



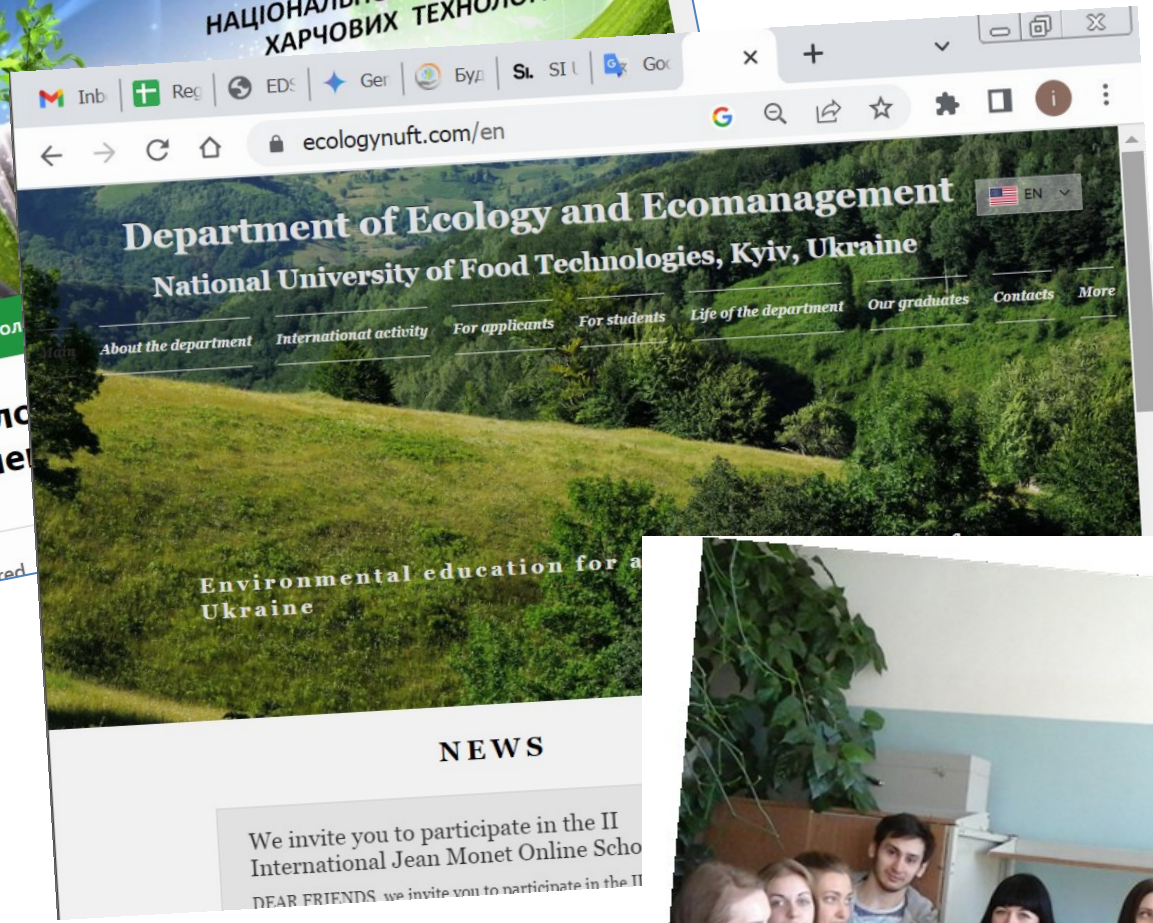
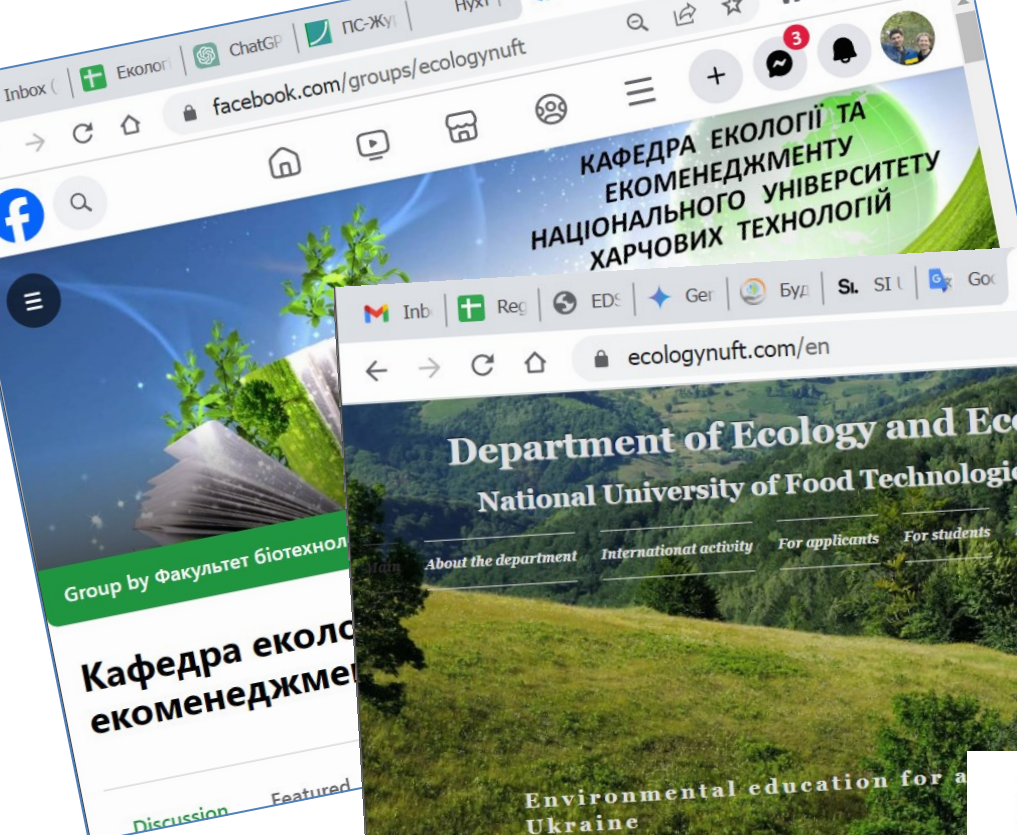
# The European Green Deal: Ambitions and Challenges

**Jean Monnet Chair  
EcoEurope**



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National University of Food Technologies,  
Kyiv, 2024

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<https://www.ecologynuft.com/>  
<https://www.facebook.com/groups/ecologynuft>

# ERASMUS+ projects of Department of Ecology and Ecomanagement, NUFT, Kyiv



Jean Monnet Module  
EcoPro (2016-2019)



Jean Monnet Centre of Excellence  
JM ECO (2020 – 2023)



Jean Monnet Support to Associations  
EUforUA (2019-2022)



Jean Monnet Chair  
FoodPro (2017-2020)



