

Resource Guide for Educators

EUROPE GOES GREEN?

ENERGY, ENVIRONMENT, POLITICS, & SECURITY IN THE EU

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MODULE 4

Tricky Tradeoffs
Between
Sustainability
Energy, & Economics
in the EU

Scott Montgomery

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Introduction to Session Speaker



Scott L. Montgomery is an author, geoscientist, and affiliate faculty member in the Jackson School of International Studies, University of Washington. He writes and lectures on a wide variety of topics related to energy (geopolitics, technology, resources, climate change), American politics, intellectual history, language and communication, and the history of science. He is a frequent contributor to online journals such as *The Conversation*, *Forbes*, and *Fortune*, and his articles and op-eds are regularly featured in many outlets, including *Newsweek*, *Marketwatch*, *The Huffington Post*, and *UPI*. He also gives public talks and serves on panels related to issues in global energy and their relation to political and economic trends and ideas of sustainability. For more than two decades, Montgomery worked as a geoscientist in the energy industry, writing over 100 scientific papers and 70 monographs on topics related to oil and gas, energy technology, and industry trends.

Montgomery is the author of 12 books and is currently pursuing several areas of research, including the role of Enlightenment ideas in present-day American politics, as well as the future of petroleum and its role in geopolitics and climate change.

Key Terms

Green /Environmental Taxation: tax measures that either impose a tax cost on some product or activity that is environmentally damaging, or that give a tax benefit to some product or activity that is environmentally beneficial

Carbon Neutrality: net zero CO₂ emissions; a state of balance between the CO₂ emitted into the atmosphere and the CO₂ removed from the atmosphere; in business practices, carbon neutrality is often used to include all greenhouse gas (GHG) emissions when referring to emissions reduction targets

Green Architecture: philosophy of architecture that advocates sustainable energy sources, the conservation of energy, the reuse and safety of building materials, and the siting of a building with consideration of its impact on the environment. In the early 21st century the building of shelter (in all its forms) consumed more than half of the world's resources.

Sustainability: the long-term viability of a community, set of social institutions, or societal practice. In general, sustainability is understood as a form of intergenerational ethics in which the environmental and economic actions taken by present persons do not diminish the opportunities of future persons to enjoy similar levels of wealth, utility, or welfare.

Emissions Trading: an environmental policy that seeks to reduce air pollution efficiently by putting a limit on emissions, giving polluters a certain number of allowances consistent with those limits, and then permitting the polluters to buy and sell the allowances. The trading of a finite number of allowances results in a market price being put on emissions, which enables polluters to work out the most cost-effective means of reaching the required reduction.



Learning Objectives

1. Students will be able to identify, analyze, and discuss the impact of climate change on European nations, including efforts to mitigate the impact of climate change on local, national, and regional communities.
2. Students will be able to define the term carbon-neutral and explain the EU's strategy to become the first carbon-neutral continent.
3. Students will be able to analyze and discuss how EU members are attempting to balance the implications of energy and sustainability policies with economic goals.
4. Students will be able to define sustainability and identify and evaluate how the EU is developing/ implementing sustainability practices into their policy priorities. In addition, students will identify and discuss strategies to adopt sustainable practices in their own lives.
5. Students will be able to define the United Nations' Sustainable Development Goals (SDGs) and explain the purpose/target for Goal 7 (affordable and clean energy) and Goal 13 (climate action). In addition, students will identify, analyze, and discuss progress toward Goals 7 and 13 within the EU.



EU Environmental Policy



[Environment](#)

EU citizens benefit from some of the highest environmental standards in the world. The EU and national governments have set clear objectives to guide European environment policy until 2020 and a vision beyond that, of where to be by 2050, with the support of dedicated research programmes, legislation and funding.



[Climate Change: What the EU is doing](#)

The EU has adopted ambitious legislation across multiple policy areas to implement its international commitments on climate change. EU countries have set binding emission targets for key sectors of the economy to substantially reduce greenhouse gas emissions.



[Putting a Price on Pollution](#)

The New York Time's Daily Podcasts discusses the new environmental policies from the EU. The European Commission, the E.U.'s executive arm, recently introduced ambitious legislation aimed at sharply cutting emissions to slow down climate change within the next decade, specifically by weaning one of the world's biggest and most polluting economies off fossil fuels. But can it generate the political will to see it through?



