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## **A CLIMATE FOR CHANGE IN THE EUROPEAN UNION**

**The current crisis implications for EU  
Climate and Energy Policies**

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**Corina Popa**



**CEU** | *Ediciones*

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**A climate for change in the European Union. The current crisis implications for EU climate and energy policies**

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# Acronyms list

The following list includes the abbreviations used in this document, as well as their full name, in alphabetical order.

<b>Abbreviation</b>	<b>Full Name</b>
AMS	American Meteorological Association
CCA	Climate Change Act
CCC	Committee on Climate Change
CCS	Carbon Capture Storage systems
CFCs	Chlorofluorocarbons
COP	Conference of the Parties
EC	European Commission
ECIU	Energy and Climate Intelligence Unit
ECJ	European Court of Justice
ECT	Energy Charter Treaty
EESS	European Energy Security Strategy
ETS	Emission Trading System
EU	European Union
EWG	Energy Watch Group
GHG	Greenhouse Gas(es)
IEA	International Environment Agency
IEEE	Instituto Español de Estudios Estratégicos
IEM	Internal Energy Market
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
JRC	Joint Research Committee
MNC	Multinational Corporation
NDCs	Nationally Determined Contributions
NECPs	National energy and climate plans
NGO	Non-Governmental Organization

ODS	Ozone-Depleting Substances
OECD	Organization for Economic Co-operation and Development
POLES	Prospective Outlook for the Long term Energy System
R&D&i	Research and Development and innovation
SDGs	Sustainable Development Goals
SEM	Single Energy Market
UK	United Kingdom
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
USD	United States Dollar
WEF	World Economic Forum

# Introduction

## Scope of Work

*“What humans do over the next 50 years will determine the fate of all life on the planet”*

— Sir David Attenborough

In today’s world, nobody can deny that climate change is a reality, and what used to be a topic reserved for international organizations, NGO’s and activists is becoming a top priority on the agendas of governments and multinational companies.

As temperatures rise, extreme weather events like heatwaves and floods, multiply in recurrence and seriousness. What’s more, severe threats are foreseen for habitable lands, for example, droughts and rising ocean levels escalate, and biodiversity is disappearing at an alarming rate.<sup>1</sup> Humankind is facing one of its most significant challenges so far, and we know by now that highly polluting fossil fuel-based technology – coal, oil and to a lesser extent, gas – needs to be replaced progressively and without delay by low carbon and sustainable forms of energy – a process called “the energy transition”. To that extent, the fight against climate change and the energy policies are extremely interconnected.

In a nutshell, we need to find a way to achieve growth and development without destroying the planet in the process, what is known as decoupling growth from the Greenhouse Gas (GHG) emissions.<sup>2</sup> Unfortunately, in the past 3 decades there has been little progress in tackling climate change, in spite of high-level forum meetings and numerous attempts of bringing the matter to public attention. The slow progress is mainly due to the unpredictability of international negotiation that involves a variety of players and conflicting interests,<sup>3</sup> but other factors as well that will be discussed in this thesis.

The literature on the subject is diverse and in continuous evolution as new investigations and discoveries are being made. Most of them agree that implications of global warming are numerous and complex for all aspects of life as we know it, comprising dangerous risks for human life. Temperature change is just one indicator among many others, such as land degradation, biodiversity loss, air, land, or water pollution, and all are closely related. McKinsey consultancy has identified the main socio-economic aspects at risk, in its recent study: liveability and workability, food systems, physical assets, infrastructure services, physical and natural capital.<sup>4</sup>

Beyond natural and socioeconomic factors of risk, we also have essential geopolitical<sup>5</sup> ones that are less visible but are more likely to affect the way we deal with the challenge of climate change and are currently coming more into focus. For the first time in its history, the World Economic Forum (WEF) Global Risk

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1 WORLD METEOROLOGICAL ORGANIZATION. Statement on the State of the Global Climate in 2019 [Online]. March 10<sup>th</sup>, 2020 [Consulted 10 March 2020]. Retrieved from: <https://public.wmo.int/en/media/press-release/multi-agency-report-highlights-increasing-signs-and-impacts-of-climate-change>; IPCC. Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Online]. V. Masson-Delmotte, *et al.* 2018 [Consulted 23 January 2020]. ISBN 978-92-9169-151-7. Retrieved from: <https://www.ipcc.ch/sr15/>

2 SMIL, V. *Energy and Civilization: A History*. Cambridge, Massachusetts: MIT Press, 2017, pp. 344-351. ISBN 978-1-78074-151-2.

3 ROSE, G., *et al.* *Climate Wars: Policy, Politics and the Environment*. *Climate Anthology 1987-2017*. *Foreign Affairs* [Online]. July 2017, pp. 292-300 [Consulted 23 January 2020]. Retrieved from: <https://www.foreignaffairs.com/anthologies/2017-07-17/climate-wars>; STARKEY, B.; BOYER, M.A.; WILKENFELD, J. *International Negotiation in a Complex World* (New Millennium Books in International Studies). Updated Fourth Edition. New York: Rowman & Littlefield Publishers, 2016, p. 10-20. ISBN-10: 1442276711.

4 WOETZEL, J., *et al.* *Climate Risk and Response Physical Hazards and Socioeconomic Impacts* [Online]. McKinsey Global Institute, January 2020 [Consulted 26 January 2020]. Retrieved from: <https://www.mckinsey.com/business-functions/sustainability/our-insights/climate-risk-and-response-physical-hazards-and-socioeconomic-impacts>

5 REAL INSTITUTO ELCANO. A Think Tank Statement. *The New Geopolitics of Climate Governance: Distributing Leadership for Enhanced Ambition* [Online]. IDDRI. 11 December 2019 [Consulted 12 December 2019]. Retrieved from: [http://www.realinstitutoelcano.org/wps/portal/rielcano\\_es/prensavista?WCM\\_GLOBAL\\_CONTEXT=/elcano/elcano\\_es/prensa/notas/geopolitics-climate-governance-distributing-leadership-for-enhanced-ambition](http://www.realinstitutoelcano.org/wps/portal/rielcano_es/prensavista?WCM_GLOBAL_CONTEXT=/elcano/elcano_es/prensa/notas/geopolitics-climate-governance-distributing-leadership-for-enhanced-ambition); BBC SOUNDS Podcast. In: *Will Humans Become Extinct by the End of the Century?* [Online]. *The Enquiry*. January 2nd, 2020. Retrieved from: <https://www.bbc.co.uk/sounds/play/w3csyth5>

Report 2020 places environmental risks as the top 5 long term global threats by likelihood, and three among the highest five risks categorized by impact are also environmental.<sup>6</sup>

Although this threat and its debate are not new, concern about environmental issues has been growing in the world, with the United Nations providing a forum for the debate<sup>7</sup> and most significantly with the extensive implication of the European Union (EU) in recent years, empowered by its citizens. The 2019 Eurobarometer data<sup>8</sup> in this area is conclusive: 93% of EU citizens consider climate change to be a serious problem and 92% of respondents support a reduction in greenhouse gas emissions to a minimum and offset the remaining emissions, in order to achieve neutrality by 2050.

In this regard, the EU has become a significant driver for climate and energy policies. Basically, all the related regulation of the Member States is affected by or stems from the EU. Some examples that we will also discuss in this paper are the European Green Deal together with the European Climate Law and the European Climate Pact, EU Emission Trading Scheme (ETS), the Effort Sharing, the European Energy Security Strategy (EESS), Clean Energy for All Europeans, etc., are key components of EU climate and energy policy, which provide successful examples for the entire world. The EU has been instrumental for making generally ambitious policies across Member States. An added advantage is that, once established, the baseline of EU policies changes rather rarely – which makes for more prominent consistency over time.<sup>9</sup>

Therefore, the EU has been a leader for climate and energy policies, and a concrete proof of the idea that multilateralism can work including in politically tricky areas as climate change – which has abstract benefits like “making the planet safer for future generations”, while the costs can involve unpopular measures such as plant closings, job losses or new taxes.<sup>10</sup> In this context, it is likely that a crisis in the European Union, which may constrain capacities for acting, would have negative effects – firstly on EU climate and energy policies and by extension on the global fight against climate change. Concretely, it could affect the EU’s ability to pursue the European Green Deal and its commitments made under the Paris Agreement, which are the main topics that we will focus on in this work.

To name some of the reasons that are creating an environment of uncertainty – Brexit is one of them, where negotiations are slow and rather disappointing for everyone.<sup>11</sup> Another would be what the EU (and the world) is facing with the health pandemic of COVID-19. A challenge of a different nature, gravity and unprecedented global scale. The various crises apparently weaken the EU’s capacity to shape climate and energy policies, at the same time creating strain within the EU and emboldening political groups that are not only critical of the EU but of climate policies in general.

Given the complexity of the different challenges, it is difficult to anticipate the full implications on EU climate and energy policies. Many consequences have yet to unfold. Still, despite these uncertainties, we believe that the impact of the EU’s current state of affairs on climate and energy policies will, by and large, provide an opportunity to change in a good way. Possible positive effects – such as using the crisis as a new start for the European project, with inclusive, green growth and low carbon energy sources as the engine for such a revival – are beginning to shape up and seem to have a real chance at succeeding.<sup>12</sup>

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6 WORLD ECONOMIC FORUM. The Global Risks Report 2020 [Online]. 15th edition, 15 January 2020, fig.1, p. 1 [Consulted 26 January 2020]. ISBN 978-1-944835-15-6. Retrieved from: <https://www.weforum.org/reports/the-global-risks-report-2020>

7 BEST, A., *et al.* *International History of the Twentieth Century and Beyond*. 3rd ed. London: Routledge, 2015, pp. 354-357. ISBN 978-0-415-65642-9.

8 Apoyo de los ciudadanos a la acción por el clima: Sondeo 2019 [Online]. European Commission, 2019 [Consulted 30 April 2020]. Retrieved from: [https://ec.europa.eu/clima/citizens/support\\_es](https://ec.europa.eu/clima/citizens/support_es)

9 MEYER-OHLENDORF, N.; GÖRLACH, B. The EU in Turbulence: What are the Implications for EU Climate and Energy Policy? [Online]. 15 October 2016 pp. 7-15 [Consulted 2 March 2020]. Retrieved from: <https://www.ecologic.eu/13875>

10 STARKEY, *loc. cit.*, footnote 3.

11 ADLER, K. Stand-off or stalemate: EU-UK Brexit trade talks in trouble. *BBC* [Online]. 15 May 2020 [Consulted 15 May 2020]. Retrieved from: <https://www.bbc.com/news/world-europe-52686959>

12 Europe’s moment: Repair and prepare for the next generation [Online]. European Commission, 27 May 2020 [Consulted 30 May 2020]. Retrieved from: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_940](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_940) ; MEYER-OHLENDORF, *op. cit.*, footnote 9, pp. 3-4.