Jean Monnet  
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**"Sustainable development** is development that meets the needs of the present without compromising the ability of future generations to meet their own needs"  
(Brundtland Report / Our Common Future, 1987)

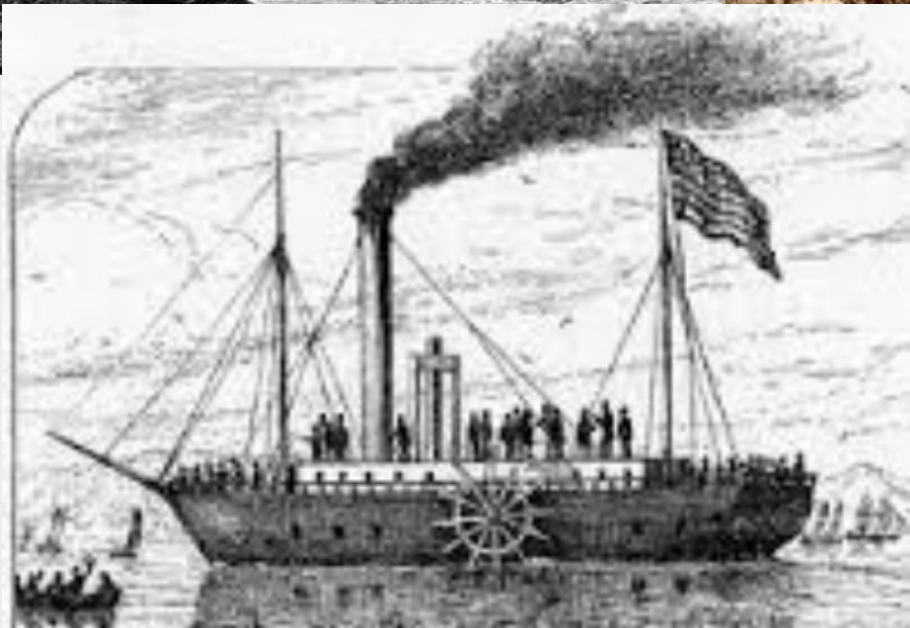
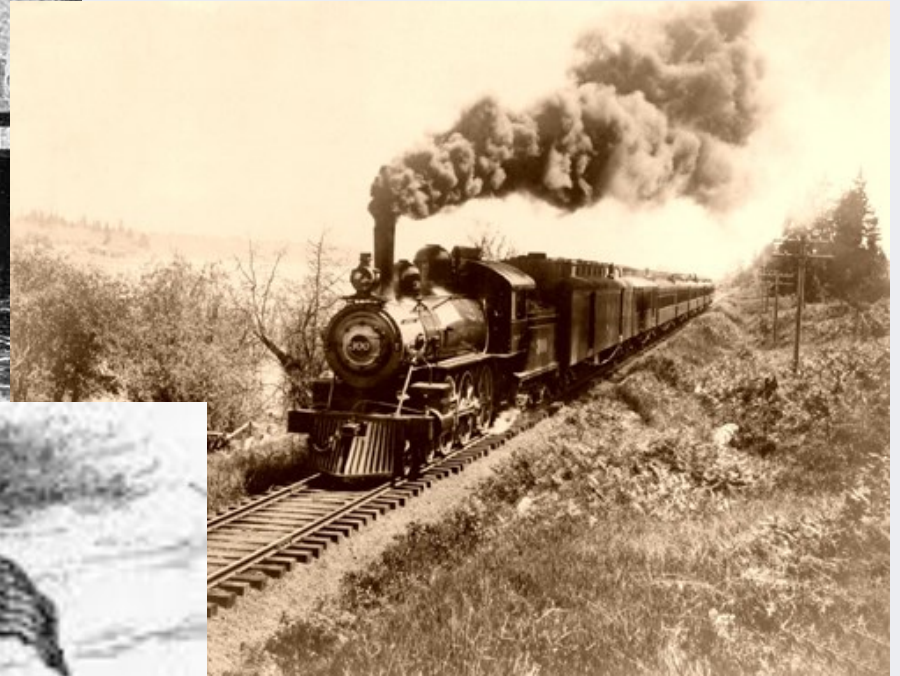
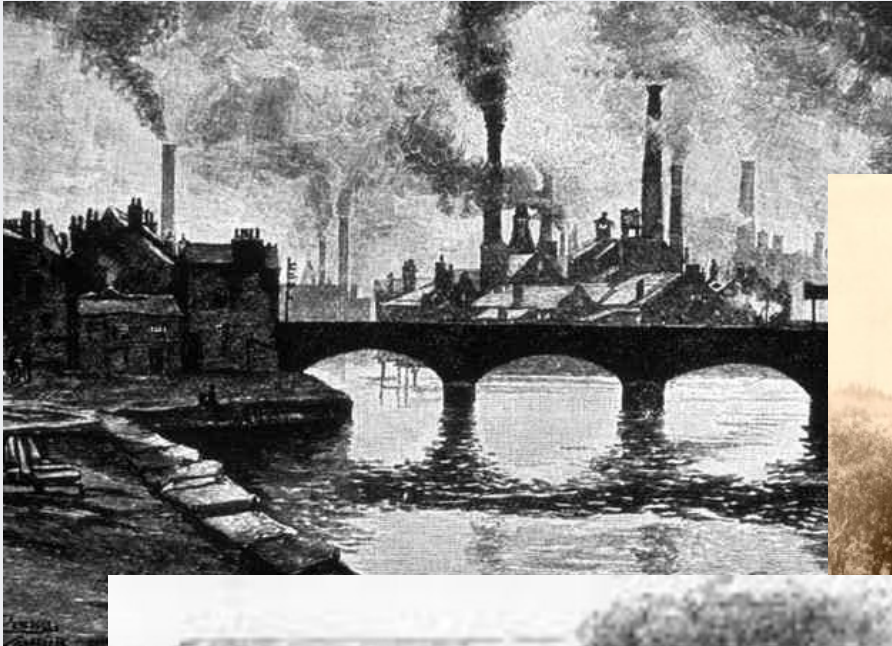




Three components of sustainable development: economic growth, environmental protection, social inclusion



# Industrial revolution, XVIII century



# Farm animals around the world



## **BATTERY CAGES FOR LAYING HENS**

Most of the world's 6.5 billion egg laying hens are confined in battery cages.



## **CHICKENS REARED FOR MEAT**

Each year around 50 billion meat chickens are reared worldwide.



## **PIGS**

Over 1.3 billion pigs are produced worldwide each year.

Industrial pig breeding often

# Wild animals on the planet



5,7 M



**97% of all terrestrial vertebrates on the planet are humans and agricultural animals (by biomass),  
3% - all wild animals and birds**

Weizsacker E., Wijkman A. Come On! 2018



300 K

35 K







On January 12, 2013, air quality index levels in Beijing were so hazardous that they were beyond existing measurement.