[Green Taxation—in support of a more sustainable future](#)

As part of the European Green Deal, the EU has set out ambitious targets to tackle climate change and foster a cleaner environment, aiming for a 55% reduction in greenhouse gas emissions by 2030 and to become a climate-neutral continent by 2050. As we work towards these objectives, green taxation can play an active and positive role in support of other EU climate and energy policies such as the EU Emission Trading System.



[The EU Climate Law Explained](#)

The European Commission tabled its much-awaited Climate Law in March this year, in a bid to carve into stone Europe's objective of becoming the first climate-neutral continent in the world by 2050. EURACTIV explains what the Climate Law does, how it works and what its criticisms are.



EU Environmental Policy



[EU Climate Change Policy](#)

This lesson plan has four parts and teacher instructions: Part 1: EU Climate Change Overview; Part 2: EU Domestic Policy; Part 3: EU International Climate Change Policy; Part 4: Strategy of EU Member States and Canada



[Eurostat—Environmental Statistics](#)

Eurostat provides a range of statistics and accounts about the state of the environment and the drivers, pressures and impacts of our societies on the environment. In this section, you find information about: Air emissions; Biodiversity; Energy accounts; Environmental protection; Environmental sector; Hazardous substances; Material flows and resource productivity; Taxes; Water. Eurostat statistics support policies about climate change, the circular economy, sustainable development, biodiversity and natural capital, among others.

[A European “Model” Defined by public Policies - European Environmental Policy](#)

Despite its primarily economic origins and its belated concern for the environmental issues, the EU became, after

1972, one of the major international actors in the protection of the environment. Recognized in treaties from 1986 onwards, environmental policy was organized around the notion of sustaina-

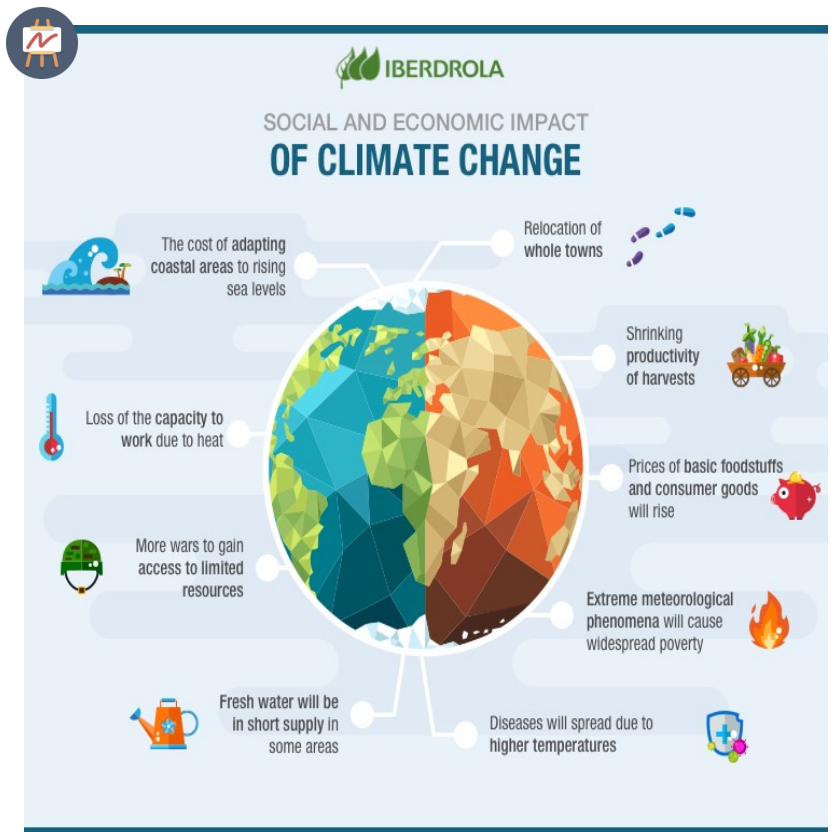


ble development and gave rise to a strong legislative agenda and the establishment of structures of information, financing and control on a European level. In so doing, the EU found a new form of legitimation.