Various authors, International Organizations and think tanks herein cited have already started analysing the different effects of Brexit and COVID-19 on the EU climate and energy related actions, like the European Green Deal or the European Internal Energy Market (IEM). However, there are still many gaps as we are facing unprecedented situations and new information is being generated on a daily basis. Moreover, the general political attention, especially in the cases of Brexit and COVID-19, has not been particularly focused on climate change or the energy transition – for the evident reason of their different primary nature – so we seek to fill in the gap with an analysis of the present crisis including all these aspects. Our thesis is focused on the EU while keeping in mind the global context, providing a description of the commitments EU made to fighting climate change, and the obstacles encountered. This report, then, intends to address the following question: **What are the implications of the current crisis on the EU's climate and energy policies?** The broader topics of climate and energy policies will be restricted mainly in relation to the European Green Deal and the EU commitments made under the Paris Agreement. In response to this question we propose the following hypotheses:

1. The way EU deals with COVID-19 may provide a roadmap and an opportunity for dealing with the climate crisis.
2. The current tensions between the North and the South of Europe can have negative implications on financing climate actions bearing in mind that in the face of climate change and the energy transition the joint efforts will have to be even greater.
3. The presence of EU sceptical sentiment and anti-climate policy agendas does not easily lead to an optimistic outlook into the future, courage to tackle great changes, or acceptance of short-term costs in exchange for a longer-term benefit. This is incompatible with the transformation narrative of climate policies promoted by the EU and can lead to unfavourable effects.
4. Brexit will create additional strain on the EU and its institutions therefore having a negative impact on its ability to pursue its climate and energy policies.

## Methodology

This study will analyse the EU's commitments to climate action among the different crises that it's going through. Given that the EU has declared an official policy on climate action and energy transition, we will analyse official texts to identify key themes of these policies. In order to determine the crisis effects on the EU's commitments in a context of uncertainty, we will use the deductive method. By analysing the EU's goals and how they are being planned or fulfilled in spite of the challenges, we will be able to deduce the extent of the potential impacts.

## Sources Used

For this study, it was necessary to analyse a variety of sources, including books, reports, legislation, official texts, academic articles, journalistic articles, and websites. It is important to note that the ongoing and changing nature of the topic of study, that is constantly being updated, as well as the COVID-19 crisis, complicated the search for sources to some degree. For these reasons, we were obligated to resort to mostly electronic sources. Often, the most up-to-date information regarding a new report or decree was on the concerned entity's website; other times, a quote from a politician or from a climate activist was only retrieved from a journalistic source. The following section presents an overview of the most important resources used, arranged into primary and secondary sources.

## Primary Sources

Policy and Regulation documents were consulted, in order to evaluate the evolution of environmental regulation in the EU. International official documents, such as the Paris Agreement, the Montreal Protocol or the UN Intergovernmental Panel on Climate Change's 2018 report were reviewed for background information about climate change and previous international agreements. Official documents and publications from the European Commission and the European Parliament as well as the UK Parliament, such as treaties, reports, communications, working documents, resolutions, strategies and roadmaps, along with press releases of official remarks by the EU President and the UK Prime Minister were analysed to extract themes of key policies. A number of websites for environmental non-government organizations, alliances and organizations – pages about Bloomberg New Energy Finance, Greenpeace European Unit, Atlantic Council, Fundación Felipe Gonzalez, Energy Watch Group, World Economic Forum, McKinsey, to name a few – were consulted in order to obtain information about current action against climate change or the energy sector situation.

## Secondary Sources

A variety of books, reports and academic articles were used to gain historical context as well as recent research overview regarding the issue of climate change and energy transition in general and in the context of the EU. Although most books and articles are in English, several are in Spanish, in an attempt to gain a broader analytical perspective, including works by Best, Smil, Starkey, Wallace-Wells, Rose, Busby who provide context to the complexity of issues like climate change and renewable energy. Articles by Nordhaus, Youngs, Tooze, Tuñez, International Renewable Energy Agency (IRENA), Instituto Español de Estudios Estratégicos (IEEE), Bruegel, Real Instituto Elcano, Carnegie Institute Europe, among others, comment on the socio-economic and geopolitical implications of the energy transition and the challenges of climate change policies at the international and European level. Authors like, Burns, Hepburn, Borghesi, Meyer-Ohlendorf, Froggatt, Gaventa or Hinson analyse the implications of Brexit on climate and energy related policies, while others such as Fanjul, Bruyninckx, World Meteorological Organization, Victor and Monje reflect on aspects regarding the globalisation and climate-neutrality ambitions in Europe in times of COVID-19.

Finally, we were obligated to consult various journalistic articles, as these news outlets were sometimes the only source that spoke of current events and climate initiatives, recent developments in international negotiations processes or some declarations. Reputable online periodicals such as The Economist, BBC and Financial Times were prioritized.

## Structure

The present study seeks to analyse the impact of the current crisis on the EU's energy and climate policies and commitments, particularly on its ability to pursue such policies like the European Green Deal or the commitments under the Paris Agreement. To this objective, Chapter I summarizes the importance of the climate change crisis as well as the response and the evolution of actions by different actors from the International System – especially the EU – that have been dealing with the issue of climate change. The timeframe we are primarily considering covers the past thirty years.

Chapter II contains an analysis of the various policy challenges of climate change and energy transition, particularly related to the framework of the Paris Agreement and the European Green Deal for the case of the EU. Our focus will gradually shift from the global perspective to the environment of the EU, who has positioned itself at the forefront of the fight against climate change, aiming to provide an example and a roadmap for other nations to follow. An insight into the EU's policies and trajectory will be detailed and discussed.

The third chapter will attempt to identify, describe and comment on how EU climate and energy policies, especially the European Green Deal are affected by the current crisis – mainly the effects of COVID-19 and Brexit, but also the strained EU solidarity and rising Euro-scepticism that have been observed in the past years and have been accentuated by the present context. We will take into account the latest developments and publications of the EU.

Finally, conclusions will be drawn regarding the effect of the crisis on the EU's mentioned policies, evaluating whether our hypotheses are confirmed or not.

# CHAPTER I. International Response to the Climatic Crisis

## 1. According to the Scientists

Since the 1900s the planet has grown warmer with a little over 1°C, but most of that warming has occurred since 1980<sup>13</sup>. The last decade of measurement – 2010 to 2020 – has been the hottest. The oceans are heating as well a fact that is now well-documented thanks to newly developed state-of-the-art measurement technology.<sup>14</sup> But what difference does a degree make? – one is inclined to ask. The difference is substantive: even half a degree more than doubles<sup>15</sup> the risk of weather disasters, such as extreme heat, extreme rainfall frequency, or average drought duration.

It is essential to emphasise and reiterate the scientific challenge we face, both to combat the deniers and, above all, to overcome indifference.<sup>16</sup> The science of climate change has established that the objective, assumed by the Paris Agreement,<sup>17</sup> is to limit global temperature growth below 2°C relative to pre-industrial levels, and preferably to try to limit that increase to 1.5°C, as the barrier that would reduce the risks of climate change significantly. At the current situation that we are in, without changes in Greenhouse Gases (GHG) emissions, we will surpass the limit of +1.5°C in 2040.<sup>18</sup>

The science of climate change has already defined the first step in solving the problem: it is necessary to reduce GHG emissions to zero in this century. Much of this effort focuses on reducing Carbon Dioxide (CO<sub>2</sub>) emissions that require an international coordination effort and across multiple sectors, but mainly in the energetic one. For centuries, the only thing that has had an impact on human development has been cheap energy. And the most inexpensive way to get it has so far been by burning fossil fuels – coal, oil, and gas – strongly linked with significant GHG emissions that cause global warming.<sup>19</sup> Therefore, we are clearly faced with imminent pressure to accelerate to a clean energy transition.

The next steps are to determine the costs and economic benefits of the abovementioned objectives – in general, both undervalued because they do not fully take into full account the socio-economic and geopolitical implications – and to look for policy alternatives to achieve the target. We will address these elements in the following chapters.

### 1.1. Ignored Warnings and New Pressures

Scientists have been raising environmental alarms since the '70s.<sup>20</sup> However, their methods of prediction were not very advanced and reliable at that time, and the scientific community did not manage to be

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13 IPCC. loc. cit., footnote 1; ROSE, loc. cit., footnote 3.

14 AMERICAN METEOROLOGICAL SOCIETY. Explaining Extreme Events from a Climate Perspective [Online]. BAMS, December 13<sup>th</sup>, 2017 [Consulted 3 March 2020]. Retrieved from: <https://www.ametsoc.org/ams/index.cfm/publications/bulletin-of-the-american-meteorological-society-bams/explaining-extreme-events-from-a-climate-perspective/>

15 IPCC. op. cit., footnote 1, p. 282.

16 WALLACE-WELLS, D. *The Uninhabitable Earth: Life After Warming*. 1st ed. New York: Tim Dugan Books, 2019, p. 100. ISBN 9780525576723.

17 Paris Agreement [online]. United Nations Treaty Collection, 12 December 2015 [Consulted 12 March 2020]. Retrieved from: [https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg\\_no=XXVII-7-d&chapter=27&clang=\\_en](https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=_en); BARTLEBY RESEARCH. Climate Change is an Undeniable and Unavoidable Reality [Online]. 22 October 2014 [Consulted 15 January 2020]. Retrieved from: <https://www.bartleby.com/essay/Climate-Change-Is-An-Undeniable-And-Unavoidable-PKRU56Q3PTD5>

18 MUNTEAN, M., et al. Fossil CO<sub>2</sub> Emissions of all World Countries - 2018 Report [Online]. Luxembourg: Publications Office of the EU, 2018, pp. 1-6 [Consulted 15 February 2020]. ISBN 978-92-79-97240-9. Retrieved from: <https://ec.europa.eu/jrc/en/publication/fossil-co2-emissions-all-world-countries-2018-report>

19 SMIL, loc. cit., footnote 2, pp. 1-4, 382.

20 BEST, loc. cit., footnote 7; RIPPLE W. J. et al. and 15,364 scientist signatories from 184 countries. World Scientists' Warning to Humanity: A Second Notice. *BioScience* [Online]. Volume 67, Issue 12, December 2017, pp. 1026-1028 [Consulted 23 January 2020]. Retrieved from: <https://doi.org/10.1093/biosci/bix125>

compelling enough regarding the seriousness of the problem and the importance of the global warming or its preventive measures. Besides, their message was quickly overshadowed by higher interests that wanted this information to remain in the background.<sup>21</sup> Unlike the past decades, researchers today have huge informational indexes that permit them to all the more indisputably evaluate the rising danger of climatic risks that will have significant ramifications for humans, not to mention the unprecedented expansion of mass communication channels. Therefore, each time there is a considerable research leap forward, scientists believe that society will tune in and make a move.

However, up until this point, this has not been the situation because political conduct doesn't just move in tune with science. This time can be crucial, so both researchers and policymakers should think and work together. New data displays an open door for scientists to put forth the act for deep emissions cuts in a way that is both politically enticing and grounded in robust science.<sup>22</sup>

In those lines, the University of Rochester-led research team found evidence<sup>23</sup> that natural sources of methane emissions, such as the ocean bed and mud volcanoes, are responsible for a smaller share of the GHGs in the atmosphere than previously thought. This suggests that emissions caused by fossil fuels and the harm they produce have been highly underestimated, by 25 to 40 %, which in turn falls back again on human activity.

