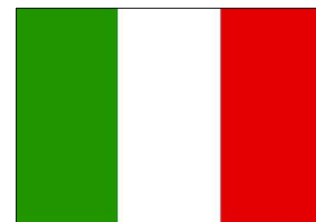


## ITALY

### Country at a glance

- Population: 60.5 million (2010) [1]
- Total area: 301,340 sq. km [2]
- Carbon emissions per capita: 6.58 metric tons (2010) [3]
- Energy consumption per capita: 32.6 MWh (2010) [4]
- Percentage of global carbon emissions: 1.32% (2010) [3]



### SARPOM Oil Refinery in Italy

*Built in the late 1940's, the SARPOM Refinery has a processing capacity of 8 Mton/year. It is located on the border of the Piedmont and Lombardy regions of Italy, which has the highest level of oil products consumption, particularly transport fuels.*

SARPOM Oil Refinery, Italy. Permission Under CC BY-NC 3.0 License commons.wikimedia.org/wiki/File:Sarpom.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 <sup>(a)</sup>			Electricity Generation <sup>(b)</sup>		Heat Generation <sup>(c)</sup>	
unit	ktoe	%	ktoe	ktoe	GWh	%	GWh	%	GWh	%
Coal, including brown coal & peat	64	0	14,298	14,168	164,778	8	44,434	15	628	1
Oil fuels	5,560	19	66,800	65,244	758,788	38	21,713	7	16,742	29
Natural gas	6,883	23	61,582	68,037	791,273	40	152,738	51	35,787	63
Nuclear	0	0	0	0	0	0	0	0	0	0
Hydroelectric	4,396	15	0	4,396	51,125	3	51,116	17	0	0
Biofuels and waste	7,032	24	1,730	8,738	101,620	5	11,587	4	3,719	7
Solar photovoltaics	164	1	0	164	1,906	0	1,906	1	0	0
Solar thermal	134	0	0	134	1,560	0	0	0	0	0
Tide, wave and ocean	0	0	0	0	0	0	0	0	0	0
Wind	785	3	0	785	9,128	0	9,126	3	0	0
Geothermal	4,775	16	0	4,775	55,532	3	5,376	2	164	0
Electricity (imported)	0	0	3,798	3,798	44,168	2	0	0	0	0
Sub total Renewables	17,286	58	1,730	18,991	220,871	11	79,111	27	3,882	7
<b>Totals</b>	<b>29,793</b>	<b>100</b>	<b>148,208</b>	<b>170,239</b>	<b>1,979,878</b>	<b>100</b>	<b>297,996</b>	<b>100</b>	<b>57,039</b>	<b>100</b>

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	35,429	92	715	33,522	94	64	0	1,128	0
Natural gas	695	2	0	695	2	0	0	0	0
Biofuels and waste	1,466	4	0	1,466	4	0	0	0	0
Electricity	917	2	0	0	0	375	41	0	502
Sub total Renewables	1,466	4	0	1,466	4	0	0	0	0
<b>Total</b>	<b>38,508</b>	<b>100</b>	<b>715</b>	<b>35,683</b>	<b>100</b>	<b>439</b>	<b>41</b>	<b>1,128</b>	<b>502</b>

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

## Stand on climate change

Italy signed the Kyoto Protocol on 29 April 1998 and ratified it on 31 May 2002. It was later entered into force on 16 February 2005. Initially, Italy's reduction commitment was 3.1% from 1990 levels, however, Italy later agreed to commit and accomplish a target of 6.5% emissions reduction in the first commitment period. As such, Italy's Kyoto target for GHG reduction was set at 483.3 MtCO<sub>2</sub> equivalents [5].

## National climate change programmes

In order to meet emission reduction targets set by the UNFCCC and Kyoto Protocol, there are several sectoral and cross-sectoral policies and measures that Italy has planned, adopted and enforced over the years. All are aimed at ultimately mitigating climate change as well as increasing and promoting the consumption of renewable energy sources (RES). The European Union had also proposed strategies to promote widespread use of RES and to mitigate climate change by meeting emission reduction targets (20% reduction in comparison to 1990 baseline) by 2020. Some of the policies and measures that Italy has implemented and plans to implement are as follows:

- Participation in the European Union Emissions Trading Scheme (EU-ETS) and adopting several of Kyoto's flexible mechanisms, such as the Joint Implementation (JI) and the Clean Development Mechanism (CDM) [6]
- The white certificate system which is aimed at promoting energy efficiency and ensuring emission reduction for all energy end-use sectors
- The green certificates system, which is a major policy mechanism aimed at supporting the development of RES. This policy mechanism is also tied in with specific feed-in tariffs for solar energy and small-scale generation supplied by other RES
- Incentive schemes that support co-generation that provide for the production of heat and electricity
- Introduction of legislation that will be able to improve the energy performance of buildings. New buildings will also have to be constructed under specific guidelines stated in the new legislation to meet thermal demand requirements. These new legislation will also have to promote average emission reductions in the transport sector; construction of new infrastructure to cater for mass public transport; and widespread usage of biofuels

## Key legislations for climate change mitigation and RES usage [5]

### Electricity:

- Reorganization of the Energy Sector (Law 239/2004) which promotes the diversification of energy sources and encourages increased usage of RES, distributed electricity production and clean use of coal
- There exist no official national policy frameworks to support the use and production of heat from RES. However, the white certificate scheme grants tradable certificates that encourage consumers to pursue RES with regard to heat production
- Value added tax (VAT) reductions; implementations of tax credits; and investments towards solar thermal technologies