Economics & EU Sustainability

Europe's External Energy Policy: Between Geopolitics and the Market

While energy security has gradually been incorporated into the EU's foreign policy calculus, the declared approach of extending a nexus of 'market-governance' energy norms has been realised only to a limited extent. The EU has eschewed a comprehensively political approach to energy security, with its energy security policy currently hovering ineffectively between market and geopolitical approaches. The EU needs to address more effectively the way in which governance structures in producer states impact upon European energy interests.



World economy set to lose up to 18% GDP from climate change

Climate change poses the biggest long-term threat to the global economy. If no mitigating action is taken, global temperatures could rise by more than 3°C and the world economy could shrink by 18% in the next 30 years. But the impact can be lessened if decisive action is taken to meet the targets set in the Paris Agreement, Swiss Re Institute's new Climate Economics Index shows. This will require more than what is pledged today; public and private sectors will play a crucial role in accelerating the transition to net zero.

How Europe's Ambitious New Climate Agenda will Effect Businesses

The European Union's plan to cut its greenhouse gas emissions by more than half by the end of the decade will touch almost every industry in the trade bloc, with profound consequences for jobs and the bloc's economy. European leaders said the climate package presented on Wednesday could put Europe at the forefront of new technologies like electric car batteries, offshore wind generation or aircraft engines that run on hydrogen. The far-reaching plan to reduce the trade bloc's carbon footprint includes tougher mandates for automakers, steel makers, airlines, energy producers and other industries.

Economics & EU Sustainability



93%
of Europeans

see **climate change** as a serious problem.



93%
of Europeans

have taken at least one **action** to tackle climate change.



92%
of Europeans

agree that greenhouse gas emissions should be reduced to a minimum in order to make the **EU economy climate neutral by 2050**.

[How to Balance the Trade-off between Economic Development and Climate Change?](#)

Climate change is not only an environmental issue but also a development problem. Maintaining rapid economic development while simultaneously mitigating climate change is a pivotal and challenging task. Previous studies mainly focused on testing the validity of the environmental Kuznets hypothesis but ignored the internal influencing mechanism. This paper extends the past work in three aspects. First, it will theoretically discuss the interaction of the scale, structure and technology effects of economic development and the impact on carbon emissions based on a classic model and the general equilibrium theory. Second, the relationship between carbon emissions and these three effects are examined by considering the quadratic term, and the interactive mechanism among them is evaluated by applying multiple mediating analysis. Due to the important role of the technology effect, this work will further divide it into different sources to reveal its impact on carbon emissions and discuss the rebound effect. Finally, the policy effect is considered, and the results demonstrate that the implementation of effective environmental regulations can mitigate the adverse impact of economic development on carbon emissions. This research is an initial attempt to thoroughly explore the pathways to balance the trade-off between development and environment from the perspective of internal influencing mechanisms. The empirical results can serve as an important reference for making policies about energy conservation and emission reduction.

Europe's Sustainable Energy



[The Green Revolution: "The EU must not fail" - Juan Espadas](#)

Finding a balance between all the different needs of European territories will be challenging, but this is a very important reason why, maybe more than ever, local and regional authorities need to be involved in the decisions to make sure the responses decided at European level match with the reality on the ground. The way forward is to find complementarity and synergies between protecting human lives, economic recovery and moving towards climate neutrality, getting EU citizens on board by providing them with quick results in terms of sustainable jobs. The EU needs to turn this crisis into a new beginning by organizing our recovery within the Green Deal framework.



