



Home > Country Analysis Briefs > **Italy: Environmental Issues**



PDF version | PDB version

December 2003

[Introduction](#) | [Air Pollution](#) | [Energy Consumption](#) | [Carbon Emissions](#)
[Energy and Carbon Intensity](#) | [Renewable Energy](#) | [Environmental Outlook](#)

Italy: Environmental Issues

Introduction

Environmental awareness in Italy continues to grow as the effects of climate change, air pollution, and oil spills are manifest on the country's historic cities and long coastline. Traffic congestion from increased automobile and motor scooter usage has resulted in soot damage to ancient building in Rome, Milan, and Florence, while emissions from the transportation sector often causes a haze of air pollution that affects Italy's major cities. Smog not only causes an eyesore affecting the country's lucrative tourist industry, but also affects tourists and locals alike with respiratory ailments. Marine pollution from oil spills has blighted Italy's coastline, and the effects of rising waters from climate change has damaged many building in the series of islands that make up Venice, threatening the historic city's future.

Thus, the Italian government is gradually strengthening environmental laws, not only in response to Italian public opinion, but also as a result of the country's obligations as a member of the European Union. The legal text of the European Union's environmental law is gradually being incorporated into Italy's national law. Combating the negative effects of air pollution and climate change while encouraging energy efficiency and less reliance on the automobile are goals of the Italian government. Doing all this while not curtailing economic growth has become a key priority and a tricky balancing act for Italy.

Air Pollution

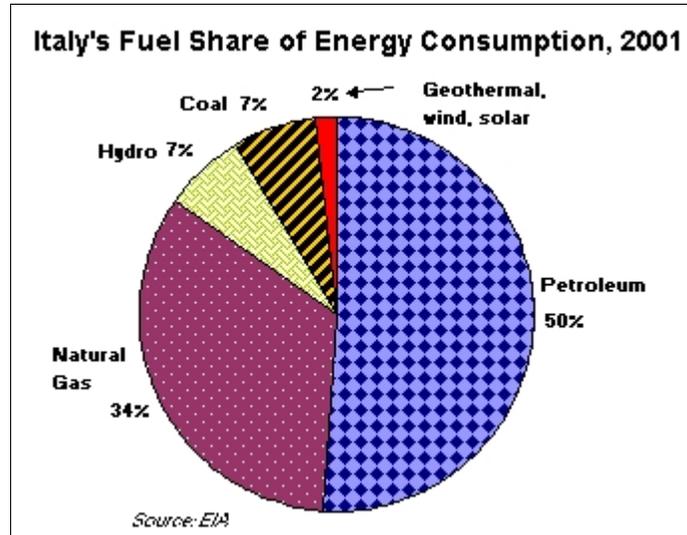
Italy first adopted a Clean Air Act in 1966, with additional regulations added in 1983 and 1988, which set guidelines for controlling pollution. Over the past couple of decades, Italy has made great improvements in reducing emissions of sulfur dioxide (SO₂), primarily by substituting natural gas for coal. However, since Italy has one of the highest per capita levels of car ownership in the world air quality in cities such as Milan, Rome, Turin, Florence, and Bologna, has deteriorated in recent years. Italy's ever-present scooters and their noxious emissions contribute to the problem.

Smog and other environmental problems associated with high automobile usage are particularly severe in Italy's economic powerhouse, Milan. In addition to automobiles, Milan suffers from emissions resulting from heating systems and carbon fuel plants. These emissions are then trapped over the Po River Plain (where the city sits) due to thermal inversions caused by the surrounding mountains.

The Italian government is undertaking numerous measures to mitigate growing air pollution problems. In 1999, an electric car-sharing program was launched in Rome, Milan, Turin, Modena, Brescia, Udine, Florence, Bologna and Venice. Several cities have also made held occasional "car-free" Sundays, during which cars and motorcycles are banned for an 8-10 hour period while entrance to many museums is free, as is public transport. The popularity and success--pollution levels have dropped noticeably--of the "car-free" Sundays program has prompted environmental

organizations to call for the ban to be extended to every Sunday.

The Italian government also has proposed instituting tolls on cars in cities. Rome, Bologna and Florence are working on the construction of a system that would use "electronic police" to monitor entry permits on cars and charge fines to cars that are prohibited from driving in restricted areas. Following the implementation of a "congestion charge" in central London in February 2003, under which commuters pay 5 British pounds per day for driving in the center of the city, several Italian cities are considering similar programs. London's congestion charge has been a qualified success, with a significant reduction in traffic resulting in less pollution, although there are still problems in collecting tariffs.