On the positive side, the civil society, especially the youth, NGOs and even the religious leaders are putting increased pressure on the governments to act. New environmental movements have pushed tackling emissions back up the political agenda. Swedish activist Greta Thunberg (Figure 1) gained international attention in 2018 when she decided not to attend school in protest at what she felt was inadequate climate policy. This spawned a wave of "school strikes", and organisations like Fridays for Future and Extinction Rebellion, with an estimated one million students striking across 110 countries. The "Go Fossil Free Campaign" has taken off at universities and other institutions since 2011, with more than 1,000 institutions committing to divest from fossil fuels.<sup>24</sup> The Catholic Church also stated that we must make an effort to rethink how a changing climate will affect "human welfare and humanity's relationship to creation", as it was brought into focus by Pope Francis in 2015.<sup>25</sup> A more inclusive social approach is, therefore needed.



Figure 1: Greta Thunberg protesting in Stockholm, Sweden, in 2019. Source: BBC Briefing, loc. cit., footnote 24.

## 1.2. A Grey Future?

Experts warn that without urgent action, "global warming is likely to exceed 2°C above pre-industrial levels by 2060 and could even be as much as 5°C by the end of the century". According to some, we have already crossed the point of no return.<sup>26</sup> But there is no easy way about it. Taking out all the dangers of environmental change is incomprehensible because CO<sub>2</sub> emissions, the human contribution to an unnatural weather change, are unlike "traditional" air pollutants, which remain in the air for just hours

21 Such as oil companies and oil-dependent states, the U.S. for example as the world's largest oil producer.

22 RAMANATHAN, V., et al. Climate Extremes and Global Health: New Ways to Make Progress. *Foreign Affairs* [Online]. 13 July 2018 [Consulted 3 December 2019]. Retrieved from: <https://www.foreignaffairs.com/articles/2018-07-31/climate-extremes-and-global-health>

23 HMIEL, B. et al. Pre-industrial CH<sub>4</sub> Indicates Greater Anthropogenic Fossil CH<sub>4</sub> Emissions. *Nature* [Online]. 20 February 2020, vol. 578, no. 7795, pp. 409-412 [Consulted 21 February 2020]. Retrieved from: <https://doi.org/10.1038/s41586-020-1991-8>.

24 BBC Briefing: Energy. BBC [Online]. 9 December 2019, p. 187 [Consulted 2 June 2020]. Retrieved from: <https://news.files.bbc.co.uk/include/newsspec/pdfs/bbc-briefing-energy-newsspec-25305-v1.pdf>

25 CATHOLIC CHURCH. On Care for our Common Home: The Encyclical of Pope Francis on the Environment. *Laudato Si* [Online]. McDonagh, S. The Vatican, 24 May 2015 [Consulted 23 January 2020]. Retrieved from: [http://www.vatican.va/content/francesco/es/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://www.vatican.va/content/francesco/es/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html)

26 ASSOCIATED PRESS. UN chief warns of 'point of no return' on climate change. *Politico* [Online]. December 1st, 2019 [Consulted 3 December 2019]. Retrieved from: <https://www.politico.com/news/2019/12/01/climate-change-point-no-return-074610>

or days. When carbon dioxide enters the environment, most of it stays for hundreds of years, unable to be quickly reduced. This situation has been compared to a bathtub<sup>27</sup> with the taps on, in order to keep it from overflowing you can either turn off the taps (the emissions) or to drain an equal amount down the plug (removals of emissions from the atmosphere, including storage for the emissions such as “carbon sinks” – for example, forests).

Holding a dangerous atmospheric deviation “stable” at its present rate would require an estimated overall 60-80% cut in emissions, and even so, it would take a very long time for the level of CO<sub>2</sub> to settle back to “normal”.<sup>28</sup> In that direction, new research demonstrates that net-zero cuts won’t be sufficient. It will likewise be essential to eliminate the considerable amount of CO<sub>2</sub> that is now in the air. Keeping away from contaminants would help lessen warming in the far-off future but reducing the existing CO<sub>2</sub> deposits from the atmosphere would have an increasingly quicker impact. Promising new technologies are being developed towards this goal. In any case, it is one thing to plug fanciful code into atmosphere models that show the issue can be tackled; it is another to test and construct these advancements at a workable scale.<sup>29</sup> There is hope, though, in this new era where all nations are pushing for digitalisation, technological advance and the implementation of 5G.

All in all, the primary objective of environmental change researchers stays unaltered: deep cuts of greenhouse gasses. These cuts will require testing and implementing new advancements – for instance, plans to catch and store GHGs and implement frameworks for improved renewable energy inflows to the electrification grid. Nuclear power may likewise play a role in making the energy mix cleaner. However, it has to conquer unfavourable opposition among numerous publics.

“There is a dangerously high probability that the world will fail in the face of the challenge of climate change, but not because it is technically impossible or prohibitively expensive,” but because governments, industry, and consumers do not act as it is necessary. A decarbonised economy is certainly possible technically and economically, but it will not be achieved without sound policies supported by responsible businesses and consumers,” as argued by the chairman of the Energy Transition Commission, Adair Turner. In his view, there is a “real danger that short-termism and the selfish interests of politics and business will prevent the 1.5-2 degrees target from being met”.<sup>30</sup>

We should note here that, even with the best efforts considered, the two-degree target continues to maintain a hold over global efforts to address climate change, though virtually all sober analyses conclude that the objective is now unreachable. Some activists still insist that with sufficient political will, the target can be achieved. Others admit that although the goal is practically impossible, it represents an aspiration that has the potential to motivate the world to reduce emissions further and faster than it would otherwise. For still others, the target remains within reach if everyone gets serious about removing carbon from the atmosphere or “hacking the atmosphere” to buy more time.<sup>31</sup> In the end, 2° of warming is still an arbitrary level, and there is no guarantee of the exact effects of temperature change. But we have seen that there is a considerable difference between two degrees of warming and two or more degrees.<sup>32</sup>

Therefore, it is worth considering the consequences of continuing to pursue a goal that is not likely obtainable. Some significant level of future climate impact is probably unavoidable. By sustaining the

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27 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS. *Energía y geostrategia 2019* [Online]. Comité español del Consejo Mundial de la energía, Club español de la energía. ARANZADI, C., et al. eds., Madrid, 2019, p. 32 [Consulted 22 February 2020]. ISBN 978-84-9091-414-4. Retrieved from: [http://www.ieee.es/Galerias/fichero/cuadernos/Energia\\_y\\_geostrategia2019.pdf](http://www.ieee.es/Galerias/fichero/cuadernos/Energia_y_geostrategia2019.pdf)

28 IPCC. op. cit., footnote 1, p. 265.

29 RAMANATHAN, loc. cit., footnote 22.

30 PALOP, J. ¿Cómo Descarbonizar La Economía Mundial?. *Esglobal* [Online]. 9 January 2020 [Consulted 10 January 2020]. Retrieved from: <https://www.esglobal.org/como-descarbonizar-la-economia-mundial/>

31 NORDHAUS, T. The Two-Degree Delusion: The Dangers of an Unrealistic Climate Change Target. *Foreign Affairs* [Online]. 8 February, 2018 [Consulted 9 February 2020]. Retrieved from: <https://www.foreignaffairs.com/articles/world/2018-02-08/two-degree-delusion>

32 IPCC. op. cit., footnote 1, p. 282.

belief that the two-degree target remains achievable, there is the risk of leaving the world ill-prepared to adapt to or manage the grey consequences.<sup>33</sup>

## 2. According to the Policy Makers and International Organisations

We have understood by now that stopping climate change is the main medium-term challenge facing the international community. The WEF's 2020 Global Risk Report states that: "Weak international agreements belie rising investor and popular pressure for action, against a backdrop of a multitude of natural catastrophes and indicators of longer-term disruptions".<sup>34</sup>

It is clear that dealing with climate change is a capital objective that requires a generalised effort in all political and social spheres, including an important role for economic policy. The problem to be solved here is to determine and carry out the most economically efficient and politically viable procedures to reduce emissions. The alternatives affect all areas of economic policy in which it is necessary to cooperate including all systems: fiscal, financial, monetary, labour or consumer sectors, but mainly energy. The first step was determining how much emissions reduction is needed and where is the highest concentration, and the science of climate change has already tackled it as best as it could for now.<sup>35</sup>

Many leaders, however, do not want to bear the short-term economic cost of starting the ecological transition by taking away fossil fuel subsidies or closing mines. This happens because they think more about their electoral survival than about the environment (and the pressure and economic support of certain lobby groups). The lack of consensus between countries also hampers the process, as no one wants to start the ecological transition alone because of the risk of losing economic competitiveness in the short term. Besides, there is the issue of a great historical divide between industrialised and developing countries. The former demand the other commitment and transparency, while the recent calls on the rich and more significant pollutants to set an example and set the portfolio.<sup>36</sup>

In this regard, it is said that "the energy debate has been too ideological for too long".<sup>37</sup> Only a few have started assuming the leadership role in this struggle: a total of 17 states and the EU are already officially pursuing the goal of fully decarbonising their economies by 2050 or earlier. Among them are the Scandinavians, France, United Kingdom, Spain, Germany, Chile, Uruguay, and Costa Rica. But today only two are carbon neutral: Bhutan and Suriname, because of their vast forest masses. Also, a score of major cities – such as Barcelona, New York, Paris, Los Angeles, London, or Stockholm – have made similar announcements.<sup>38</sup>

While some are making the change for good, we have to consider that it's not too effective globally if they are not big contributors or if others don't follow suit. Thus, an important step in the problem is to identify where the most significant emissions are generated, to be able to design policies that drive change. In this regard, two main dimensions are of interest: by geographical area and by sector of activity. The geographic challenge is global: the reduction of emissions is an international public good a notion that we will explain next – whereas we know that the energy sector is the most contaminating. Global Public goods<sup>39</sup> are goods whose impacts are indivisibly spread around the entire globe. Public goods do not represent a new phenomenon. But they are becoming more critical in today's world because of rapid technological change and the astounding decline in transportation and communication costs. The quick spread of COVID-19 is

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33 NORDHAUS, loc. cit., footnote 31.

34 WORLD ECONOMIC FORUM, op. cit., footnote 6, pp. 4-5.

35 IPCC, loc. cit., footnote 1.

36 BEST, loc. cit., footnote 7.

37 ROSE, op. cit., footnote 3, p. 172.

38 MUNTEAN, op. cit., footnote 18, pp. 20-27.

39 NORDHAUS, W. The Climate Club: How to Fix a Failing Global Effort. Foreign Affairs [Online]. May/June 2020 [Consulted 1 May 2020]. Retrieved from: <https://www.foreignaffairs.com/articles/united-states/2020-04-10/climate-club>

a “grim reminder of how global forces respect no boundaries and of the perils of ignoring global problems until they threaten to overwhelm countries that refuse to prepare and cooperate”.<sup>40</sup>

In theory, the provision should be global, but in the absence of a leader or an international mechanism to allow it, the best substitute is the international coordination effort provided for the time being by the United Nations Framework Convention on Climate Change (UNFCCC)<sup>41</sup> – a negotiating process aimed at getting countries to commit to reducing their emissions of heat-trapping GHGs, based on Nationally Determined Contributions (NDCs)<sup>42</sup> and peer-to-peer persuasion, but with the possibility of moving to sanctioning mechanisms through international economic relations. We will discuss the pros and cons of these interventions in the next subchapter.