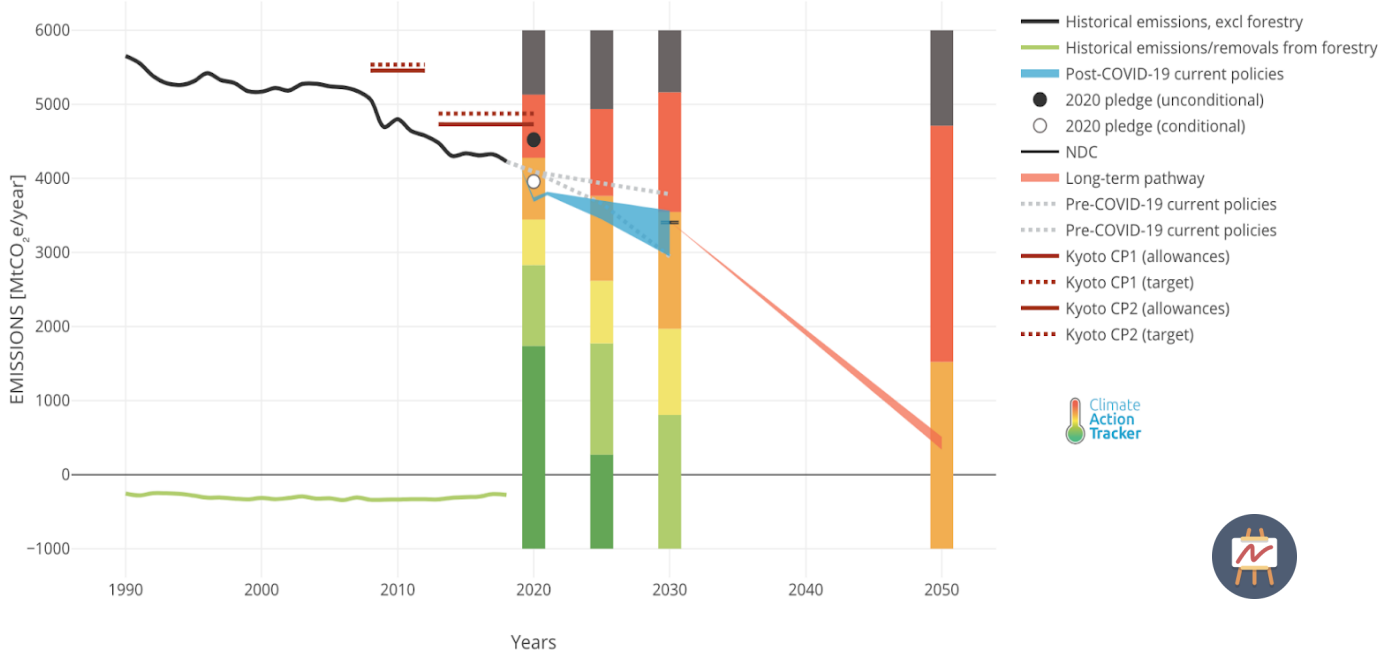
[Europe's plan to become the first carbon-neutral continent](#)

President of the European Commission, Ursula Von Der Leyen states her goal for a carbon-neutral Europe. "In the European Union, we have a good record of turning ambitions into successes. We are a political and economic union with 27 countries and the total population of 450 million people. On the ashes of two world wars, we have secured lasting peace among us. From a divided continent, we have created a union without borders. And I strongly believe we can also achieve our next challenge: becoming the first carbon-neutral continent."



[Optimal and Sustainable: Renewable Energy Revamp Lesson Plan](#)

In this lesson, students will be challenged with an optimization problem. The fictitious town of Solutionville has decided to replace coal, their current source for electricity, with more sustainable energy sources. In designing Solutionville's sustainable energy future, students must consider not only the geographic constraints of various renewable energy options—wind energy, hydroelectric power, geothermal energy, and solar energy—but they must also meet specific energy production requirements and budgetary constraints.

