



Greenhouse Gas Emissions in Ukraine

Ukraine Numbers at a Glance (2012)

366 MtCO₂e*

Total GHG emissions
(0.77% of world total)
World: 47,599 MtCO₂e

45,593,300

Population
World: 7,043,181,414

8.03

tCO₂e per capita
World: 6.76 tCO₂e

US\$95,478 Million
GDP**

World: US\$55,261 Billion

3,837

tCO₂e/million US\$ GDP
World: 861 tCO₂e/million US\$ GDP

-443 MtCO₂e (-55%)

Change in GHG emissions
(1990–2012)

World: +13,661 MtCO₂e

Sources: WRI CAIT 2.0, 2016.

*Emissions including Land-Use Change and Forestry

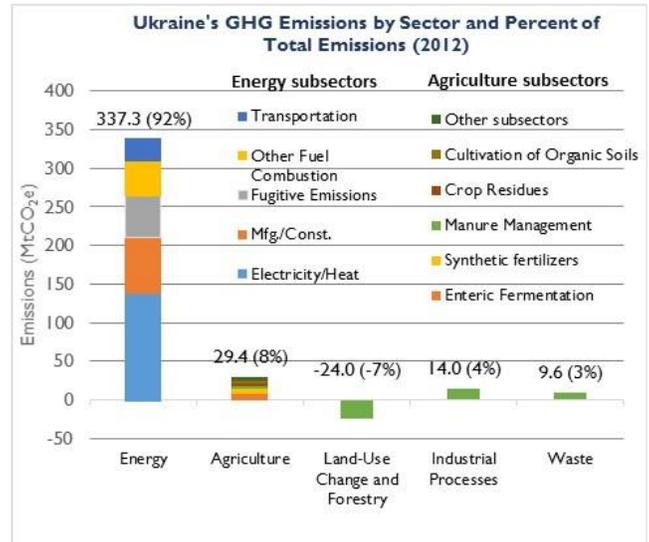
**Million metric tons of carbon dioxide equivalent

**Gross Domestic Product (GDP) in constant 2005 US\$

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Greenhouse Gas (GHG) Emissions by Sector

According to the World Resources Institute Climate Analysis Indicators Tool (WRI CAIT), Ukraine's 2012 GHG profile was dominated by emissions from the energy sector (92%). Electricity and heat account for 41% of energy sector emissions, followed by manufacturing and construction (21%), fugitive emissions (16%), and other fuel combustion (13%). Agriculture contributes 8% of total emissions. Land-use change and forestry (LUCF), industrial processes (IP), and waste contribute -7%, 4% and 3%, respectively.¹ Ukraine has submitted six National Communications to the UNFCCC, with the most recent, the "NC6", submitted in 2013.



Sources: WRI CAIT 2.0, 2016; FAOSTAT, 2016

Change in GHG Emissions in Ukraine (1990-2012)

According to WRI CAIT, Ukraine's GHG emissions decreased by 443 MtCO₂e from 1990 to 2012. The average annual change in total emissions during this period was -2.6%, with sector-specific average annual changes as follows: energy (-1.7%), agriculture (-4.4%), LUCF (-2.2%), IP (1.3%) and waste (0.5%).² The change in emissions in selected sectors during this time is discussed below. The International Energy Agency (IEA) mainly attributes the decline in overall emissions to economic collapse in the 1990s and the resulting decline in energy consumption. Other drivers include the transition from a centrally planned to a market-based economy, the shift from energy-intensive industries toward services, and a shift from coal to natural gas.³

Energy: According to WRI CAIT, Ukraine's energy sector emissions decreased 57% from 1990 to 2012, with electricity and heat driving this change.⁴ Electricity generation decreased 33% from 1990 to 2012.⁵ From 2001 to 2008, energy demand grew along with economic recovery in the mining, metals, and chemicals sectors, and due to a growing number of vehicles. The mix of energy sources also changed during this period. During the 1990s, natural gas consumption increased, and coal and oil consumption decreased. Since 2006, Ukrainian coal consumption has increased once more as natural gas prices have risen.

¹ World Resources Institute Climate Analysis Indicators Tool (WRI CAIT) 2.0, 2016. The LUCF sector's contribution of negative GHG emissions indicates that activities in that sector absorbed more than they emitted, rendering the sector a net GHG "sink."

² WRI CAIT 2.0, 2016. For agriculture and LUCF sector emissions, WRI CAIT uses data from the Statistic Division of the Food and Agriculture Organization of the United Nations (FAOSTAT). Since there is no FAOSTAT data for Ukraine between 1990 and 1991, the average annual change in emissions for the agriculture and LUCF sectors are shown for the period 1992-2012. WRI CAIT's total GHG emissions figures for Ukraine from 1990 to 1991 also omit agriculture and LUCF emissions.

³ International Energy Agency, [Ukraine 2012, Energy Policies Beyond IEA Countries](#), 2012.

⁴ WRI CAIT 2.0, 2016.

⁵ International Energy Agency, Statistics, Ukraine Electricity and Heat, [1990](#) and [2012](#).

The 2008-09 financial and economic downturn led to a decrease in GHG emissions from energy, mainly from manufacturing and construction.⁶ Since 2010, energy emissions have risen again as the economy has recovered.