Lastly, it is important to underline that the policy must be linked with creating markets and demand for clean energy around the world and decrease its costs. Even smart and well-informed policymakers are bound to make mistakes, and the interests of one’s country will sometimes conflict with the others. However, one must be on guard for the perils of inaction-inefficiency in policy and financing regarding climate change can lead to disappointment and more inaction.<sup>43</sup> Overall, there needs to be “broader participation and stronger coordination across different stakeholders and government institutions involved in the energy scenario building and energy planning process. This should also contribute to setting long-term strategies that consider both energy and climate needs”.<sup>44</sup>

## 2.1. The Lost Decades: From Rio to Paris

In September 1987, delegates of 24 countries met in Montreal and achieved a great accomplishment in international politics: a successful environmental pact. The Montreal Protocol on Substances that Deplete the Ozone Layer, which UN Secretary-General Kofi Annan later called “perhaps the single most successful international agreement to date,” set the ambitious goal of eliminating Chlorofluorocarbons (CFCs) and other dangerous chemicals. It was indeed a success: by 1996, developed countries had stopped their production and consumption of CFCs, and by 2006, the 191 countries that had ratified the Protocol had eliminated 95% of global ozone-depleting emissions.<sup>45</sup>

This shows clearly that it is possible to come together at a global scale and combat negative effect on the environment, and the same can be said about the current COVID -19 pandemic which has mobilised the whole world to an unprecedented scale. Unfortunately, this success is not even close to what is needed when it comes to the world’s greatest collective challenge: stopping climate change. In this chapter, we argue that the past 30 years were lost in spite of the fact that national governments led by the UN have tried to combat the planetary heating and the rise of the oceans levels by sharing the blame and attempting to distribute the financial burden.<sup>46</sup> The forum for their efforts, the UNFCCC, has failed because of several reasons like disagreements between the advanced nations and the so-called Global South, difficulties of credibly measuring, reporting, and verifying emissions, and the power of interests in the fossil fuel sector.<sup>47</sup>

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40 An Earth Day in the life of a plague: Covid-19 and the climate. *The Economist* [Online]. 25 April 2020, Retrieved from: <https://www.economist.com/leaders/2020/04/25/covid-19-and-the-climate>

41 About the Secretariat [Online]. UNFCCC, 2019 [Consulted 1 December 2019]. Retrieved from: <https://unfccc.int/about-us/about-the-secretariat>

42 IRENA. NDCs in 2020: Advancing Renewables in the Power Sector and Beyond [Online]. Abu Dhabi: IRENA, December 2019 [Consulted 25 January 2020]. ISBN 978-92-9260-168-3. Retrieved from: <https://www.irena.org/publications/2019/Dec/NDCs-in-2020>

43 ROSE, op. cit., footnote 3, pp. 156-166.

44 IRENA. Global Renewables Outlook: Energy Transformation, 2050 [Online]. Abu Dhabi, April 2020 [Consulted 30 April 2020]. ISBN 978-92-9260-238-3. Retrieved from: <https://www.irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020>

45 A Montreal Protocol on Substances that Deplete the Ozone Layer [Online]. United Nations Treaty Collection, 16 September 1987 [Consulted 4 March 2019]. Retrieved from: [https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg\\_no=XXVII-2-a&chapter=27&clang=en](https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-2-a&chapter=27&clang=en)

46 “About...”, loc. cit., footnote 41.

47 ROSE, op. cit., footnote 3, p. 189.

Within the international framework, in 1992, the actors aware of the global nature of the problem – that CO<sub>2</sub> and other GHG emissions build up in the atmosphere regardless of their origin – participated in the Earth Summit, held in Río de Janeiro, and approval was given to the UNFCCC<sup>48</sup> to take measures to limit the emissions of such gases. Although that first Convention did not involve getting the signatories to accept any specific commitments, they reached an agreement that the signatory countries would hold periodical meetings to elaborate upon their predictions (known as Conference of the Parties or COPs). The most recent of these, COP25, took place between 2nd and 13th December in Madrid, Spain.<sup>49</sup> However, the two most important agreements so far were the ones that we will describe below, namely Kyoto and Paris.

In 1997, several countries – including the US with Bill Clinton and Al Gore heading the Government – signed a Protocol<sup>50</sup> in the Japanese city of Kyoto, under the UNFCCC. Hereinafter, the industrialised countries and the Eastern European countries were required to reduce their emissions of those gases between 2008-2012 to below the 1990 levels.

The US played an active role in the negotiations of Kyoto, encouraging a “flexibility mechanism” that made the CO<sub>2</sub> emissions rights negotiable and transferrable. One country could, therefore, exceed the allocated emission limit if it purchased from another country’s CO<sub>2</sub> emission rights.<sup>51</sup> The idea, which initially received a hostile reception and criticism, was eventually accepted and the EU itself adopted it to ration CO<sub>2</sub> emissions, as we shall see further on.

At Kyoto, every industrialised or developing country or group of countries was allocated a specific reduction percentage (for the EU, 8% for the US 7%, for Russia and Ukraine, 0%, etc.). However, the developing countries (China, India, Indonesia, Brazil, etc.) did not accept any quantitative commitment at all, because they argued that taking as a reference the emissions of each country in 1990, favoured the industrialised countries.<sup>52</sup> The negotiations for that Treaty and its subsequent implementation – which did not bind emerging countries such as China and India and was not even ratified by the US – revealed the severe difficulties involved in achieving a valid agreement on a world scale to reduce global GHG emissions. There were various obstacles that are to be noted here, as identified by IEEE.<sup>53</sup>

Firstly, scientists and pressure groups from certain countries – notably, the US, after the republican victory – cast new light on the harmful global effects of climate change. They were confident that future technological breakthroughs could render it unnecessary to take immediate and drastic measures to cut down emissions.

Secondly, the so-called Global South (for example China and India), stressed that the cumulative CO<sub>2</sub> in the atmosphere up until that time had been emitted by the industrialised countries, which meant it was unfair to make the emerging countries give up their economic development to prevent the global build-up of gases from exceeding certain limits. All the more so when the emission level per inhabitant was still exceptionally high in the US, the EU and other major industrial countries.

Russia did not share the general opinions and hoped it could sell emission rights to other countries (“hot air” as critics called it).<sup>54</sup> However, it had a high level of emissions in 1990, and it found itself in a severe economic and industrial crisis that affected it after the demise of the Soviet Union. Nevertheless, the renewed prospects of economic growth, the fact that the restrictions did not bound China, the US’ withdrawal from the Protocol and President Putin’s coming to power, all served to modify the Russian

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48 NORDHAUS, loc. cit., footnote 39.

49 COP25 [Online]. 13 December 2019 [Consulted 7 January 2020]. Retrieved from: <https://unfccc.int/cop25>

50 UNITED NATIONS. Kyoto Protocol to the United Nations Framework Convention on Climate Change [online]. 1998 [Consulted 20 December 2020]. Retrieved from: <https://unfccc.int/resource/docs/convkp/kpeng.pdf>

51 ROSE, op. cit., footnote 3, pp. 71-76.

52 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS, op. cit., footnote 27, pp. 62-67.

53 Ibid.

54 ROSE, op. cit., footnote 3, p. 83.

Authorities' viewpoint radically. They began to argue that the Protocol was harmful to Russia, erecting barriers that were incompatible with the country's growth.

Because it was voluntary, the US and Canada withdrew without consequences, and no new countries signed on. As a result, there was a sharp reduction in its coverage of emissions and an overall failure.<sup>55</sup> Despite the reduced practical success of the Kyoto Protocol and the problems raised by the major players in limiting global emissions between 2008 and 2012, there was still an expectation for developing countries to substantially modify their growth rate, even if they did not reduce their emissions. But even the US flatly refused and, to cap it all, the negotiations for a new and binding Protocol proved to be unfeasible.<sup>56</sup> The world financial crisis that shook the world after the bankruptcy of Lehman Brothers in September 2008 distracted from the Governments' and citizens' interest in a distant problem like global warming, much like it is happening today with the COVID-19. The next Copenhagen Summit of 2009 failed to achieve a new agreement<sup>57</sup> to replace the Kyoto Protocol. However, it did lay the foundations for the limited agreements that were reached in December 2015 in Paris<sup>58</sup> at COP21, which we will discuss next.

The conclusion is that climate policy has not progressed much over the last three decades. The negative effects of climate change are much better understood, but globally most countries have not adopted effective policies to slow the predicted effects, and these effects are clearly visible nowadays with the temperature rise and the extreme climatic events. In reality, climate change is now a permanent condition of the human present and future, one that we will eventually manage more or less successfully but that we might never solve and most surely not as fast as we would like to.

## 2.2. Ambitious Goals? The Paris Agreement and the 2030 Agenda

In December 2015, with the US under the administration of Barack Obama, the COP21 achieved in Paris an Agreement that, albeit non-binding, put an end to the previously discussed "negationist" views of those who doubted the existence of an anthropogenic climate change, and that to pursue a policy of "business as usual" would predictably lead to mean temperature rise on the planet of over 4°C by the end of the century, whose consequences could be catastrophic. In brief, the main features of the Paris Agreement were:<sup>59</sup>

- Setting a limit of 2°C on the mean temperature rise of the Earth by the end of this century but try to ensure that it did not exceed 1.5°C, given that the effects of climate change are unforeseeable and not linear.
- It was signed by nearly every country (195 signatories) in the world and removed the old distinction<sup>60</sup> between industrialised and emerging countries.
- All the countries that signed undertook to create their own Intended Nationally Determined Contributions (INDCs).<sup>61</sup> Once each country voluntarily establishes them, its fulfilment will be subject to international verification.
- The INDCs will be measured every five years, and the following rules apply to all countries: the same methodology, the extent to which the national targets have been achieved and their sufficiency for making the global target set.

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55 NORDHAUS, "The Climate Club...", loc. cit., footnote 39.

56 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS, op. cit., footnote 27, pp. 62-67.

57 Copenhagen Climate Change Conference [Online]. 18 December 2009 [Consulted 17 January 2020]. Retrieved from: <https://unfccc.int/process-and-meetings/conferences/past-conferences/copenhagen-climate-change-conference-december-2009/copenhagen-climate-change-conference-december-2009>

58 "Paris Agreement", loc. cit., footnote 17.

59 Ibid.; INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, pp. 62-67.

60 BEST, loc. cit., footnote 7; UNITED NATIONS, loc. cit., footnote 50.

61 Paris Agreement, op. cit., footnote 17, Article 4, paragraph 2.

- A “Green Climate Fund” will be provided with a minimum of 100,000 million dollars to help developing countries to develop climate change adaptation and mitigation policies.

Many observers regarded the 2015 Paris agreement as a “turning point” – the moment when the international community finally reached a consensus on how to address the challenge of global warming. But the Trump administration’s decision to back out from the accord, and its attempt to reverse Obama administration climate policies in general, has put the matter back in play.<sup>62</sup>

The signatories of the Paris Agreement<sup>63</sup> – one hundred ninety-five countries, of which 187 have already ratified it – made their pledges, aware that it meant advancing, sooner or later, depending on each case, towards “net zero”<sup>64</sup> emissions. However, the text does not set specific emission reduction targets for states but is based on each country voluntarily taking responsibility and determining its objectives and timetable to meet the overall commitment. Each nation departs with one’s “backpack”<sup>65</sup> different historical levels of pollution, different environmental footprints, different levels of development, various economic and financial capacities.