**Renewable Energy Sources:**

- Green Certificates: Legislative decree 387/03; legislative decree 152/06; decree 24 October 2005, all of which advocate the production of renewable electricity; Budget Law 2008 [7]
- Photovoltaic (PV) systems: decree 20.02.2007, which supports the expansion of PV plants via feed-in tariffs; PV systems under the Budget Law 2007, which advocates the installation of photovoltaic systems in new buildings
- New supporting system for renewable energy sources (Budget Law 2008) which encourages the production of electricity from all renewable energy sources, as well as heightens incentives for less competitive resources

**Co-generation:**

- RES Cogeneration (legislative decree 387/03) which supports the production of electricity from RES cogeneration through green certificates [7]
- White certificates (decrees 2007) which supports energy saving through cogeneration
- High efficiency cogeneration (legislative decree 20/07) and the Action plan 2007 (with new White Certificates targets)
- [Planned] Further extension of White Certificate targets

**Industry:**

- White Certificates System
- Legislative decree 20/07 (transposition of directive 2005/32/CE – regulations), which is the installation of highly efficient electric motors, pumps, inverters through minimum mandatory standards
- Action plan 2007 – new White Certificates targets for the industrial sector
- Planned measures from CESI (Centro Elettrotecnico Sperimentale Italiano Giacinto Motta), which involves the reduction in GHGs emissions from the aluminum industry; steam mechanical compression, energy saving in glass, paper and chemical industries
- Waste derived fuels in cement production, which involves the substitution of fossil fuels with waste derived fuels

**Transport:**

- Legislative decree 128/2005 and Budget Laws 2007 and 2008 under implemented Directive 2003/03/EC on the promotion of the use of Biofuels or Other Renewable fuels for transport
- Biofuel usage (Decree 23.04.2008)
- Emission standards for new cars (Regulation (EC) No 443/2009)
- Intermodal measures which requires the shifting of private road to public road traffic; and goods transport from road to sea
- Management measures which involve improving in the urban road circulation and efficiency in private road transport

### Ministries involved in climate change/energy policy making:

Ministries involved	Web links
Ministry of Environment, Land and Sea	<a href="http://www.minambiente.it/home_it/">www.minambiente.it/home_it/</a>
Ministry of Economic Development	<a href="http://www.sviluppoeconomico.gov.it/index.php">www.sviluppoeconomico.gov.it/index.php</a>
Ministry of Agriculture and Forestry Policies	<a href="http://www.politicheagricole.it/">www.politicheagricole.it/</a>
Ministry of Infrastructure and Transport	<a href="http://www.mit.gov.it/mit/site.php">www.mit.gov.it/mit/site.php</a>
Ministry of Education, Universities and Research	<a href="http://www.istruzione.it/">www.istruzione.it/</a>
Ministry of Foreign Affairs	<a href="http://www.esteri.it/MAE/EN">www.esteri.it/MAE/EN</a>
Gestore Dei Servizi Elettrici	<a href="http://www.gse.it/it/Pages/default.aspx">www.gse.it/it/Pages/default.aspx</a>
Regulatory Authority of Electricity and Gas (AEEG)	<a href="http://www.autorita.energia.it/">www.autorita.energia.it/</a>
Competition Authority	<a href="http://www.agcm.it/en/">www.agcm.it/en/</a>
Centro Elettrotecnico Sperimentale Italiano Giacinto Motta (CESI)	<a href="http://www.cesi.it/about_cesi/Pages/default.aspx">www.cesi.it/about_cesi/Pages/default.aspx</a>

### Education institutes involved in climate change/energy policy making:

Ministries involved	Web links
Institute for Environmental Protection and Research (ISPRA)	<a href="http://www.isprambiente.it/">www.isprambiente.it/</a>
Italian National Agency for New technologies, Energy and the Environment (ENEA)	<a href="http://www.enea.it/it">www.enea.it/it</a>
Abdus Salam international centre for Theoretical Physics (ICTP)	<a href="http://www.ictp.it/">www.ictp.it/</a>
Agricultural research Council (CRA)	<a href="http://www.entecra.it/">www.entecra.it/</a>
ENI Enrico Mattei Foundation (FEEM)	<a href="http://www.feem.it/getpage.aspx?id=62">www.feem.it/getpage.aspx?id=62</a>
Institute of Agro-environmental and Forest Biology of the National Research Council (IBAF-CNR)	<a href="http://www.ibaf.cnr.it/">www.ibaf.cnr.it/</a>
Institute of Atmospheric Sciences and Climate of the National Research Council (ISAC-CNR)	<a href="http://www.isac.cnr.it/">www.isac.cnr.it/</a>
Institute of Biometeorology of the National Research Council (IBIMET-CNR)	<a href="http://www.clima.ibimet.cnr.it/">www.clima.ibimet.cnr.it/</a>
National Centre of Meteorology and Aeronautical Climatology of the Italian Air Force (CNMCA)	<a href="http://www.meteoam.it/">www.meteoam.it/</a>
National Consortium of Universities for Atmospheric and Hydrospheric Physics (CINFAL)	<a href="http://www.cinfai.it/">www.cinfai.it/</a>

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