Agriculture: According to WRI CAIT, Ukraine's agriculture emissions decreased 61% from 1992-2012, with reduced enteric fermentation driving the majority of this change.⁷ Although the agriculture sector began to grow in 2000, following agricultural land privatization, the livestock subsector continued to stagnate. Agriculture accounts for around 10% of Ukraine's gross domestic product (GDP) and employs 23% of the total work force.⁸

LUCF: According to WRI CAIT, Ukraine's LUCF net absorption of GHG emissions decreased by 37 MtCO₂e from 1992 to 2012.⁹ Most of the change in forest cover during this time was due to logging. Commercial logging increased after 2000, although illegal logging appears to have been widespread in the early 1990s due to lack of law enforcement following the breakup of the Soviet Union.¹⁰ In 2009, Ukraine approved a forest management program which aims to improve forest conditions and quality, ecological and protective functions, and forest productivity.¹¹

Carbon Intensity: GHG Emissions Relative to Gross Domestic Product (GDP)

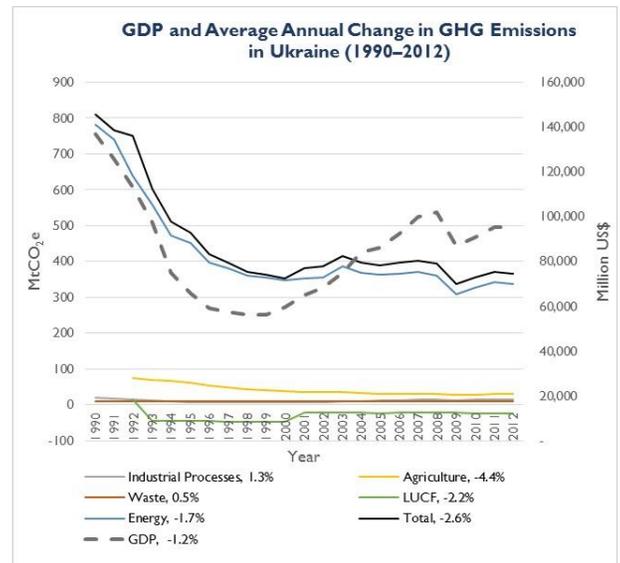
Ukraine's GHG emissions decreased 55% from 1990 to 2012, averaging -2.6% annually. Ukraine's GDP also decreased 30%, averaging -1.2% annually. The carbon intensity of Ukraine's economy is almost 5 times the world average, and more than three times higher than OECD Europe.¹² Therefore, there is potential to reduce Ukraine's GHG emissions relative to GDP.

Climate Change Mitigation Targets and Plans

Classified under the UNFCCC as an "Annex I" country undergoing the process of transition to a market economy, Ukraine committed under the Kyoto Protocol not to exceed its 1990 GHG emission levels by the 2008 to 2012 compliance period. In 2012

and under the Doha Amendment to Kyoto, Ukraine committed to reduce its GHG emission levels by 20% below 1990 by 2020,¹³ and in its [Intended Nationally Determined Contribution \(INDC\)](#) to the UNFCCC, Ukraine set a target to cap its GHG emissions at 60% of 1990 GHG emission levels in 2030. The INDC targets energy, IP, agriculture, LUCF, and waste.¹⁴ In 2016, the Kyoto Protocol enforcement branch found preliminarily that Ukraine has failed to comply with reporting requirements and to retire enough Kyoto Protocol carbon units to cover its 2008-2012 emissions by the deadline.¹⁵ Following Ukraine's response submitted on July 20, 2016, the enforcement branch confirmed the preliminary finding of non-compliance.¹⁶

In 2011, Ukraine became a member of the European Energy Community and started implementing the EU Renewable Energy Directive, which requires it to prepare a national Renewable Energy Action Plan to 2020.¹⁷ In accordance with this directive, Ukraine developed and adopted the 2020 National Renewable Energy Action Plan (NREAP) in 2014, which sets a target to increase Ukraine's share of renewables to 11% of total final energy consumption by 2020. Also in 2014, Ukraine updated its [2035 Energy Strategy](#), which specifies that adoption of renewable sources is an important factor for improving Ukraine's energy security and reducing the energy sector's environmental impact.



Source: WRI CAIT 2.0, 2016

⁶ International Energy Agency, [Ukraine 2012, Energy Policies Beyond IEA Countries](#), 2012.

⁷ Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT), viewed July 11, 2016: <http://faostat3.fao.org/download/G1/GT/E>.

⁸ The European Union and the Food and Agriculture Organization, The European Union's Neighbourhood Programme, Assessment of the Agriculture and Rural Development Sectors in the Eastern Partnership countries, [Ukraine](#), 2012.

⁹ WRI CAIT 2.0, 2016.

¹⁰ Tobias Kuemmerle, Oleh Chaskovskyy, Jan Knorn, Volker C. Radeloff, Ivan Krulov, William S. Keeton, Patrick Hostert, Forest cover change and illegal logging in the Ukrainian Carpathians in the transition period from 1988 to 2007, 2009.

¹¹ Grantham Research Institute on Climate Change and the Environment, 2015 Global Climate Legislation Study – [Ukraine](#), 2015.

¹² International Energy Agency, [Ukraine 2012, Energy Policies Beyond IEA Countries](#), 2012.

¹³ United Nations Framework Convention on Climate Change, [Doha Amendment to the Kyoto Protocol](#), 2012

¹⁴ Ukraine. Ukraine's [Intended Nationally Determined Contribution \(INDC\)](#) to the UNFCCC, September 2015.

¹⁵ Enforcement branch of the compliance committee, [Preliminary Finding, Party Concerned: Ukraine](#), June 2016.

¹⁶ Enforcement branch of the compliance committee, [Final Decision, Party Concerned: Ukraine](#), September 2016.

¹⁷ Grantham Research Institute on Climate Change and the Environment, 2015 Global Climate Legislation Study – [Ukraine](#), 2015.