According to this criterion, the most significant pollutants – China, the US, or the EU – should net-zero their emissions by 2050 and their contribution is decisive because they have the technical and economic capabilities to do so and because they should exercise their role as an exemplary leader. Only the EU has taken action in this direction, which will be analysed in this thesis. But the path for the coming decades is unclear. The practical realisation of a concept called “common but differentiated responsibilities”<sup>66</sup> has been one of the primary sources of friction between industrialised and developing countries for decades, as we have already seen in the previous subchapters.

Overall, both the Kyoto and the Paris mechanisms were flawed because of a concept called “free-riding” explained by the Nobel Prize Award Economist William Nordhaus: “The reason is free-riding, spurred by the tendency for countries to pursue their national interests. Free-riding occurs when a party receives the benefits of a public good without contributing to the costs. In the case of international climate change policy, countries have an incentive to rely on the emission reductions of others without making costly domestic reductions themselves”.<sup>67</sup>

The next figure showcases in a very clear manner, the little to no progress achieved over the years, along with the exacerbated growth of the GHG emissions and the temperature increase.

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62 ROSE, *op. cit.*, footnote 3, p. 7.

63 Paris Agreement, *loc. cit.*, footnote 17.

64 “Net-zero” refers to achieving an overall balance between emissions produced and emissions taken out of the atmosphere; ENERGY AND CLIMATE INTELLIGENCE UNIT. Progress towards delivering net zero emissions by 2050 [Online]. June 2019, p. 7 [Consulted 2 May 2020]. Retrieved from: [https://ca1-eci.edcdn.com/reports/ECIU\\_Countdown\\_to\\_Net\\_Zero.pdf](https://ca1-eci.edcdn.com/reports/ECIU_Countdown_to_Net_Zero.pdf)

65 NORDHAUS, “The Climate Club...”, *loc. cit.*, footnote 39.

66 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, *op. cit.*, footnote 27, p. 186.

67 NORDHAUS, “The Climate Club...”, *loc. cit.*, footnote 39.

→ Changes, fast and slow, in the climate and its politics

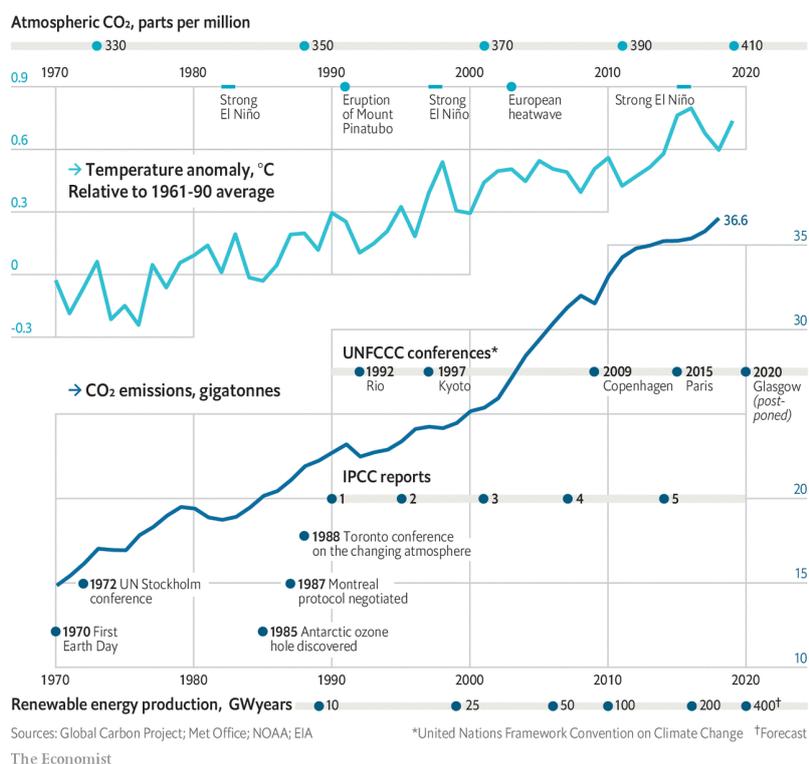


Figure 2: Evolution of Climate Change and its Politics. Source: Global Warming 101, loc. cit., footnote 133.

Moreover, it is foreseen that additional steps will be required, and what better hope do we have other than digitalisation? At the WEF Davos 2020, it was spoken of “Globalisation 4.0”,<sup>68</sup> which alludes to the facilitation and promotion of digital technologies that could provide a way to mitigate the increase in GHG emissions in the energy sector. It’s very true that the scientific advances already being developed or planned, but much more is expected to make progress that will allow both the improvement of global energy efficiency and the reduction of CO<sub>2</sub> emissions for each unit of energy produced.<sup>69</sup> The COVID-19 crisis has also accelerated the digitalisation process as many people have been forced to work remotely, and companies had to innovate on a bigger scale.

All being said, there are serious doubts about the effectiveness of the Paris Agreement in limiting global warming, because the emissions reduction commitments offered by the signatory countries of the agreement are not legally binding,<sup>70</sup> nor are there specific measures to ensure compliance, and because the US, before an advocate in favour, withdrew from the deal.<sup>71</sup> In other words, the accord has two major structural defects: it is uncoordinated, and it is voluntary. It is uncoordinated in the sense that its policies if undertaken, would not limit climate change to the target of two degrees. And it is voluntary because there are no penalties if countries withdraw or fail to meet their commitments.<sup>72</sup>

### The 2030 Agenda

Additional to the Paris Agreement, representing a practical plan to implement change, in September 2015, 193 countries, both developed and developing, gave the ambitious approval to Agenda 2030, with 17 Sustainable Development Goals (SDGs) and 169 targets. This agenda builds on the previous Millennium

68 WORLD ECONOMIC FORUM. Globalisation 4.0 [Online]. December 21st, 2020 [Consulted 17 January 2020]. Retrieved from: <https://www.weforum.org/focus/globalisation-4-0>

69 ROSE, op. cit., footnote 3, p. 81.

70 “Paris Agreement”, loc. cit., footnote 17.

71 ROSE, op. cit., footnote 3, p. 276.

72 NORDHAUS, “The Climate Club...”, loc. cit., footnote 39.

Development Goals<sup>73</sup>, aiming to build on the achievements and take the work further. In a nutshell, the goals seek to “realise the human rights of all and to achieve gender equality and the empowerment of all women and girls”. They are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social and environmental.<sup>74</sup> It is clear that this project will have further-reaching positive impacts than all the previous actions.

In this context, related to our investigation, we can point out that concerns of environmental sustainability have also heightened interest in access to energy because modern, clean energy is less contaminating for the environment than traditional energy (e.g. solar) and thus the best way to avoid generating new GHG emissions. Agenda 2030 has established a new level of political recognition for energy’s central role in development.<sup>75</sup> Mass migration also caused by climate change has created a new dynamic with regard to the discussions on SDGs, among which there is one specifically aimed at providing “universal access to modern, sustainable, reliable, and affordable energy” (SDG 7), which requires the proportion of renewable energy in the global mix to be increased. Energy also affects other SDGs, namely SDGs 3, 11, 12, and 13.<sup>76</sup>

At present, countries are encouraged to be increasingly ambitious in their pledges to adopt renewable energy and cut related CO<sub>2</sub> emissions. The rounds of NDCs pledged under the Paris Agreement<sup>77</sup> have so far proven insufficient to meet climate goals, and not many hopes are in view for the Glasgow COP-26 – now postponed from 2020 to 2021 due to COVID-19 – where signatories have to scale up their commitments. We also have to note that this postponement does not change the deadlines to submit the NDCs or the need to combat climate change, on the contrary.<sup>78</sup>

### 2.3. The EU’s Response

Despite the failures of the international treaties and the lost decades, the EU continued to advocate that all the industrialised countries should accept the emission reduction percentages required to stabilise the CO<sub>2</sub> level in the atmosphere and set out the roadmaps for a horizon of 2030 and 2050, with the clear intention of assuming the leadership in this movement, especially after the US Administration backed out from the Paris Agreement. On 28 November 2019, the European Parliament declared a climate emergency in Europe and globally. Members of the European Parliament (MEPs) have asked for all relevant EU legislative and budgetary proposals to be fully aligned with the objective of limiting global warming to under 1.5 °C.<sup>79</sup>

The EU was the first developed economy to implement a comprehensive system of carbon pricing with the EU emissions trading system (ETS) in 2005. Combined with renewable and energy efficiency targets, the EU’s energy sector emissions have decreased significantly over the past decades. We can see from the information on its website<sup>80</sup> that it has already exceeded its 2020 target of reducing emissions by 20% and is on track to meet its 2030 targets – as per its commitments to the Paris Agreement – of reaching at least 40% cuts in emissions. In industrial sectors, emissions have likewise been decreasing – although lower emission levels following the economic slowdown between 2008 and 2015 are largely responsible for

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73 Millennium Development Goals and Beyond 2015. [Online]. United Nations, 2015 [Consulted 20 March 2020]. Retrieved from: <https://www.un.org/millenniumgoals/>

74 Transforming our world: the 2030 Agenda for Sustainable Development [Online]. United Nations Sustainable Development Goals Knowledge Platform, 2020 [Consulted 13 March 2020]. Retrieved from: <https://sustainabledevelopment.un.org/post2015/transformingourworld>

75 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 201.

76 “Transforming...”, loc. cit., footnote 74.

77 MUNTEAN, op. cit., footnote 18, pp. 20-27.

78 VICTOR, D. G. The Pandemic Won’t Save the Climate: Don’t Expect the Clear Skies to Last. Foreign Affairs [Online]. 7 May 2020 [Cited 15 May 2020]. Retrieved from: <https://www.foreignaffairs.com/articles/2020-05-07/pandemic-wont-save-climate>

79 EUROPEAN PARLIAMENT. Resolution on the climate and environment emergency (2019/2930(RSP)) [Online]. Strasbourg, 28 November 2019 [Consulted 11 June 2020]. Retrieved from: [https://www.europarl.europa.eu/doceo/document/TA-9-2019-0078\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2019-0078_EN.html)

80 EU climate action and the European Green Deal [Online]. European Commission, 2020 [Consulted 10 March 2020]. Retrieved from: [https://ec.europa.eu/clima/policies/eu-climate-action\\_en](https://ec.europa.eu/clima/policies/eu-climate-action_en)

this.<sup>81</sup> With the return of economic growth, GHG emissions moved up again. Reducing these emissions, as well as those in the construction and transport sectors, is considered by the EU as the main challenge from the 2020s onwards.