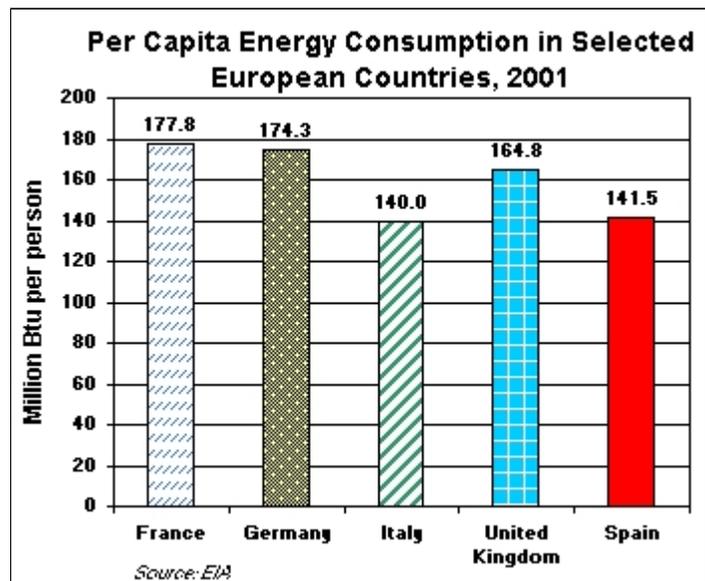


Energy Consumption

In 2001, Italy consumed 8.1 quadrillion Btus (quads) of energy, the fourth highest energy consumption level in Europe, behind Germany (14.4 quads), France (10.5 quads), and the United Kingdom (9.8 quads). Petroleum consumption accounts for a significant portion of Italy's energy consumption at 50%, followed by natural gas (34%), coal (7%), hydroelectricity (7%), and other renewables (2%).

Traditionally, Italy has been dependent on oil imports from North Africa to meet domestic energy demand. In recent years, however, the percentage of oil usage in Italy's overall energy consumption has declined as natural gas consumption has risen. The growing importance of natural gas in Italy's energy consumption mix not only allows Italy to achieve its goal of energy diversification, but it also helps the Italian government to meet domestic and European environmental requirements for a cleaner environment.

Italy has one of the lowest levels of energy consumption per capita in Europe. In 2001, Italy consumed 140 million Btu per person, lower than smaller countries such as the Netherlands (263.8), Sweden (251.6), Austria (175.7), and Denmark (168). Italy's per capita energy consumption was lower than other large European Union members such as France, Germany, the United Kingdom, and Spain (see table). Italy's per capita energy consumption has risen gradually over the past two decades, up from 109.7 million Btu per person in 1980.



In early 2003, Italy held up the passage of the long-awaited EU energy tax that was designed to curb energy consumption by raising existing minimum tax levels for oil products and

introduce EU-wide minimums for coal, gas and electricity. Proponents view the tax as essential to encourage businesses and individuals to use energy wisely and to reduce pollution caused by fossil fuels as well as nuclear power. Italian negotiators demanded an exemption, seeking to keep tax breaks for fuel for truckers crossing Alpine mountain passes. Environmentalists said the original energy tax directive had already been too watered down, but after the directive was modified further, it was passed in April 2003.

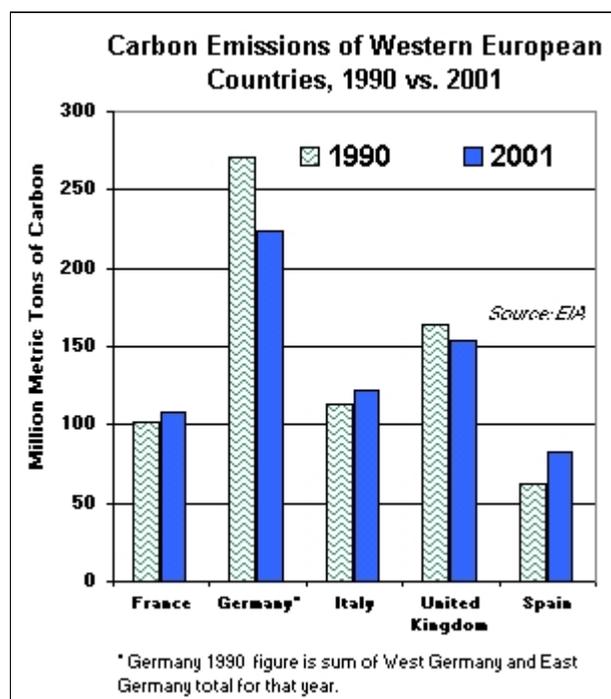
Carbon Emissions

Italy hopes its increased use of natural gas at the expense of petroleum and coal will help the country achieve its obligations under the Kyoto Protocol, the 1997 international agreement designed to mitigate the effects of climate change. Under the Protocol, the European Union as a whole agreed to reduce carbon and greenhouse gas (GHG) emissions by 8% below 1990 levels by the 2008-2012 timeframe. Italy signed the Protocol on April 29, 1998, and ratified it with the European Union on May 31, 2002.

However, in 2001, Italy emitted 121.5 million metric tons of carbon, 7.3% *higher* than the 1990 level of 113.2 million metric tons. Italy's increase in carbon emissions--much of which has occurred since the Kyoto Protocol was agreed in December 1997--is mirrored elsewhere in Europe, with Spain (34% higher) and France (6% increase) having a higher level of carbon emissions in 2001 than they did in 1990. Among major European countries, only Germany (an 18% decline in 2001 from the combined sum of East and West Germany's carbon emissions in 1990) and the UK (5.7% lower) witnessed a decrease in carbon emissions over the past decade, and much of Germany's lower carbon emissions can be explained by the collapse in industrial production in the eastern part of the country following the collapse of the former communist regime and the subsequent shutdown of inefficient factories.