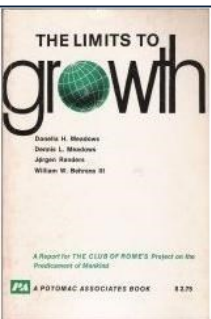
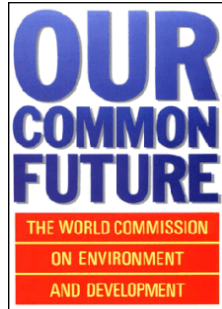
<http://all-that-is-interesting.com/pollution-in-china-photographs#roJIZgU7SiUdfjz.99>

Young boy swimming in alga bloom in Shandong, China (Sachs, 2014)





# The sustainable development strategy progress



# Sustainable development goals / Agenda 2030





## **Sustainable development strategy of the European Union**

### **THE TREATY ON EUROPEAN UNION** (The Treaty of Maastricht, 1993)

Article 3.

3. The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment.



## **THE TREATY ON EUROPEAN UNION** (The Treaty of Maastricht, 1993)

Article 21.

2. The Union shall define and pursue common policies and actions, and shall work for a high degree of cooperation in all fields of international relations, in order to:

....

(d) foster the sustainable economic, social and environmental development of developing countries, with the primary aim of eradicating poverty;

(e) encourage the integration of all countries into the world economy, including through the progressive abolition of restrictions on international trade;

(f) help develop international measures to preserve and improve the quality of the environment and the sustainable management of global natural resources, in order to ensure sustainable development;

...

(h) promote an international system based on stronger multilateral cooperation and good global governance.



## **Strategic documents of the EU on sustainable development:**

Council of the European Union (2006), Review of the EU Sustainable Development Strategy (EU SDS) — Renewed Strategy, 10917/06.

European Commission (2009), Mainstreaming sustainable development into EU policies: 2009 review of the European Union Strategy for Sustainable Development, COM (2009) 400 final, Brussels.

European Commission (2010), Europe 2020 — A strategy for smart, sustainable and inclusive growth, COM (2010)2020 final, Brussels.



## Europe 2020 — A strategy for smart, sustainable and inclusive growth

Europe 2020 puts forward three mutually reinforcing priorities:

- Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.





The EU needs to define where it wants to be by 2020. To this end, the Commission proposes the following EU headline targets:

- 75 % of the population aged 20-64 should be employed.
- 3% of the EU's GDP should be invested in R&D.
- **The "20/20/20" climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right).**
- The share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree.
- 20 million less people should be at risk of poverty.



## Strategic documents of the EU on sustainable development (2012-2019)

European Commission (2012), Innovating for Sustainable Growth: **A Bioeconomy for Europe**, COM(2012) 60, Brussels

European Commission (2015), **Closing the loop - An EU action plan for the Circular Economy** COM(2015) 614, Brussels.



European Commission (2016), Next steps for a sustainable European future: European action for sustainability, COM(2016) 739, Brussels

European Commission (2018), A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment, COM(2018) 673, Brussels

European Commission (2019), **The European Green Deal**, COM(2019) 640, Brussels

# A sustainable Bioeconomy for Europe: Strengthening the connection between economy, society and the environment, COM(2018) 673, Brussels



	EMPLOYMENT (MILLION JOBS)	TURNOVER (BILLION EUR)	VALUE ADDED (BILLION EUR)
 AGRICULTURE	9.2	380	174
 FORESTRY	0.5	50	24
 FISHING AND AQUACULTURE	0.2	12	7

<https://www.databio.eu/en/5a-new-bioeconomy-strategy-for-a-sustainable-europe/>

## Closing the loop - An EU action plan for the Circular Economy COM(2015) 614, Brussels.

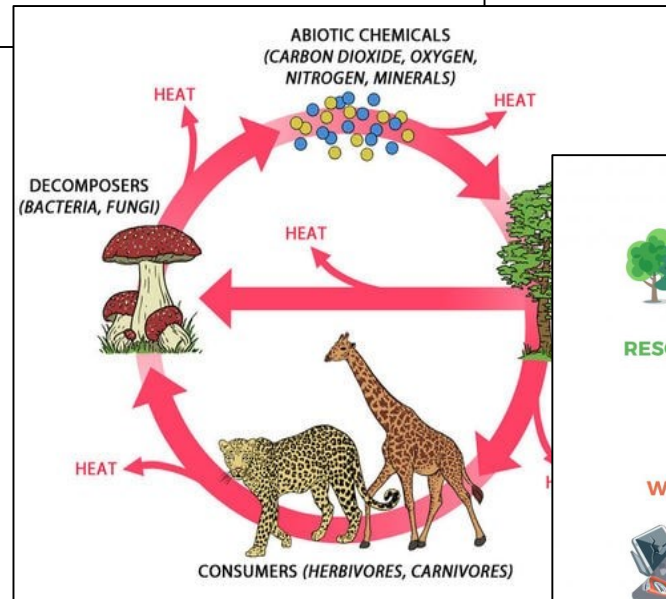
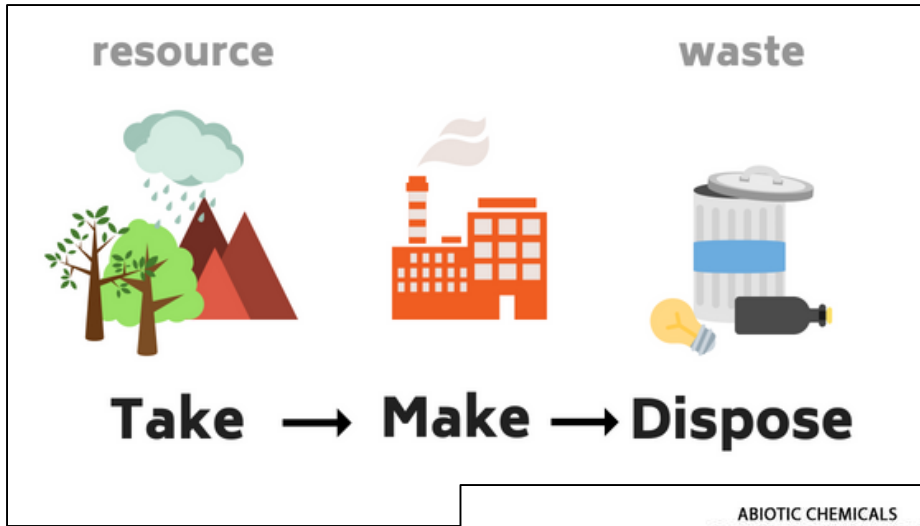


COMMUNICATI  
PARLIAMENT, THE  
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Closing the

The transition to a more circular economy, where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimised, is an essential contribution to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy. Such transition is the opportunity to transform our economy and generate new and sustainable competitive advantages for Europe.

