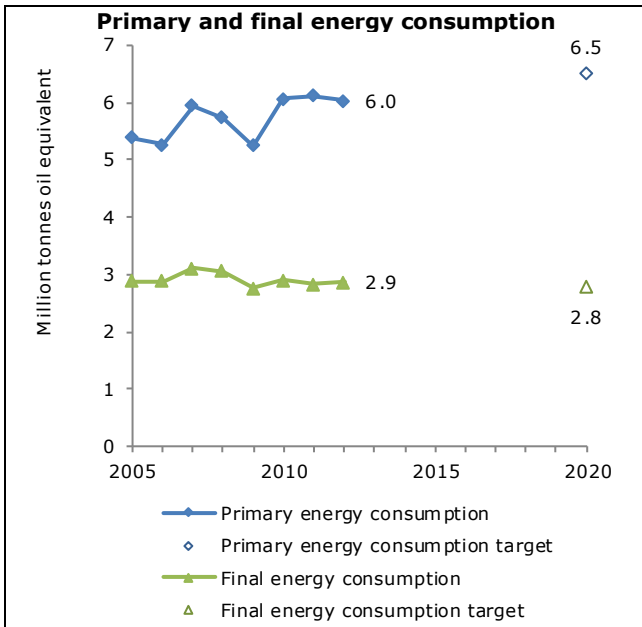
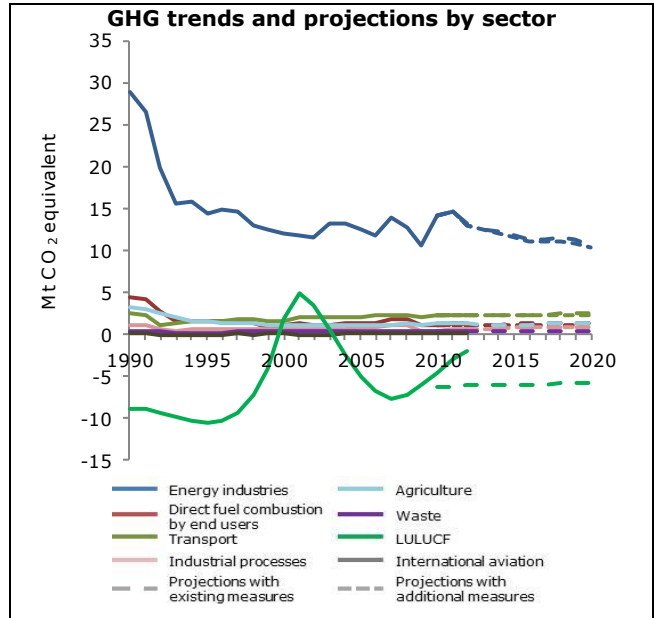
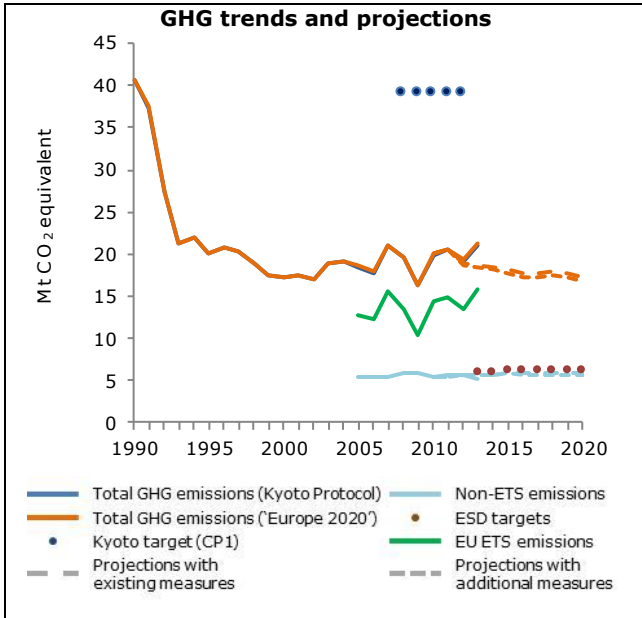
2012 RES share in gross final energy consumption (%)	25.8 %	2011–2012 indicative share from RES Directive (%)	19.4 %
2020 RES target	25.0 %	2012 expected share from NREAP (%)	22.0 %

The average share of renewable sources in gross final energy consumption for 2011–2012 was 25.7% (808 ktoe), which is higher than the indicative RED target for 2011–2012 (19.4%). At the same time, the share of renewables in 2012 (25.8 %) is higher than the expected 2012 NREAP target (22.0 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 6.0%. In order to reach its 2020 NREAP target, Estonia needs an average annual growth rate of 0.6% in the run-up to 2020. In absolute terms, this is equivalent to 0.1 time its cumulative effort so far.