Furthermore, the Energy Union, as part of the Clean Energy Package along with revised directives on energy efficiency and renewable energy, is the key action that makes this challenge possible, with its decarbonisation, renewable energy and energy efficiency objectives.<sup>82</sup>

**Table 1: The evolution of the EU's climate ambitions. Source: "Climate Change..." loc. cit., footnote 83.**

The 2020 goals	The 2030 goals	EU's long-term strategy (2050)
<ul style="list-style-type: none"> <li>Reducing GHG emissions by 20% (compared to 1990)</li> <li>Increasing the share of renewable energy to 20%</li> <li>Making a 20% improvement in energy efficiency</li> <li>ETS reformed</li> </ul>	<ul style="list-style-type: none"> <li>Cutting GHG emissions by at least 40% by 2030, compared to 1990</li> <li>ETS reformed</li> </ul>	<ul style="list-style-type: none"> <li>Achieving a climate-neutral (net zero) EU by 2050</li> <li>European Green Deal</li> <li>European Climate Law</li> <li>European Climate Pact</li> </ul>

To achieve the 2020 goals, the EU has developed, and later reformed, the EU ETS which aims to cut down GHG emissions in particular from energy-intensive industries and power plants. In the buildings, transport and agriculture sectors, national emission targets have been set, as part of the effort sharing regulation. The EU is already ahead of these targets, as mentioned before. By 2018, GHG emissions had been reduced by 23%, that is 3% points above the initial 20% target.<sup>83</sup>

In 2014, the 2030 Climate and Energy Framework was agreed with an even more ambitious set of targets for the period 2021-2030. The framework contains policies and goals to make the EU's economy and energy system more competitive, secure and sustainable. It also reformed the ETS, adopted monitoring and reporting rules and stated the need for national climate and energy plans (NECPs) and long-term strategies.<sup>84</sup>

In December 2019, EU leaders endorsed the objective of achieving a climate-neutral EU by 2050. Poland did not commit at that stage to implement this objective, and the European Council will discuss the matter again in June 2020. EU leaders also asked the Council to take forward the work on the European Green Deal.<sup>85</sup>

The European Green Deal is a set of actions and measures, a "roadmap" which includes the first-ever "climate law" proposed in March 2020 and seeks to reaffirm the EC's ambition to make Europe the first climate-neutral continent by 2050. In addition, the European Climate Pact will encourage broad societal engagement on climate and environment and is due to be launched in quarter four of this year.<sup>86</sup> Both the European Parliament and the European Council have endorsed this long-term EU climate-neutrality

81 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS, op. cit., footnote 27, p. 199.

82 Energy Union [Online]. European Commission, 2020 [Consulted 26 February 2020]. Retrieved from: [https://ec.europa.eu/energy/topics/energy-strategy/energy-union\\_en](https://ec.europa.eu/energy/topics/energy-strategy/energy-union_en)

83 Climate change: what the EU is doing [Online]. European Council and Council of the European Union, 2020 [Consulted 10 March 2020]. Retrieved from: <https://www.consilium.europa.eu/en/policies/climate-change/>

84 Europe leads the way in the fight against climate change and Ebola [Online]. European Council, 23-24 October 2014 [Consulted 10 March 2020]. Retrieved from: <https://www.consilium.europa.eu/en/meetings/european-council/2014/10/23-24/>

85 Climate change: Council adopts EU long-term strategy for submission to the UNFCCC [Online]. Council of the EU, 2020 [Consulted 10 March 2020]. Retrieved from: <https://www.consilium.europa.eu/en/press/press-releases/2020/03/05/climate-change-council-adopts-eu-long-term-strategy-for-submission-to-the-unfccc/>; EUROPEAN COMMISSION, loc. cit., footnote 80.

86 EUROPEAN COMMISSION. El Pacto Verde Europeo [Online]. Brussels, 11 December 2019 [Consulted 15 February 2020] Retrieved from: <https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:52019DC0640>

objective. Under the new proposal for regulation announced in March 2020, article 2 sets the EU 2050 climate-neutrality objective, in line with the Paris Agreement – covering all sectors and all GHGs, not only CO<sub>2</sub> – to be achieved domestically within the Union. It recognises that while GHG emissions should be avoided at source as a priority, removals of GHGs will be needed to compensate for remaining GHG from sectors where decarbonisation is the most challenging. The Article also requires the European Parliament, the Council and the Commission as well as the Member States to take the necessary measures both at Union and national level to enable the collective achievement of this objective. Measures at Union level will constitute an important part of the actions needed to achieve the objective.<sup>87</sup>

In a nutshell, this law proposes the legally binding 2050 target in line with the Paris Agreement, and sets targets for the amount of carbon member states should reduce by 2030. From 2023 there would be audits by Brussels every five years on the progress member states towards the target. This objective is controversial because it is considered not ambitious enough for developed countries like EU member states, since, as we have seen, under the Paris Agreement, richer countries are expected to take the lead in decarbonising their economies. This means that the expectations are higher for the EU as well.

To name a few critics, the former EQUO euro deputy and observer of the Green Deal, Florent Marcellesi,<sup>88</sup> is more critical since its conception, and believes that the goals “are insufficient”. To comply with the Paris agreement “65% reduction in CO<sub>2</sub> emissions by 2030 would have to be reached,” up from the projected 55% high and “climate neutrality would have to arrive by 2040,” not a decade later, as the Brussels document proposes. Greenpeace<sup>89</sup> is on the same page, which also denounces that the objectives envisaged in the Pact are not alienated by what science demands and proposes a new target for 2030 in line with what the scientific community is denouncing. In addition, they bring us to the forefront the idea that we cannot bargain with nature.

At the outset, EU environmental law may not be perfect, and there is much to work on, but it has made important achievements in different environmental regards. These include measures to ensure that the environmental impact of projects and plans are properly assessed, that the public is informed and enabled to participate, minimum standards are observed in respect of air and water, that industry observes consistent standards to abate harmful emissions, that products are designed with their environmental implications in mind, that waste is prevented or beneficially used and disposed of in a responsible and environmentally sound manner, and that biodiversity is protected from environmentally damaging activities.<sup>90</sup> All this certainly represents a big step forward and a good example for all the other nations to follow.

To further strengthen this view, we should point out that the EU remains the world’s largest donor, especially for developing countries, providing significant financial and technical assistance in line with the countries’ goals of mitigation, adaptation and disaster risk management related to climate change, aiding the momentum of the green energy transition at the same time.<sup>91</sup>

The energy transition can drive broad socio-economic development, guided by comprehensive policies to foster the transformative decarbonisation of societies. This holistic approach would align energy decarbonisation with economic, environmental and social goals. The proposed European Green Deal

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87 EUROPEAN COMMISSION. Proposal for a Regulation of the European Parliament and of the Council Establishing the Framework for Achieving Climate Neutrality and Amending Regulation (EU) 2018/1999 (European Climate Law) [Online]. March 4<sup>th</sup>, 2020 [Consulted 5 March 2020]. Retrieved from: [https://ec.europa.eu/info/sites/info/files/commission-proposal-regulation-european-climate-law-march-2020\\_en.pdf](https://ec.europa.eu/info/sites/info/files/commission-proposal-regulation-european-climate-law-march-2020_en.pdf)

88 MARLASCA, C. Dudas ante el Green Deal Europeo. *Euronews* [Online]. 12 December 2019 [Consulted 22 April 2020]. Retrieved from: <https://es.euronews.com/2019/12/12/dudas-ante-el-green-deal-europeo>

89 GREENPEACE EUROPEAN UNIT. European Green Deal misses the mark [Online]. Greenpeace, 2019 [Consulted 22 April 2020]. Retrieved from: <https://www.greenpeace.org/eu-unit/issues/climate-energy/2517/european-green-deal-misses-the-mark/>

90 TROMANS, S. Brexit, Brexatom, the Environment and Future International Relations [Online]. Canada: Centre for International Governance Innovation, 17 January 2018, p.16 [Consulted 10 March 2020]. Retrieved from: <https://www.cigionline.org/publications/brexit-brexatom-environment-and-future-international-relations>

91 Europe remains the world’s biggest development donor – 74.4 billion in 2018 [Online]. European Commission, 2020 [Consulted 2 May 2020]. Retrieved from: [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_19\\_2075](https://ec.europa.eu/commission/presscorner/detail/en/IP_19_2075)

– including international support for clean energy – provides an example. Economic stimuli after the 2020 health crisis could move many societies in a similar direction.<sup>92</sup>

### 3. According to the Economists and the Private Sector

We have seen that the scientists are helping with technical research and solutions, NGO's and the public are advocating change, and governments need to provide the favourable legal and policy framework. But the actions will have to ultimately be undertaken by the private sector. It will take “profit-motivated, competitive multinational corporations” to implement the technologies required to stop CO<sub>2</sub> emissions on a large scale.<sup>93</sup> Individual countries contain a multitude of competing actors and interests, which complicate efforts to get them to alter their behaviour. But only corporations are able to effectively and efficiently channel high levels of human, technical, and fiscal resources toward targeted projects. Multinational Corporations (MNC's) have influential power regarding markets, trade, investment, research and development, and the propagation of technology.<sup>94</sup> In the climate change battle, it is imperative that the international community takes advantage of this power.

Therefore, it will be the private business sector that can actually achieve CO<sub>2</sub> reduction goals and the energy transition. In support of this affirmation we can give an example as earlier, the Montreal Convention<sup>95</sup> for the depletion of the ozone layer. In the 80's, most of the world's substances that affected the ozone layer were produced and consumed by a relatively small number of large corporations, so a clear solution was rapidly found: when those companies devised alternatives, much of the problem was successfully eliminated.<sup>96</sup>

It is therefore understood that businesses play a crucial role in the “green revolution”. Especially the big multinationals. According to the NGO Global Justice Now,<sup>97</sup> more than two-thirds of the 100 largest global economies are companies. Until now, at least 34 – the Energy and Climate Intelligence Unit<sup>98</sup> list – have committed to completely decarbonising their processes by 2050, such as Google, Microsoft, Siemens, Arcelor Mittal, Sony, Unilever, Ikea, and Maersk, etc., all of them giants in their respective sectors. Repsol<sup>99</sup> is the first major oil company in the world also to target climate neutrality.

The greatest economic policy challenge is how to identify the most efficient and viable ways to reduce emissions in all these sectors of the economy without destabilising it. This is supported by economists and energy experts with the simple fact that primary energy<sup>100</sup> consumption is closely linked to Gross Domestic Product (GDP) growth.<sup>101</sup> Also, given the substantial weight of fossil fuels in total primary energy (81% in 2017),<sup>102</sup> makes it closely correlated with CO<sub>2</sub> emissions, so improving energy efficiency has been described as crucial to reducing these emissions.<sup>103</sup>

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92 IRENA, “Global Renewables...”, op. cit., footnote 44, p. 53.

93 ROSE, op. cit., footnote 3, pp. 190-191.

94 Ibid.

95 A Montreal Protocol, loc. cit., footnote 45.

96 ROSE, op. cit., footnote 3, p. 191.

97 69 of the richest 100 entities on the planet are corporations, not governments, figures show [Online]. Global Justice Now, 2018 [Consulted 2 May 2020]. Retrieved from: <https://www.globaljustice.org.uk/news/2018/oct/17/69-richest-100-entities-planet-are-corporations-not-governments-figures-show>

98 ENERGY AND CLIMATE INTELLIGENCE UNIT, op. cit., footnote 64, pp. 1-14.

99 BBC SOUNDS, loc. cit., footnote 5.

100 Primary energy (PE) is an energy form as it is found in nature that has not undergone any human engineered conversion process.