# Closing the loop - An EU action plan for the Circular Economy COM(2015) 614, Brussels.



## The European Green Deal, COM(2019) 640, Brussels

**This Communication sets out a European Green Deal for the European Union (EU) and its citizens.** It resets the Commission's commitment to tackling climate and environmental-related challenges that is this generation's defining task.

The European Green Deal is a new growth strategy that aims to **transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy** where there are **no net emissions of greenhouse gases in 2050** and where **economic growth is decoupled from resource use.**



# The European Green Deal, COM(2019) 640, Brussels



Figure: The European Green Deal

## **Amendments to the Landfilling Directive / Directive (EU) 2018/850**

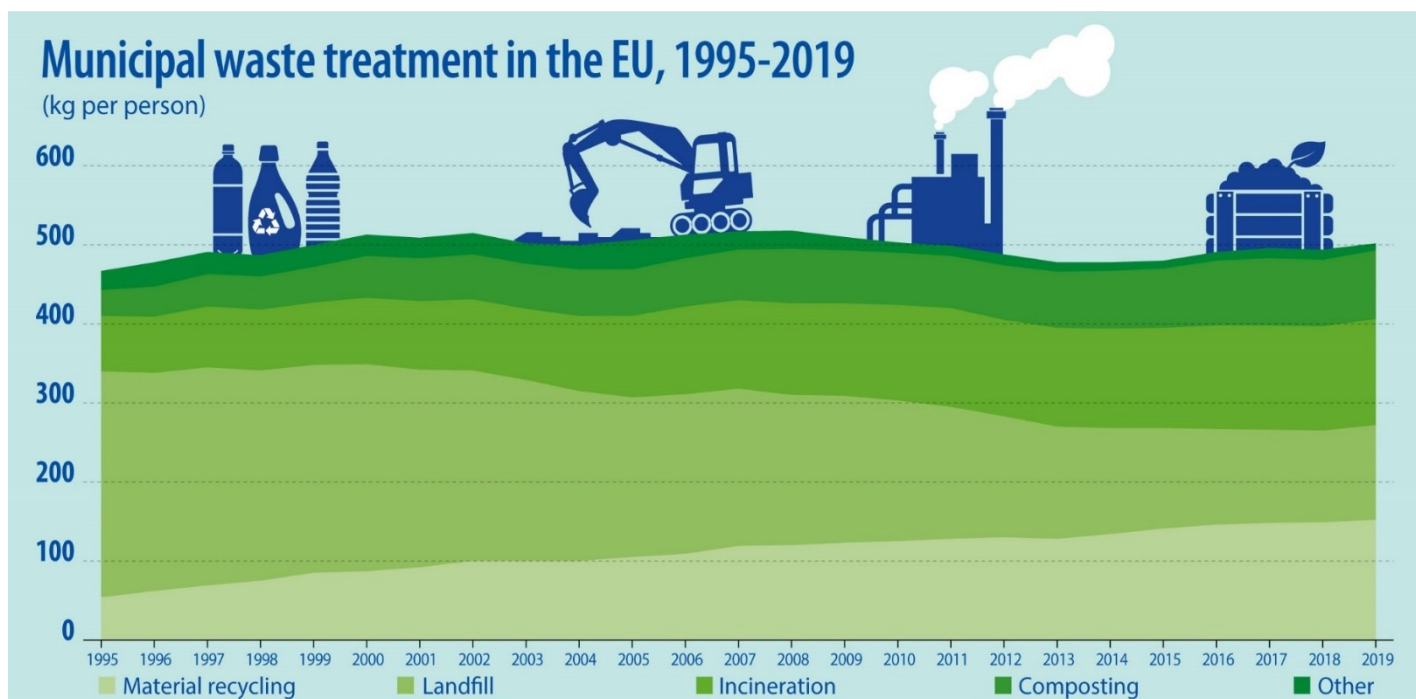
Directive (EU) 2018/850 requires Member States to significantly reduce waste disposal by landfilling. This will prevent detrimental consequences for human health and the environment, and ensure that economically valuable waste materials are recovered through proper waste management and in line with the waste hierarchy.



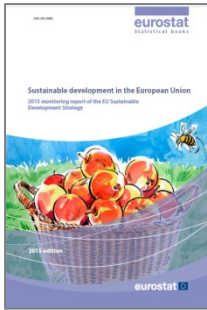


## Amendments to the Landfilling Directive / Directive (EU) 2018/850

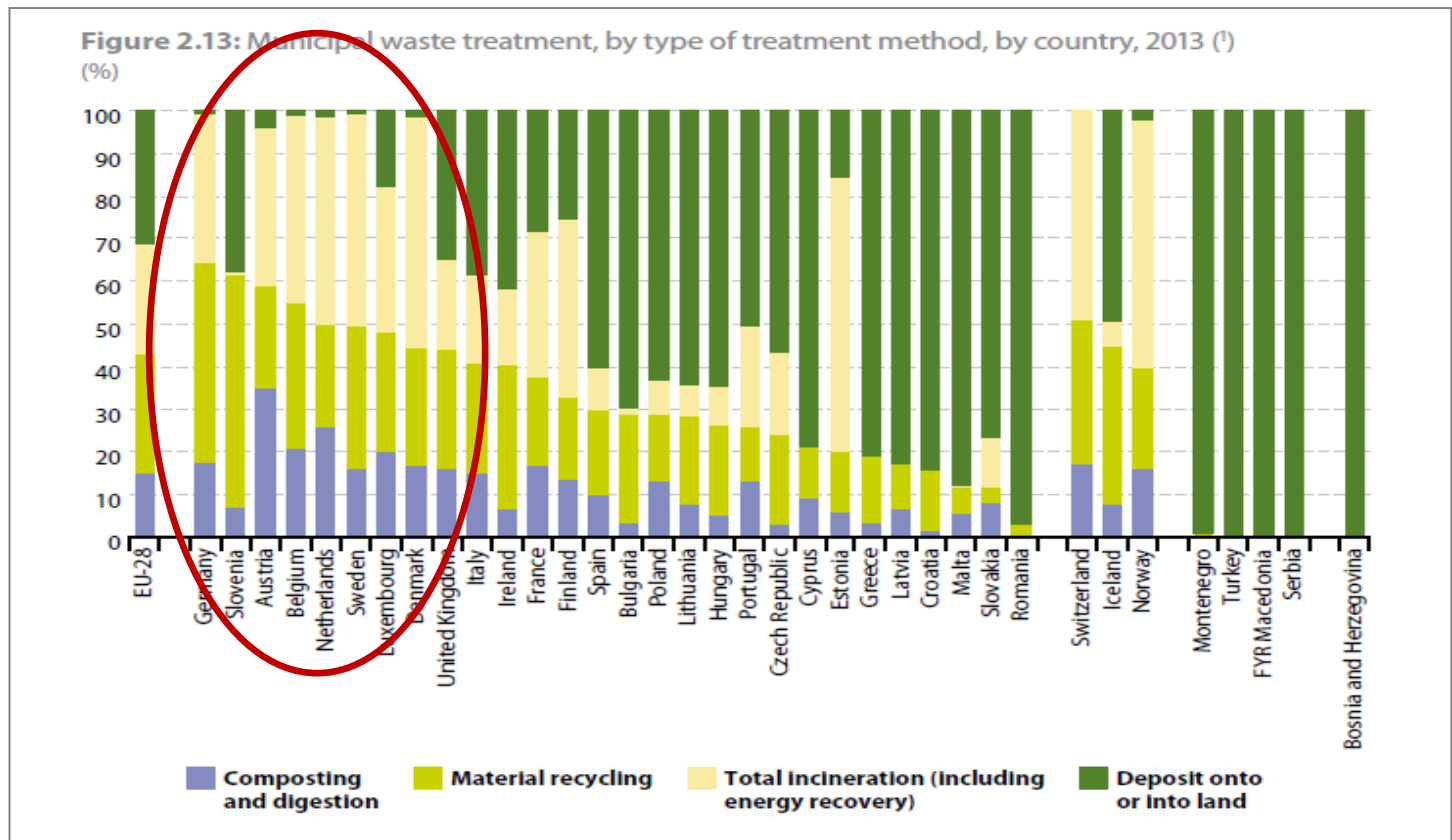
The Member States will take the necessary measures to ensure that by 2035, **the amount of municipal waste disposed of in landfills is reduced to 10%** or less of the total amount of municipal waste generated.