Progress towards energy efficiency targets

Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	1.6 %	2005–2012 average annual change	0.0 %
2012–2020 average annual change to target	0.9 %	2012–2020 average annual change to target	-0.3 %

Despite having a positive 2020 target for primary energy consumption compared to 2005, Estonia did not limit sufficiently the increase of its primary energy consumption and did not reduce enough its final energy consumption during the period from 2005 to 2012 to be considered on track to meet its 2020 targets. The transformation input to conventional thermal power stations represents over 48 % of primary energy consumption and the energy input increased by 9.5 % over the period. Improving energy efficiency in transformation could therefore contribute to limiting primary energy consumption. Energy efficiency improvements in the transport and residential sectors could contribute to further reducing final energy consumption.



Climate and energy policy framework

Challenges and opportunities

Estonia's economy is more than twice as carbon dioxide (CO₂) intensive as the EU average. Energy generation accounts for approximately 70 % of the country's total greenhouse gas (GHG) emissions. The combustion of oil shale accounts for the highest share of emissions. However, Estonia is currently still highly dependent on oil shale. There are several ways in which this situation could be improved: retrofitting of existing thermal plants to increase efficiency and, for example, enable cogeneration, the shifting to renewable sources of energy and a more efficient end-use of energy. These measures would help to reduce energy demand from fossil fuels and the associated emissions. In addition, GHG emissions from the transport sector are particularly important and have increased since 2005. Newly registered cars have very high average emissions and even though the fuel excise tax rates have been raised 10 times in the last 15 years, there have been no noticeable results. Tackling emissions through shifting of taxation from, for example, labour to fuel consumption and more reliable and attractive public transport could help to incentivise the purchasing of more efficient cars, more efficient driving modes or a switch to public transport.

Climate and energy strategies

Estonia does not have a comprehensive climate strategy in place. In May 2014, the Ministry of the Environment announced a tender for the development of a climate strategy. Estonia recently finalised the new Estonian Energy Economy Development Plan up to 2030. It addresses energy production, energy transmission including district heating, the transport sector and others. Its main purpose is to ensure security of energy supply and to improve energy efficiency. It is expected that energy prices will further rise after the opening of the electricity market in January 2013; however, the energy mix will become more diverse, reducing also the consumption of Russian gas. The Development Plan will be published officially by the end of 2014.

Renewable energy

Estonia has increased the use of renewables in both electricity generation and in heating and cooling. For renewable electricity, Estonia's main support scheme is a feed-in tariff (FIT). However, Estonia wants to switch from the FIT to a premium priced system and is currently waiting for a decision from the European Commission whether the new support scheme is considered as state aid. The switch is envisaged as the renewable energy target for 2020 has already been achieved and the surcharge for final consumers should not increase further. Next to this, there are plans to build the world's largest wind energy park on the coast of Estonia's second biggest island, Hiiumaa. Currently, it is unclear whether the project will be carried out as there is strong resistance. Currently, it is unknown when a decision will be taken by the Hiiumaa County Local Authority as local people, fishermen and several non-governmental organisations are strongly opposed to the project.

According to the Estonian Renewable Energy Association, 71 % of electricity consumers are considering the benefits of solar panels, and the number of installations of solar panels is higher than ever due to increasing electricity prices and decreasing costs related to solar power installations and grid connection.

Regarding renewables in heating, investment support can be provided for the construction of renewable energy source (RES) combined heat and power (CHP) plants, for the reconstruction of boiler houses to make them operational for renewable energies and for the reconstruction of the district heating network. Furthermore, RES CHP plants are eligible for a premium tariff (RES legal). Investment support is also made available for owners of private houses and apartment buildings for the purchasing of RES plants for the production of heat.

Energy networks

Estonia is connected to Latvia and Lithuania; there is no connection to the main continental European grid but a connection to Poland is planned. Underwater cable connections (Estlink 1 and 2) to Finland should allow Estonia to increase its security of supply and support the development of its electricity market. Estlink 2 has been tested successfully and was recently opened. It raised the connection capacity from 350 MW to 1 000 MW from Estonia to Finland and to 860 MW from Finland to Estonia. Minor works will continue during 2014. The costs for establishing the second underwater cable amounted to EUR 320 million of which EUR 100 million was funded by the European Union. The third Estonian-Latvian electricity cable connection is expected to be finished by 2020. It is estimated that it will improve transmission between Estonia and Latvia by 500-600 MW.

Energy efficiency

Estonia has an Energy Efficiency Programme for 2007-2013 that has not yet been extended or renewed. The main focus of the Programme was to increase energy audits in industrial and smaller companies and provide training for energy consultants working in the area of energy savings. The Programme also provided possibilities for companies to improve their energy efficiency. To increase energy efficiency in manufacturing **industries** and construction, training courses on energy conservation and energy management and analyses and development of energy-efficient technical solutions were carried out. For 2014-2020 the government has reserved EUR 150 million for increasing energy efficiency in companies. This budget is mainly intended for: 1) developing best technologies, 2) supporting companies' investments in waste management, 3) supporting companies and local authorities' investments in waste renewable developments, and 4) audits of and training for resource management programmes (Lõhmus, 2013).