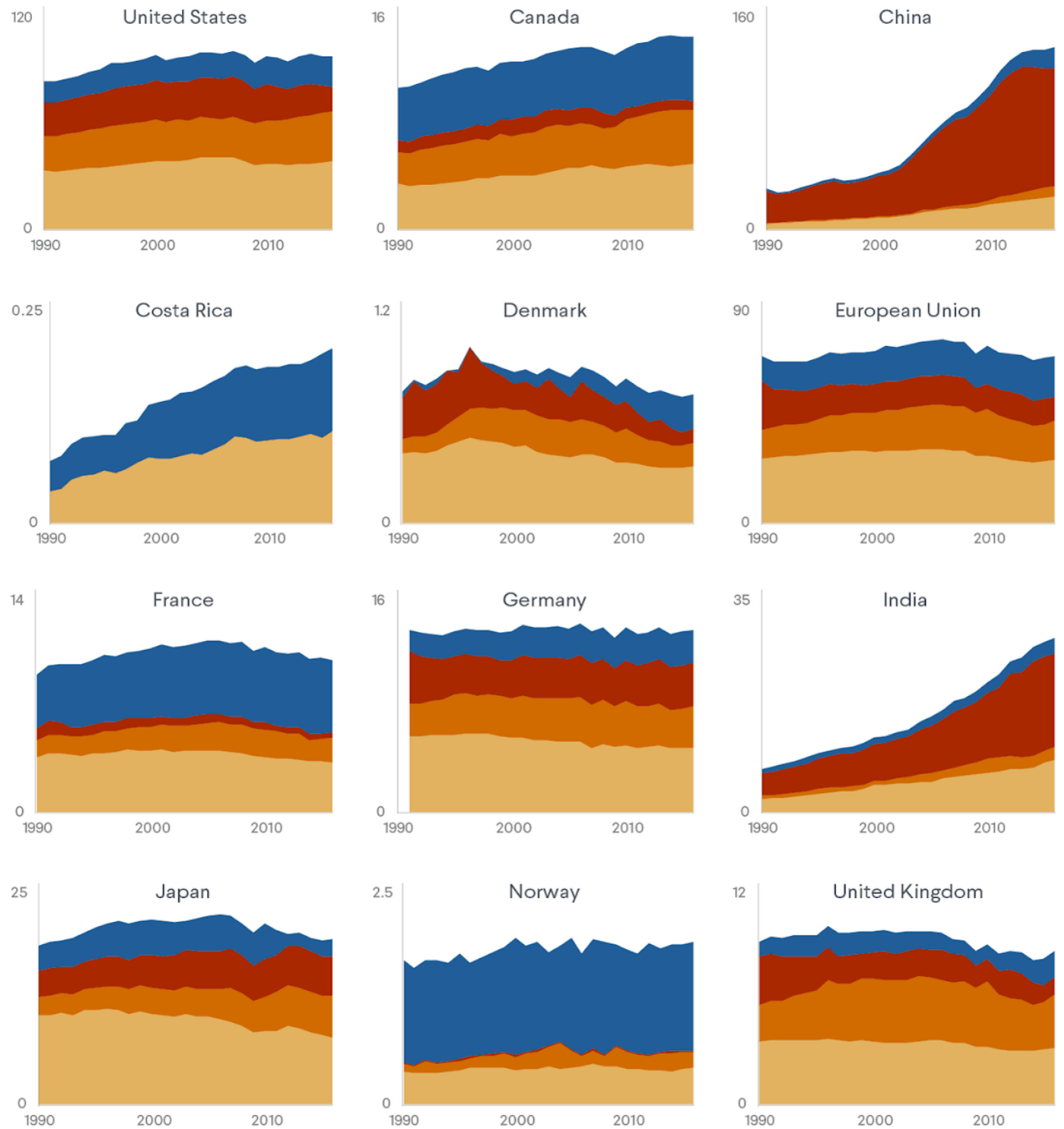




Different Approaches to Energy

Energy sources of selected countries (quadrillion British thermal units)

● Nuclear, renewables, and other ● Coal ● Natural gas ● Petroleum and other liquids



Source: U.S. Energy Information Administration.