Data were estimated by Eurostat.



## Переробка побутових відходів у країнах ЄС, 2013 р, %



## Amendments to the Packaging Waste Directive / Directive (EU) 2018/852

- Meet defined targets and deadlines.

By the end of 2025 (and 2030), at least 65% (2030: 70%) by weight of all packaging waste must be recycled, and the following minimum targets for specific materials contained in packaging waste must be met:

50% (55%) of plastic,  
25% (30%) of wood,  
70% (80%) of ferrous materials,  
50% (60%) of aluminium,  
70% (75%) of glass, and  
75% (85%) of paper and cardboard.

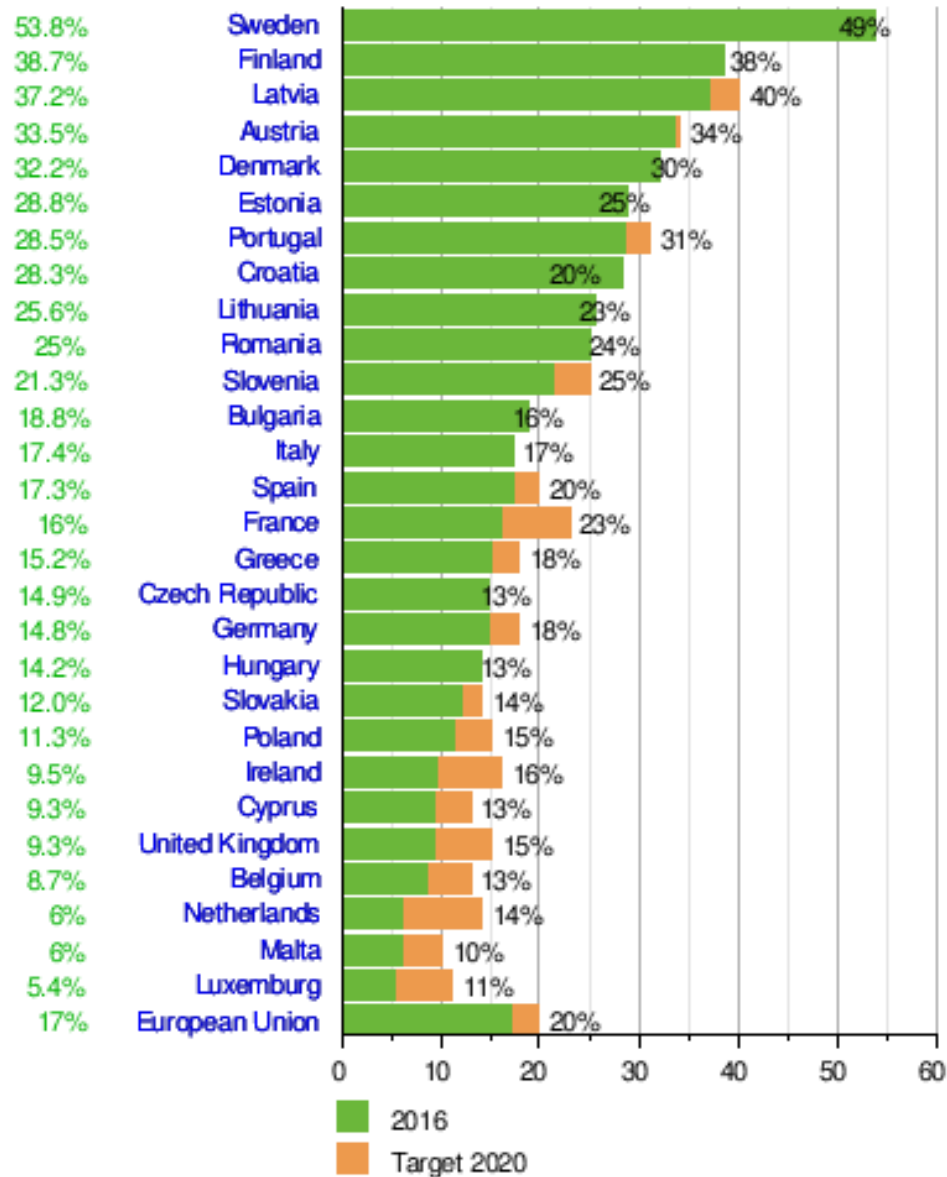


## **Fit for 55 package** (a set of proposals to revise and update EU legislation)

On 14 July 2021 the European Commission adopted the **'fit for 55'** package, which adapts existing climate and energy legislation to meet the new EU objective of a minimum 55 % reduction in greenhouse gas (GHG) emissions by 2030.