In 2001, Italy generated 2.1 metric tons of carbon per person, up from 1.8 in 1980 but still lower than the majority of Italy's fellow European Union members. By comparison, the UK's per capita carbon emission level in 2001 was 2.6 metric tons, while Germany's was 2.7. Smaller states such as Denmark (3.1) and Greece (2.7) also had a higher per capita figure for carbon emissions than Italy, although both France (1.8) and Spain (2.1) had a lower level than Italy in 2001.

In the longer-term, the Italian government is hoping that a carbon tax enacted in January 1999 will help to reduce carbon emissions, as consumers switch to less carbon-intensive fuels. Revenues accrued from the tax will be used to finance energy efficiency and renewable energy initiatives, among other ecological projects.



Energy and Carbon Intensity

Italy is one of the least energy-intensive countries in the world. In 2001, the country's energy intensity (energy consumption per dollar of gross domestic product, GDP) stood at just 6,618 Btu per \$1995, well below the OECD average. Italy's energy intensity has been on a slight downward trend over the past 20 years as the country has developed and implemented energy efficient technologies in order to reduce the need for energy imports and to protect Italy's national security.

Italy's higher energy prices compared to other countries also provide a strong stimulus for businesses to invest in energy efficiency research and development.

Partially because of Italy's heavy reliance on oil for power generation, the country's carbon intensity (carbon emissions per dollar of GDP) ranks it closer to the middle of the OECD average. Still, in 2001 Italy's carbon intensity was just 0.10 metric tons per \$1995. Despite the country's rising carbon emissions over the past two decades, Italy's carbon intensity has decreased over that time period, from 0.12 metric tons per \$1995 in 1980, reflecting the country's shift to more clean-burning natural gas in its energy mix as well as to gains in energy efficiency.

Renewable Energy

Due to Italy's heavy reliance on oil imports to meet its energy needs, energy security and diversification of energy sources are top priorities in the country's energy strategy. Thus, the Italian government has placed increasing emphasis on developing renewable energy alternatives in recent years, with goals of doubling electricity production from hydro and other renewable sources by 2012, adding over 7,000 MW of renewable power generation capacity. With copious amounts of sunshine, Italy has solar power potential in abundance, and as a result the Italian government has made the development of solar energy technologies one of its top priorities. Italy has set a target for 2010 of obtaining 25% of its electricity from renewable sources.

In an effort to reach this target, legislation passed in 1992 obliged all Italian utilities to pay a guaranteed premium price for "green" power over an eight-year period. This gave clean energy providers a sure return on investments. Minimum rates were guaranteed for the remainder of the project's life. The subsidies, financed by a levy on electricity prices, were designed to compensate for higher production costs of renewable energy systems. However, this law was abolished in 1997 as part of the then-government's reorganization of the electricity sector aimed at canceling all "overpricing" on energy tariffs. In March 1999, the Italian parliament passed the Bersani Decree, which goes one step beyond merely encouraging the use and production of renewable energy by obligating all Italian energy producers and importers to deliver a fixed amount of renewable energy into the national grid. New legislation binds electricity firms to buy 2% of their electricity from renewable sources.

Despite these effects, Italy looks set to fall short of the goal of receiving 25% of its power from renewable sources in 2010. With 785 MW of installed wind energy power-generating capacity, Italy is the fourth-largest wind energy producer in Europe, trailing only Germany, Spain, and Denmark. However, Italy's wind industry growth appears to be slowing down, with less new capacity coming onstream in recent years. Rather than a shortage of sites for wind farms, Paolo Tabarelli, CEO of Italian Wind Technology (IWT), a wind turbine manufacturer, has blamed the slowdown on "unfinished incentive legislation and the slowness of Italian regions to authorize the setting up of wind farms."

Environmental Outlook

Italy's rising environmental awareness and public activism bodes well for the country's efforts to protect its ancient buildings, historic cities, and extensive coastline. However, recognition of the problems must translate to action. Increased car ownership will place additional pressure on Italy's natural environment and its man-made treasures. Thus, Italian citizens will have to channel their environmental awareness into action, pressing the Italian government to legislate to protect the environment while citizens do their part by changing their behavior to become more energy efficient.

With Italy's carbon emissions set to continue growing over the next few years, the challenge for

Italy's government will be to de-link the country's rising energy consumption from the growth in the country's carbon emissions if it is to meet its commitments under the Kyoto Protocol by 2008-2012. Italy's efforts to cut down on its energy consumption by becoming more energy efficient could help, as could the country's increased use of natural gas instead of oil. Similarly, Italy faces the dilemma of fostering higher rates of economic growth while keeping a lid on air pollution and carbon emissions. Dedicated public efforts to improve air quality, combined with European Union regulation and oversight, should help Italy reduce the negative environmental effects of its energy consumption patterns in the future.

[Return to Italy Country Analysis Brief](#)

[EIA Home](#)
[Contact Us](#)

URL: <http://www.eia.doe.gov/emeu/cabs/itenv.html>