**COUNCIL on
FOREIGN
RELATIONS**

Europe's Sustainable Energy

Towards a greener and more sustainable Europe

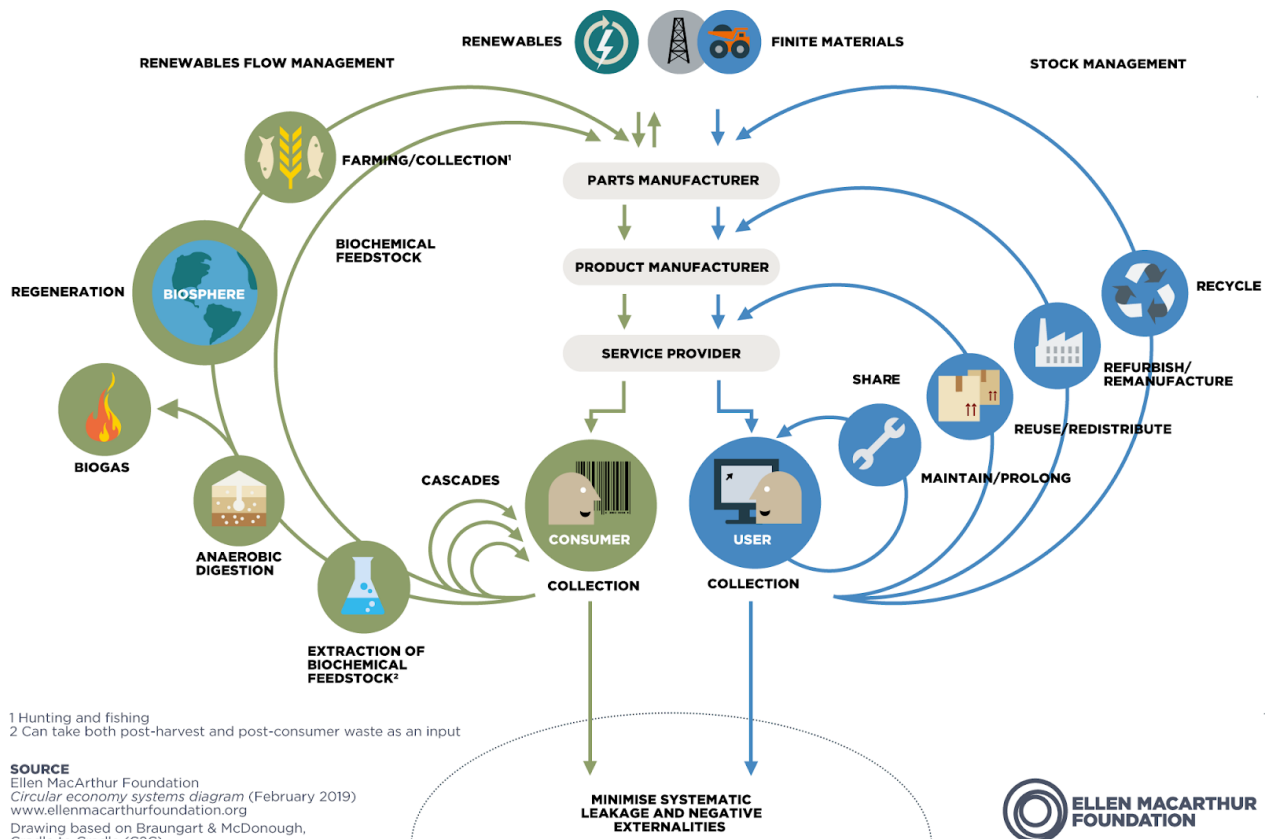
EU citizens benefit from some of the highest environmental standards in the world. The EU and national governments have set clear objectives to guide European environment policy until 2020 and a vision beyond that, of where to be by 2050, with the support of dedicated research programmes, legislation and funding.

What is the Environmental Implementation Review?

EU citizens consider environmental protection to be of crucial importance. The European Union has some of the most ambitious environmental protection rules and policies in the world. However, their proper implementation remains a major cause of concerns to society. In April 2019, the European Commission published a set of reports on the state of implementation of environmental laws in Europe: the Environmental Implementation Review.



Circular Economy Explained: The circular economy is all about identifying and closing loops so as to create self-sustaining systems where producers and consumers are closely coupled to enable constant feedback. For example, food production, consumption, and disposal might be organized to be part of the same closed cycle. In a circular system resource input and waste, emissions, and energy leakage are minimized by slowing, closing, and narrowing energy and material loops; this can be achieved through long-lasting design, maintenance, repair, reuse, remanufacturing, refurbishing, or recycling. This is a regenerative approach where things are being constantly repurposed to serve new functions.



1 Hunting and fishing
2 Can take both post-harvest and post-consumer waste as an input

SOURCE
Ellen MacArthur Foundation
Circular economy systems diagram (February 2019)
www.ellenmacarthurfoundation.org
Drawing based on Braungart & McDonough,
Cradle to Cradle (C2C)

Climate Action



[We the Power - a movie about the citizen-led community energy movement in Europe](#)

We the Power is an inspiring film that follows friends, families and visionaries, some of them REScoop.eu members, as they break down legislative barriers and take power back from big energy companies to put it in the hands of locals and strengthen their towns. It chronicles local cooperatives from deep in Germany's Black Forest to the streets of ancient Girona in Spain and the urban rooftops of London, England, as they pave the way for a renewable energy revolution and build healthier, financially stable communities.