# Доля відновлюваної енергетики у загальному споживанні енергії у країнах ЄС у 2016 р та зобов'язання до 2020 р.



[https://en.wikipedia.org/wiki/Renewable\\_energy\\_in\\_the\\_European\\_Union](https://en.wikipedia.org/wiki/Renewable_energy_in_the_European_Union)



Strasbourg, 8.3.2022 COM(2022) 108 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN  
PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE  
EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE  
COMMITTEE OF THE REGIONS

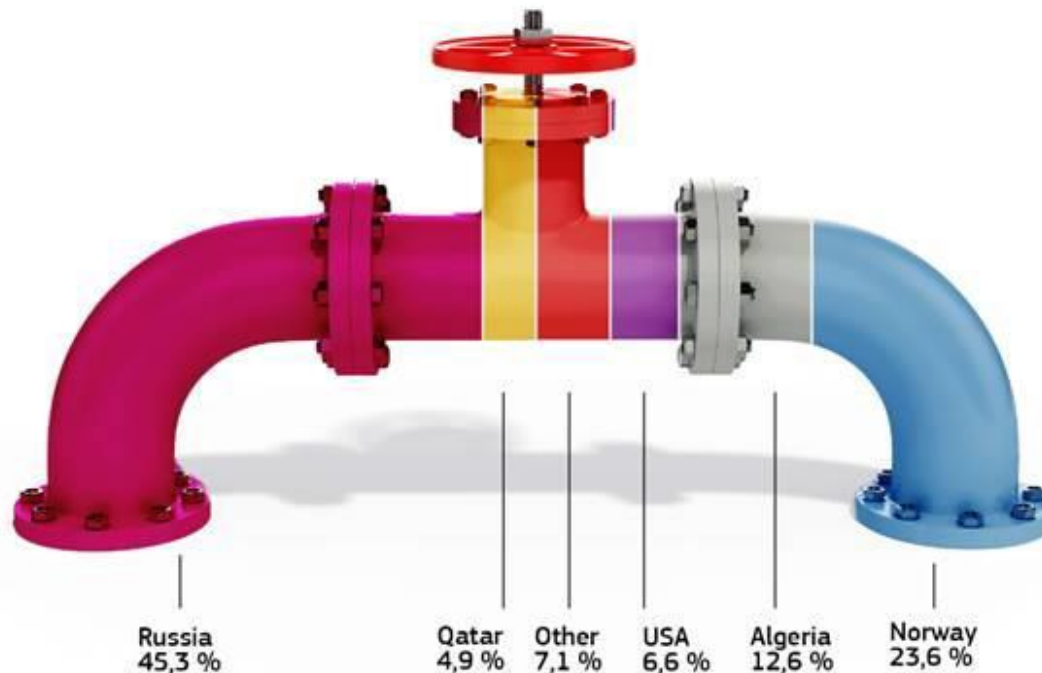
**REPowerEU: Joint European Action for more affordable, secure and  
sustainable energy**



House on Bohatyrskya Street, Kyiv after shelling of 14 March 2022,  
[https://cs.m.wikipedia.org/wiki/Soubor:House\\_on\\_Bohatyrskya\\_Street\\_after\\_shelling\\_of\\_14\\_March\\_2022\\_\(01\).jpg](https://cs.m.wikipedia.org/wiki/Soubor:House_on_Bohatyrskya_Street_after_shelling_of_14_March_2022_(01).jpg)

**Following the invasion of Ukraine by Russia, the case for a rapid clean energy transition has never been stronger and clearer.** The EU imports 90% of its gas consumption, with Russia providing more than 40% of the EU's total gas consumption. Russia also accounts for 27% of oil imports and 46% of coal imports.

COM(2022) 108 final



**The EU needs to be ready for any scenario. It can reach independence from Russian gas well before the end of the decade. The sooner and more decisively we diversify our supply, accelerate the roll out of green energy technologies and reduce our demand of energy, the earlier we can substitute Russian gas.**

COM(2022) 108 final

REPowerEU will seek to diversify gas supplies, speed up the roll-out of renewable gases and replace gas in heating and power generation. This can **reduce EU demand for Russian gas by two thirds before the end of the year.**

EC Press Release, 8 March 2022



**Phasing out our dependence on fossil fuels from Russia can be done well before 2030. To do so, the Commission proposes a REPowerEU plan that will increase the resilience of the EU-wide energy system based on two pillars:**

- **Diversifying gas supplies**, via higher LNG imports and pipeline imports from non-Russian suppliers, and higher levels of biomethane and hydrogen.
- **Reducing faster our dependence on fossil fuels** at the level of homes, buildings and the industry, and at the level of the power system by boosting energy efficiency gains, increasing the share of renewable and addressing infrastructure bottlenecks.

COM(2022) 108 final

Full implementation of our Fit for 55 proposals would lower our gas consumption by 30%, equivalent to 100 bcm, by 2030. Together with additional gas diversification and more renewable gases, frontloaded energy savings and electrification have the potential to jointly deliver at least the equivalent of the 155 bcm imports of Russian gas.

COM(2022) 108 final





		2030	MEASURE	THE END OF 2022 (BCM equivalent) estimate	TO FF55 BY 2030 (BCM equivalent) estimate
<u>GAS DIVERSIFICATION</u>	NON-RU NATURAL GAS	-	LNG diversification	50*	50
		-	Pipeline import diversification	10	10
	MORE RENEWABLE GAS	17 bcm of biomethane production, saving 17 bcm	Boost biomethane production to 35bcm by 2030	3.5	18
		5.6 million tonnes of renewable hydrogen, saving 9-18.5 bcm	Boost hydrogen production and imports to 20mt by 2030	-	25-50
<u>ELECTRIFY EUROPE</u>	HOMES	Energy efficiency measures, saving 38 bcm	EU-wide energy saving, e.g. by turning down the thermostat for buildings' heating by 1°C, saving 10bcm	14	10
		<i>Counted under overall RES figures below</i>	Solar rooftops front loading – up to 15 TWh within a year	2.5	frontloaded
		30 million newly installed heat	Heat pump roll out front loading by	1.5	frontloaded

<b><u>ELECTRIFY EUROPE</u></b>			thermostat for buildings' heating by 1°C, saving 10bcm		
		<i>Counted under overall RES figures below</i>	Solar rooftops front loading – up to 15 TWh within a year	2.5	frontloaded
		30 million newly installed heat pumps installed in 2030, saving 35 bcm in 2030	Heat pump roll out front loading by doubling deployment resulting in a cumulative 10 million units over the next 5 years	1.5	frontloaded
	POWER SECTOR	Deploy 480 GW of wind capacities and 420 GW of solar capacities, saving 170bcm (and producing 5.6 Mt of Green Hydrogen)	Wind and solar front loading, increasing average deployment rate by 20%, saving 3bcm of gas, and additional capacities of 80GW by 2030 to accommodate for higher production of renewable hydrogen.	20	Gas savings from higher ambition counted under green hydrogen, the rest is frontloaded
<b><u>TRANSFORM INDUSTRY</u></b>	ENERGY-INTENSIVE INDUSTRIES	Front load electrification and renewable hydrogen uptake	Front load Innovation Fund and extend the scope to carbon contracts for difference	<i>Gas savings counted under the renewable hydrogen and renewables targets</i>	

\*all figures are estimates

An unprecedented LNG supply to the EU in January 2022 has ensured security of gas supply for this winter. The EU could import 50 bcm more of LNG (e.g. from Qatar, USA, Egypt, West Africa) on a yearly basis. Diversification of pipe sources (e.g. Azerbaijan, Algeria, Norway) could deliver another 10 bcm of yearly savings on Russian gas imports.