Energy **taxation** is below the EU average. Excise duty exemptions apply, for example, to energy products used in mineralogical processes, shale-derived fuel oil and solid fuels used in households as heating fuel, electricity when it accounts for more than 50 % of the cost price of the product, electricity used for chemical reduction, and in metallurgic and electrolytic processes.

Obligations for energy market operators are planned but responsibilities and clear targets are missing.

Efficient **cogeneration** of heat and electricity is supported through a FIT.

In the **building** sector, in 2014, the amended minimum requirements for energy-efficient building and renovations supplementing the Estonian Building Code came into force. As a result, all state-owned new buildings must be nearly zero-energy buildings from 1 January 2019 onwards while all other new buildings must be nearly zero-energy buildings from January 2021 onwards. The Green Investment Scheme supports energy efficiency and use of renewables at small boiler houses and the improvement of district heating networks. Furthermore, it enables renovations of public sector

and local government buildings as well as apartment buildings. The budget of the programme for the period 2014–2020 amounts to EUR 102 million.

Transport

Average emissions for newly registered cars are very high in Estonia and vehicle **taxes** are well below the EU average as there is no registration tax and ownership taxes do not have to be paid for passenger cars. Heavy goods vehicles are charged with a tax that does not take into account CO₂ emissions (ACEA, 2012). Furthermore, there is no charge applying to road use (CE Delft, 2012). Taxes on petrol and diesel are below and at EU average, respectively (European Commission, 2013). The Liquid Fuel Act establishes a **biofuels** mixing obligation for retailers. Starting from 2016, the obligation would be a 5 % biofuel share in liquid motor fuels and increase to a 10 % share by 2020. The use of biomethane, for example in the transport sector, should receive funding of around EUR 43 million from the auctioning of EU Emissions Trading System (ETS) emission allowances as regulated under the Ambient Air Protection Act of August 2013. By 2020, the use of biomethane should substitute 30 000 tonnes of petrol. In February 2014, the Environmental Investment Centre also announced the decision to subsidise the first biomethane production facility. In addition, Estonia has adopted a programme to subsidise electric car purchases. Up to 50 % or a total maximum of EUR 18 000 of the purchasing price of new electric cars is subsidised. Subsidies are also available for companies. Since February 2013, the network of chargers is being expanded and electric cars can already be rented in Tallinn and Tartu. The Ministry of Economic Affairs and Communications governs the environmentally friendly public transport investment programme 2012–2015 with a budget of EUR 86 million to reduce the environmental burden of transport and increase the number of users of public transport. Additional buses working on gas and gas–electric hybrid buses have been purchased and some municipalities have included the obligation to use alternative fuels in public procurements. The programme also aims to improve the tram infrastructure. For residents of Tallinn, public transport is free of charge since 2013.

Agriculture

In the agriculture sector, the Estonian Agricultural Registers evaluates applications for support measures to promote the wider use of renewable energy produced from biomass by farmers for their own use. The support can cover up to 40 % of the total cost of the respective project. Furthermore, support measures promote the modernisation of agricultural holdings and investments to livestock holdings. The Water Act was amended recently to better protect groundwater from pollution stemming from agriculture by applying stricter rules for the use of fertilisers, making monitoring more efficient and facilitating the allocation of fines.

The Action Plan of Organic Farming for 2007–2013 aimed to support organic farming and increase its area from 72 800 to 120 000 ha while also reducing the use of mineral fertilisers. The Ministry of Agriculture is now working on the new development plan for organic farming 2014–2020, which will be released in 2014.

Waste

Estonia aims to reduce landfilled waste with rules on municipal waste planning, producer responsibility for certain goods, including the obligation to provide consumers with information about recycling, and an ordinance on biodegradable waste. The Waste Act also sets obligatory targets for recycling of different waste categories by 2020. Pursuant to the Environmental Charges Act, a tax on landfilling of waste will come into force in 2015. Furthermore, the Environmental Investment Centre governs subsidy applications for projects aimed at recycling and reusing waste. The total sum of the subsidy is EUR 2 million, of which EUR 1.6 million can be awarded to private companies registered in Estonia for projects concerning, for example, construction of waste management factories that use certain types of waste to make new products. Waste used can be used glass, paper, metal and used car tires, but also biowaste. EUR 0.4 million can be awarded to companies owned by local governments for the opening of new waste disposal sites.

Land use, land-use change and forestry

Approximately half of Estonia's land area is covered by forest, of which roughly 40 % belongs to the state. The State Forest Management Centre tries to strike a balance between economical, ecological and social aspects of forest management. In December 2012, the Estonian Ministry of Agriculture published a National Forest Management Plan for 2013–2017 that applies to national forests and sets maximum harvest levels for different tree species. This preserves Estonia's carbon sink capacity. The Estonian Forestry Development Plan until 2020 and the Forestry Act aim to reduce GHG emissions by encouraging forest owners to plant more trees. The support scheme subsidises the planting of trees and ensures sustainable management. Furthermore, a recent amendment to the Forest Act includes developing an electronic forest registry to make forest management more transparent.

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