101 SMIL, op. cit., footnote 2, p. 345.

102 IEA. Global Energy & CO<sub>2</sub> Status Report 2019, p. 17 [Online]. Paris: IEA, 2019 [Consulted 26 January 2020]. ISBN 978-92-64-32021-5. Retrieved from: <https://www.iea.org/reports/global-energy-and-co2-status-report-2019>

103 DIAZ, S., et al. Pervasive Human-Driven Decline of Life on Earth Points to the Need for Transformative Change. *Science* [Online]. 13 December 2019, vol. 366, no. 6471 [Consulted 15 December 2019]. Retrieved from: <https://science.sciencemag.org/content/366/6471/eaax3100>

All these aspects considered the current picture does not exactly lead to optimism. A study<sup>104</sup> by the WEF reports that countries' commitments are "dramatically inadequate" and that only a minority of large enterprises have taken the task of curbing their polluting emissions seriously. Moreover, it points out that investors are only allocating limited finances for the transition to the green economy and that the general public opinion – while the pressure on politics and the private sector is increasing – does not shift rapidly enough.

What most experts seem to agree on, though, is that technology has and will have an ever more important role to play in the future. For that, it is essential that countries should have an open innovation system in order to speed up the development and diffusion of clean-energy technologies within and also outside their borders. But even in an open system, energy technology tends to spread slowly, making openness alone insufficient, due to the fears regarding intellectual property rights and the perceived competition in what has been called the "clean energy race".<sup>105</sup> At the same time, developing countries need to become producers rather than just consumers of clean energy and associated technologies.<sup>106</sup>

Needless to say, that while certain fears are justified, a race is not the preferred approach because rather than competing against each other, in the long run, we will actually be forced to compete with the unforgiving climate. The success of one nation, in this case, does not imply the failure of the others, as we are all in this together, and no one can be left behind. The bottom line is that only by enlarging and opening clean energy markets and encouraging research and development can everyone benefit.

### 3.1. The Cost of Climate Change

In this section, we will briefly overview the socio-economic costs that climate change can bring. It is understood that the radical transformation of the global economic system will have significant consequences in everyday life. Workers, businesses, and countries most dependent on polluting technologies, such as mining and oil companies, will suffer. Some sectors, such as the automobile one, will need to reinvent itself from top to bottom. Other manufacturers will succumb along the way. And many workers won't be able to convert and reorient their specialisations. Hence, since the Katowice Climate Summit (COP24), held in Poland in 2018,<sup>107</sup> particular emphasis is placed on the "just transition". "No one should be left behind" both the UN and the EU have been upholding.<sup>108</sup> Therefore, states need to make their presence felt to cushion the blow financially, especially for the most vulnerable.

As the Dutch Central Bank summarised in its Time for Transition report,<sup>109</sup> the international community finds itself against the wall in the battle against global warming. A rapid transition to a climate-neutral energy system can damage economic growth and affect financial stability. But, to the contrary, a transition without sufficient decision can lead to the failure to achieve climate targets, which can ultimately have far greater consequences for the economy and humanity. As a consequence, governments have to be aware of the social cost of specific "green measures", such as environmental taxes on fossil fuels or a reduction in subsidies for petrol and diesel fuels. A clear example in this regard is the enormous reaction generated by

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104 WORLD ECONOMIC FORUM. Briefing Paper. The Net-Zero Challenge: Global Climate Action at a Crossroads (Part 1) [Online]. BCG. December 2019, p. 8 [Consulted 29 January 2020]. Retrieved from: [http://www3.weforum.org/docs/WEF\\_The\\_Net\\_Zero\\_Challenge\\_Part1.pdf](http://www3.weforum.org/docs/WEF_The_Net_Zero_Challenge_Part1.pdf)

105 ROSE, op. cit., footnote 3, pp. 151-156.

106 Ibid.

107 COP24 [Online]. 2018 [Consulted 10 December 2019]. Retrieved from: <https://cop24.gov.pl/>

108 UNITED NATIONS COMMITTEE FOR DEVELOPMENT POLICY. Leaving no one behind [Online]. 2018 [Consulted 9 March 2020]. Retrieved from: [https://sustainabledevelopment.un.org/content/documents/2754713\\_July\\_PM\\_2\\_Leaving\\_no\\_one\\_behind\\_Summary\\_from\\_UN\\_Committee\\_for\\_Development\\_Policy.pdf](https://sustainabledevelopment.un.org/content/documents/2754713_July_PM_2_Leaving_no_one_behind_Summary_from_UN_Committee_for_Development_Policy.pdf); A Sustainable Europe must leave no one behind [Online]. European Economic and Social Committee, 2019 [Consulted 10 March 2020]. Retrieved from: <https://www.eesc.europa.eu/en/news-media/news/sustainable-europe-must-leave-no-one-behind>

109 SCHOTTEN, G. et al. Time for Transition: An Exploratory Study of the Transition to a Carbon-Neutral Economy [Online]. De Nederlandsche Bank NV, 2016, pp. 9-25 [Consulted 4 March 2020]. Retrieved from: <https://www.unepfi.org/psi/wp-content/uploads/2018/08/TimeForTransition.pdf>

the French Government's attempt to raise fuel prices which crystallised in the movement of *yellow vests*, taking tens of thousands of protesters to the streets.

We have just seen the potential socio-economic costs, but that immediately bounces back to the ultimate cost for the countries. A climate-safe future requires “the scale-up, and redirection, of investment to clean energy technologies. Fossil-fuel investments need to be shifted to renewables and energy efficiency instead, while subsidies to fossil fuels must be phased out”. IRENA has identified three new different scenarios,<sup>110</sup> and we next describe the middle one, the Transformative Energy Scenario.

Overall, total investment in the energy system in the Transforming Energy Scenario would need to reach USD 110 trillion by 2050, or around 2% of average annual GDP over the period. Of that total, over 80% needs to be invested in renewables, energy efficiency, end-use electrification, and power grids and flexibility. If viewed in annual terms, USD 3.2 trillion needs to be invested in the global energy system every year to 2050.<sup>111</sup> It's an enormous amount but compared to the expected benefits that we will analyse next, it is worth it. Besides, much of this funding would need to be diverted from sectors that are most contaminating.

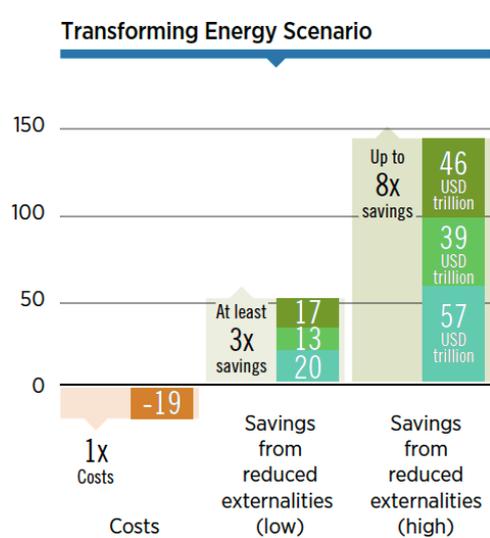


Figure 3: The energy transition: Benefits compared to costs. Transforming Energy Scenario. Source: IRENA “Global Renewables...”, op. cit., footnote 44, p. 35.

The payback for accelerating renewables deployment and efficiency measures, according to IRENA's report, is many times larger than the costs. In the Transforming Energy Scenario, for every 1 US dollar spent for the energy transition would bring a payback of between 3 and 8 USD. Or to put it in cumulative terms, the Transforming Energy Scenario would have an additional cost of USD 19 trillion over the period to 2050 but would result in a payback of between USD 50 and 142 trillion in reduced environmental and health externalities. So, the high costs are still significantly lower than the mentioned trillion in savings from reduced externalities that would result from reducing emissions.<sup>112</sup> A similar study by Stanford University<sup>113</sup> scientists published in 2018 in the journal *Nature*, estimated that by the end of the century, curbing the rise in temperatures to the Paris target would mean global benefits of more than 20 trillion USD, as well as reducing the aggregate damage caused by climate change and economic inequality. By expanding the focus, it's clear that limiting temperature rise to 1.5 degrees can have significant economic benefits.

### 3.2. The Opportunities

All regions of the world can expect to derive benefits from the “green growth” or the energy transition, but the in-depth analysis is needed to understand the reasons for regional differences and why some benefit more than others. Individual regions will not have equal gains in the transition-related sectors (renewables or energy efficiency), and they will face losses in the conventional energy sector to different degrees. Taking full advantage of the opportunities offered by the energy transition requires that interlinkages between the energy transition and the wider economy be analysed at sub-regional and national levels. The most

110 Planned Energy Scenario, Transformative Energy Scenario and Deeper Decarbonization Perspective - “Zero” Scenario; IRENA, “Global Renewables...”, op. cit., footnote 41, pp. 13-15.

111 IRENA, “Global Renewables...”, op. cit., footnote 44, pp. 34-36.

112 Ibid.

113 BURKE, M. et al. Large Potential Reduction in Economic Damages Under UN Mitigation Targets. *Nature* [Online]. 24 May 2018, vol. 557, no. 7706, pp. 549-553 [Consulted 15 February 2020]. Retrieved from: <https://doi.org/10.1038/s41586-018-0071-9>

important opportunities or incentives for action towards these green goals have been summarised as follows by IRENA's 2020 Global Renewables Outlook:<sup>114</sup>

- The first one and most obvious is the reduction of carbon emissions and climate change impacts: shifting away from fossil fuel use to renewable sources not only reduces carbon emissions, but it would also reduce the impacts of climate change and improve conditions for society and business.
- The rapid decline in renewable energy costs: the global weighted average cost of electricity from all commercially available renewable power generation technologies continued to fall in 2018.
- Air quality improvements: air pollution is a major public health crisis, caused mainly by unregulated, inefficient and polluting energy sources (e.g., fossil fuel combustion and chemical-related emissions). The switch to clean renewable energy sources, would improve the air quality in cities and bring greater prosperity by reducing ill-health.
- Universalisation of energy access: transforming the global energy system would help lead to clean energy access for everyone, reducing inequalities.
- Enhancement of energy security: for countries heavily dependent on imported fossil fuels, energy security is a significant issue. Renewables can provide a safer alternative to fossil fuels by increasing the diversity of energy sources through local generation, thus contributing to the flexibility of the system and improving resistance to shocks.
- Socio-economic benefits: Transforming the global energy system would also bring large socio-economic benefits, which are crucial to influencing any political decision. The transition process itself will bring about profound structural changes in labour markets, resulting in four types of job effects: job creation, elimination, substitution and transformation. Moreover, the energy transformation would boost GDP by 2.5% and total employment by 0.2% globally by 2050.