While diversifying supply, the EU fosters its international partnerships. The Commission will continue discussing within G7 and with major global purchasers of gas (Japan, South Korea, China, India) medium-term market developments.

COM(2022) 108 final



## **Increase the EU production of biomethane**

**Doubling the objective of Fit for 55 for biomethane would lead to the production of 35 billion cubic metres (bcm) per year by 2030. To do so, Member States' CAP strategic plans should channel funding to biomethane produced from sustainable biomass sources, including in particular agricultural wastes and residues.**

COM(2022) 108 final

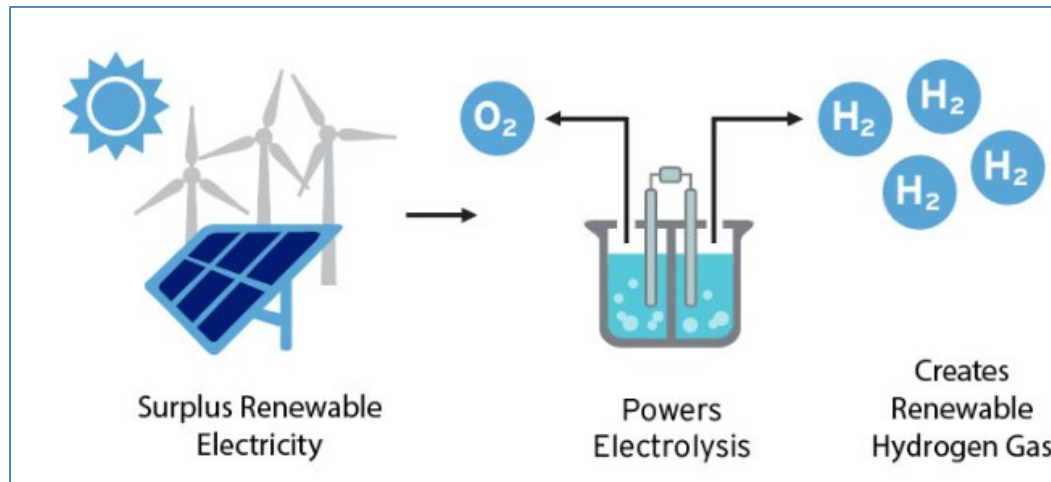


<https://www.euractiv.com/section/energy/news/europeans-confront-biomethane-cost-reduction-challenge/>

## Hydrogen Accelerator

**An additional 15 million tonnes (mt) of renewable hydrogen on top of the 5,6 mt foreseen under the Fit for 55 can replace 25-50 bcm per year of imported Russian gas by 2030.** This would be made of additional 10 mt of imported hydrogen from diverse sources and an additional 5 mt of hydrogen produced in Europe, going beyond the targets of the EU's hydrogen strategy and maximising the domestic production of hydrogen. Other forms of fossil-free hydrogen, notably nuclear-based, also play a role in substituting natural gas.

COM(2022) 108 final



<https://www.fchea.org/in-transition/2019/7/22/unlocking-the-potential-of-hydrogen-energy-storage>

## **Rolling out solar, wind and heat pumps**

**Fit for 55 foresees the doubling of the EU's photovoltaic and wind capacities by 2025 and tripling by 2030, saving 170 bcm of yearly gas consumption by 2030.**

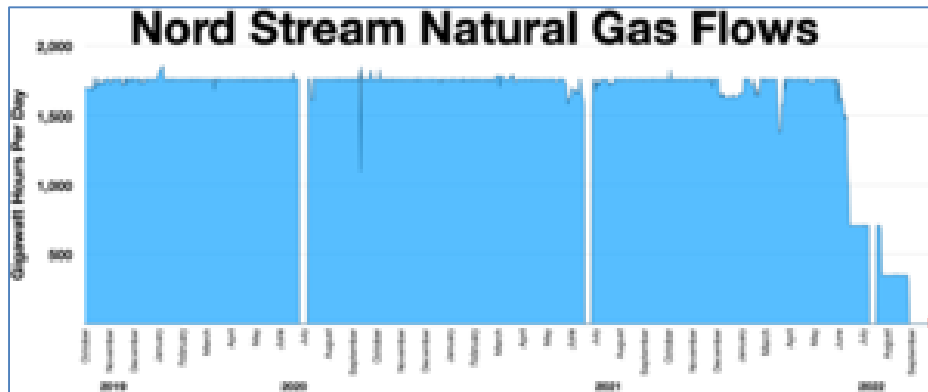
COM(2022) 108 final



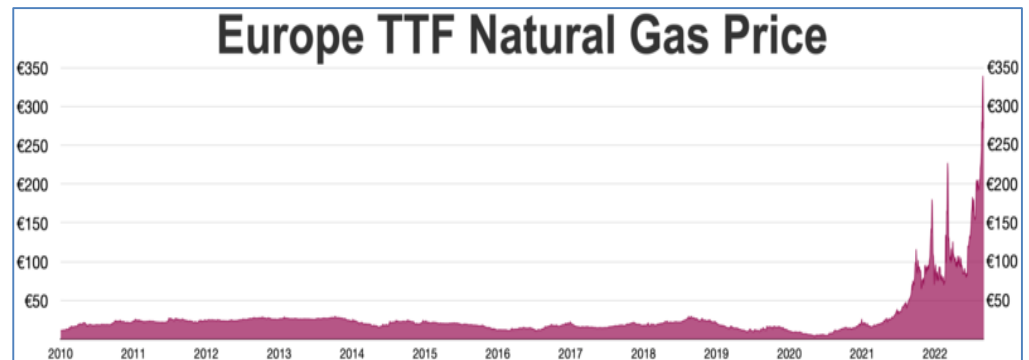


Negotiators of the European Parliament and the Council, representing EU members, agreed that by 2030, the 27-country EU would commit to sourcing **42.5% of its energy from renewable sources like wind and solar, with a potential top-up to 45%.**





[https://en.wikipedia.org/wiki/2022\\_Russia%E2%80%93European\\_Union\\_gas\\_dispute#:~:text=The%20Russia%E2%80%93EU%20gas%20dispute,t%20Europe%20by%20Russia's%20Gazprom.](https://en.wikipedia.org/wiki/2022_Russia%E2%80%93European_Union_gas_dispute#:~:text=The%20Russia%E2%80%93EU%20gas%20dispute,t%20Europe%20by%20Russia's%20Gazprom.)