[SDG 13—Climate Action](#)

This article provides an overview of statistical data on SDG 13 'Climate action' in the European Union (EU). It is based on the set of EU SDG indicators for monitoring of progress towards the UN Sustainable Development Goals (SDGs) in an EU context.

[Climate Action in the EU:](#)

[Overview and Trends](#)

Monitoring SDG 13 in an EU context focuses on climate mitigation, climate impacts and initiatives that support climate action. On the basis of the used indicators, the EU is not on track to meeting two of the



three climate and energy targets monitored here, including the increased 2030 greenhouse gas emissions reduction target. In addition, the EU continues to face unfavourable trends in climate impacts, such as rising surface temperatures and ocean acidification. Moreover, economic losses due to climate-related events have increased in recent years, although these remain subject to high year-to-year variability due to the natural variability of the underlying hazards. However, support to climate action is increasing in the EU, both in terms of climate-related expenditure and the number of local and regional governments signing up to the Covenant of Mayors for Climate and Energy.



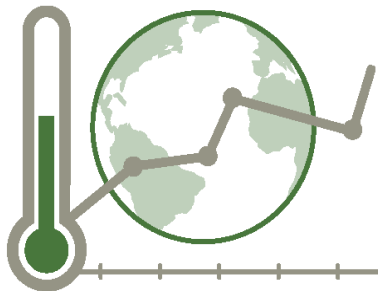
13 CLIMATE ACTION



TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

BEFORE COVID-19

GLOBAL COMMUNITY SHIES AWAY FROM COMMITMENTS REQUIRED TO REVERSE **THE CLIMATE CRISIS**



2019 WAS THE SECOND WARMEST YEAR ON RECORD

GLOBAL TEMPERATURES ARE PROJECTED TO RISE BY UP TO 3.2°C BY 2100



ONLY 85 COUNTRIES HAVE NATIONAL **DISASTER RISK REDUCTION STRATEGIES** ALIGNED TO **THE SENDAI FRAMEWORK**

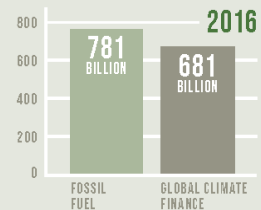
COVID-19 IMPLICATIONS



COVID-19 MAY RESULT IN A **6% DROP IN GREENHOUSE GAS EMISSIONS** FOR 2020

STILL SHORT OF **7.6% ANNUAL REDUCTION** REQUIRED TO LIMIT GLOBAL WARMING TO 1.5°C

CLIMATE FINANCE: **INVESTMENT IN FOSSIL FUELS** CONTINUES TO BE HIGHER THAN INVESTMENT IN CLIMATE ACTIVITIES



CLIMATE CHANGE CONTINUES TO EXACERBATE THE FREQUENCY AND SEVERITY OF **NATURAL DISASTERS**



MASSIVE WILDFIRES



DROUGHTS



HURRICANES



FLOODS

AFFECTING **MORE THAN 39 MILLION PEOPLE**

IN 2018

U.S.—EU Relations



[The European Union: Questions & Answers](#)

The Federation of American Scientists compiled a detailed document explaining the basic structure and operations of the European Union as well as the EU's relationship with the United States. It notes that the EU currently faces many challenges, though several of them are shared by the US: responding to the COVID-19 pandemic, strengthening democracy, improving trade and technology, and, of course, addressing the growing threat of climate change.

[A Transatlantic Green Deal Can Revive the US-EU Partnership](#)

The so-called Green Deals on the table in Europe and the US present an enticing prospect to rejuvenate the greatly diminished transatlantic relationship — and help hit crucial climate targets before it is too late. The European Green Deal, proposed last year with much fanfare by EU commission president Ursula von der Leyen, overlaps significantly with the Green New Deal, an ecological spending program devised by congressional Democrats and endorsed by the party's presidential candidate, Joe Biden.

Thank You to Our Sponsors:

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