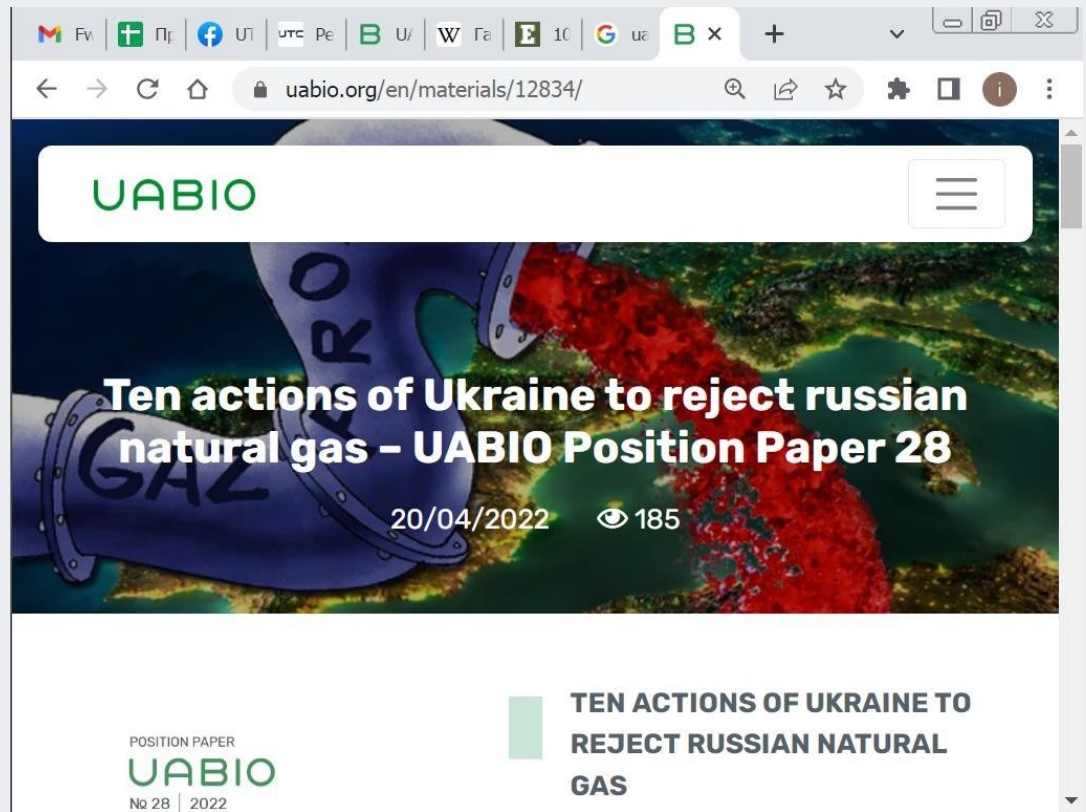
Europe consumed 512 billion cubic metres (bcm) of natural gas in 2020, of which 185 bcm (36%) came from Russia. In early 2022, Russia supplied 45% of EU's natural gas imports, earning \$900 million a day, and by October 2022, it had decreased to 7.5%.

## Natural gas in Ukraine

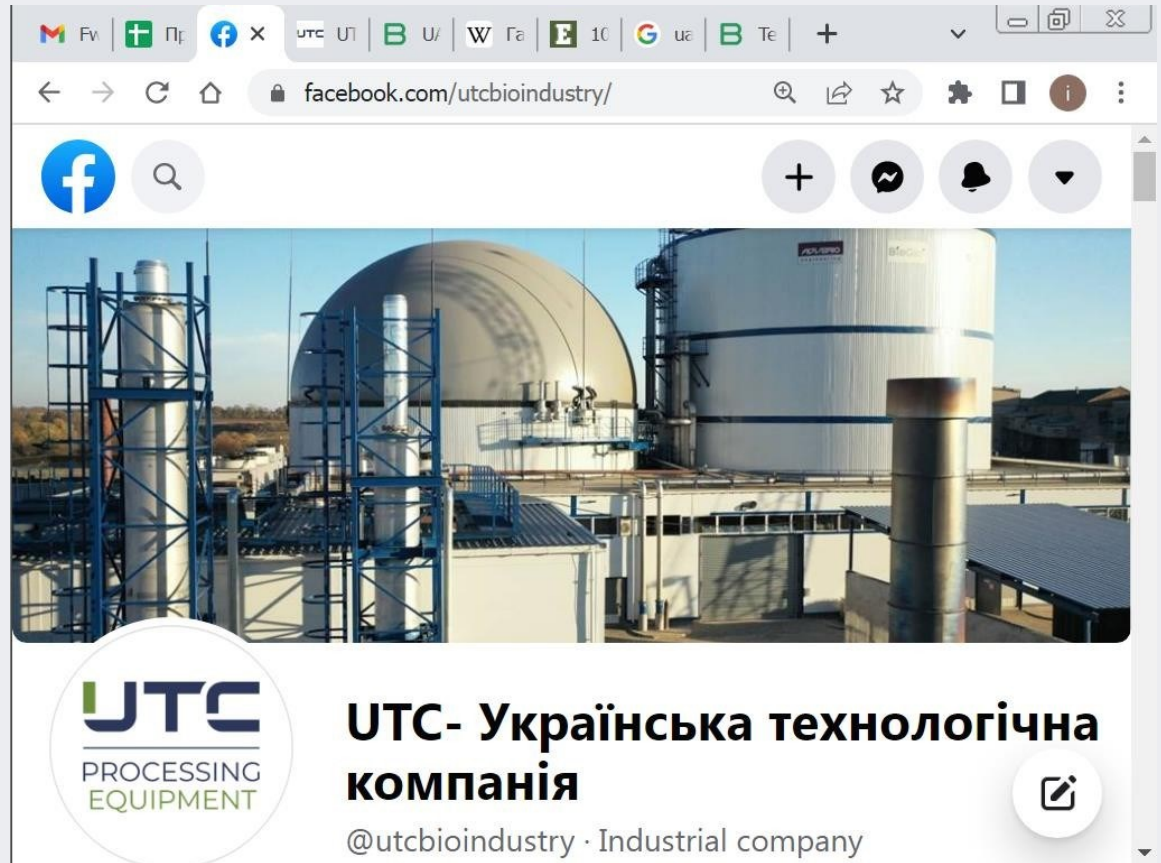
Ukraine produces about 20 billion m<sup>3</sup> of natural gas per year.  
Ukraine imports about 8-10 billion cubic meters of gas per year.  
(In 2021, Ukraine consumed 27 billion m<sup>3</sup> of natural gas)



Міністерства енергетики України <https://bit.ly/3JPE9Gt>



Ukraine can potentially replace up to 20 billion m<sup>3</sup> of natural gas with biomass per year. The main components of the energy potential of biomass in Ukraine are: agricultural residues, energy plants, including intermediate energy crops.



According to the estimates of the head of UTK Evgeniy Lukashevich, Ukraine has the potential to produce 10-15 billion cubic meters of biomethane per year.



"**Sustainable development** is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Report / Our Common Future, 1987)



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VI INTERNATIONAL CONFERENCE on

# EUROPEAN DIMENSIONS OF SUSTAINABLE DEVELOPMENT

MAY 15 - 17, 2024  
KYIV, UKRAINE

**THANKS**



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