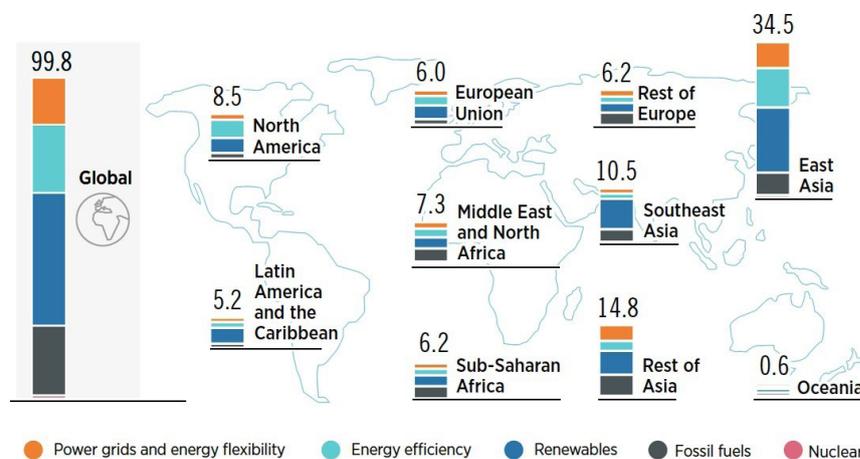


Figure 4: Energy sector jobs creation (in millions) by 2050 under the Transforming Energy Scenario, by region. Source: IRENA, “Global Renewables...”, op. cit., footnote 44, p. 44.

- As we have seen before, to achieve a successful transition, policies must be mainstreamed into economic, industrial, labour, educational and social policies. Cross-cutting and coherent policymaking can deliver on climate and energy ambitions; put in place a mix of programmes, projects and initiatives to generate successful outcomes; and avoid or reduce potential misalignments in labour markets as the energy transition unfolds. Therefore, ambitious green policies that improve environmental quality while maintaining economic growth do not have to harm overall employment if they are well implemented, according to the Organization for Economic Co-operation and Development (OECD):<sup>115</sup>

114 IRENA, “Global Renewables...”, op. cit., footnote 44, pp. 57-59.

115 OECD. Employment Implications of Green Growth: Linking Jobs, Growth, and Green Policies: OECD. Report for the G7 Environment Minister [Online]. Paris, June 2017, pp. 2-24 [Consulted 4 February 2020]. Retrieved from: <https://www.oecd.org/environment/Employment-Implications-of-Green-Growth-OECD-Report-G7-Environment-Ministers.pdf>

- Green policies can create jobs in a number of sustainable economic sectors and through a transition of the economy towards services sectors that require more labour.
- The use of government revenues from environmental tax reform for lowering labour taxes, mitigating undesirable distributional consequences and funding education and training programs can be crucial in achieving positive overall employment outcomes from green policies.
- Well-functioning labour markets are important to achieve a smooth transition and reintegrate workers who lose their jobs.
- Existing labour market policy tools are largely sufficient but can be applied more effectively.
- Further research is required to quantify all the effects on employment, not least with respect to the private sector, circular economy policies and the broad interactions with socio-economic trends, but we can tell at the outset that numerous benefits can be derived, and this will be especially needed as part of the COVID-19 economic recovery when new jobs are critical.<sup>116</sup>

### 3.3. The Big Losers

Following the previous ideas, this subchapter aims to explain how, despite the demonstrated fact that the decarbonisation of the economy has the potential to generate new economic sectors and create tens of thousands of jobs – as the OECD explained in a 2017 report<sup>117</sup> – it can also have significant downsides. That's because most predictions are just at the macroeconomic level. On an individual level, it is hard to imagine that many of the workers who are going to lose their jobs for the sake of climate change will be able to reconvert to work and jump on new work posts. This derivative is one of the keys that explains why many governments drag their feet in the fight against global warming. Entire regions can go into severe economic decline, and that is difficult to manage because of politics, which has limited budgetary resources, and which, in general, has its sights set on the next election.

Regardless of much promotion about the potential for “green jobs”,<sup>118</sup> the legislatures ought to be specific about the sorts of green employments they seek – not average sequential construction system places that can be effectively redistributed, yet occupations in building, high worth assembling, and sustainable force establishment, financing, and overhauling. Investigations of the solar power industry recommend that the more significant part of the employments are not in making the boards. They lie upstream, in delivering the crude materials and the apparatus that are utilised to make the boards, and downstream, in introducing and adjusting the boards, that is in more difficult to access specialised jobs. It has also been shown by the UN<sup>119</sup> that the most impoverished communities and populations usually are the most vulnerable to climate effects and disasters. Primarily because they often lack financing. For example, severe climate events could trigger harvest failure in multiple agriculture-dependent locations—that is, significantly lower than average yields for rice, wheat, corn, or soy. This would especially hurt the most deprived communities, including the 750 million people living below the poverty line.<sup>120</sup>

On the other hand, climate change may also have significant detrimental and destabilising effects on the world's financial system. The increasing toll of natural disasters must be borne in the end by taxpayers, governments and communities. In addition, the health costs of pollution are of major concern for many cities, particularly in the developing world. Central banks, financial institutions and insurance companies are starting to incorporate assessments of disaster and climate risks into their financial planning.<sup>121</sup>

116 IRENA, “Global Renewables...”, op. cit., footnote 44, pp. 234-235.

117 Ibid.

118 ROSE, op. cit., footnote 3, pp. 170-171.

119 UN ENVIRONMENT. Global Environment Outlook – GEO-6: Healthy Planet, Healthy People [Online]. Nairobi, 2019 [Consulted 3 December 2020]. ISBN 9781108770644. Retrieved from: <https://www.unenvironment.org/resources/global-environment-outlook-6>; WOETZEL, loc. cit., footnote 4.

120 WOETZEL, loc. cit., footnote 4.

121 IRENA, “Global Renewables...”, op. cit., footnote 44, pp. 35-36.

Investments that continue to expand fossil-fuel supply infrastructure have been deemed as short-sighted and increasingly risky. Such investments will lead to significant stranded assets and will lock in fossil-fuel emissions for decades to come that will also risk achieving the aims of the Paris Agreement. Recent low oil prices serve as a reminder of the volatility of markets for oil – and other fossil fuels – and of the geopolitics associated with our current energy system.<sup>122</sup>

Renewable technologies and energy efficiency measures can take over instead and supply energy across a wide range of sectors at a lower cost than fossil fuels. While some action is necessary to explore opportunities to make existing fossil-fuel assets cleaner and lower carbon, particularly in sectors such as in industry, governments and investors should generally avoid investments into new fossil-fuel supply infrastructure or ventures.<sup>123</sup>

Due to the slow progress to date in reducing emissions from the energy sector, already USD 11.8 trillion in assets will need to be stranded by 2050 in the aforementioned IRENA's Transforming Energy Scenario. Moreover, further delaying action for another ten years would result in an additional USD 7.7 trillion in stranded assets by 2050. Limiting the amount of future stranded assets requires greater attention today on the risks that companies, banks and investors face from climate change and the response to climate change.<sup>124</sup>

We would like to sum up this chapter in the words of Dr Fatih Birol, International Energy Agency (IEA) Executive Director, “The world urgently needs to put a laser-like focus on bringing down global emissions. This calls for a grand coalition encompassing governments, investors, companies, and everyone else who is committed to tackling climate change”.<sup>125</sup>

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122 Ibid.; TOOZE, A. Bancos centrales contra el Cambio climático. *Política Exterior*. November/December 2019, Number 192, Volume XXXIII, pp. 50-61. ISSN 0213-6856.

123 IRENA, “Global Renewables...”, op. cit., footnote 44, p. 36.

124 Ibid.; TOOZE, loc. cit., footnote 122.

125 IEA. World Energy Outlook [Online]. Paris: IEA, 2019 [Consulted 3 March 2020]. ISBN 978-92-64-97300-8. Retrieved from: <https://www.iea.org/reports/world-energy-outlook-2019>

## CHAPTER II. Policy Challenges of Climate Change and Energy Transition. From the Global to the EU Perspective

In recent decades, the world has witnessed a process of progressive globalisation, which accelerated from the 2000s with the emergence of China and other less developed economies, in the new configuration of value chains and global production of goods and services. This long stage of global economic integration called globalisation 3.0 by the WEF,<sup>126</sup> has led to a significant reduction in poverty on the planet. As discussed in the previous chapter, the progress made has the downside of being accompanied by an accelerated deterioration of the environment and an increase in economic inequality.<sup>127</sup>

According to the WEF, today's risk landscape is being shaped in a significant measure by uncertain geopolitical shifts with new centres of power and influence. At the same time, old alliance structures and global institutions are being tested. These changes can create openings for new partnership structures, in the immediate term, but they are also putting stress on systems of coordination and challenging norms around shared responsibility. Unless multilateral mechanisms adapt for this turbulent period, the predicted climatic risks will become a reality. There is some hope, because the window for action is still open, albeit not for a long time, and because despite global divisions, we continue to see members of the business community signal their commitment to looking “beyond their balance sheets” and towards the urgent priorities ahead.<sup>128</sup>

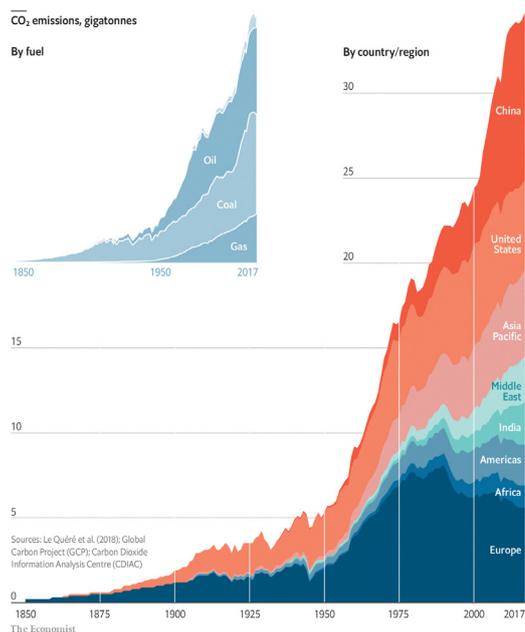


Figure 6: CO<sub>2</sub> Emissions by fuel and by country. Source: Global Warming 101, loc. cit., footnote 133.

In this context, climate change is all the more preoccupying because of its less obvious effects on geopolitics. As concluded in a think tank workshop by Elcano Royal Institute, climate change is now at the centre of geopolitical disruptions.<sup>129</sup> New weather patterns will trigger social and economic unrest. Rising seas, dying farmlands, and ever more powerful storms and floods will render some countries uninhabitable, while deforestation and fossil fuel supply will trigger claims over scarce resources. These changes will test the international system in new and unpredictable ways, leading to scenarios of competition or conflict between nations and even reversing or ignoring the benefits of international cooperation.

World-historical threats call for world-historical levels of cooperation.<sup>130</sup> If humanity successfully confronts this problem, it will be because leaders infused the global order with a sense of common purpose and recognised profound changes in the distribution of power. Everyone, including antagonising forces like China and the US and now the EU and UK, will have to work closely together. Other actors, such as subnational governments, private companies, and non-

126 WORLD ECONOMIC FORUM, “Globalisation 4.0”, loc. cit., footnote 68.

127 WELLISZ, C. People in Economics: Class Analyst Chris Wellisz profiles Branko Milanovic, a leading scholar of inequality. *Finance & Development* [Online]. March 2019, vol. 56, no. 1, p. 30-33 [Consulted 12 December 2020]. Retrieved from: <https://www.imf.org/external/pubs/ft/fandd/2019/03/profile-of-branko-milanovic-on-inequality-wellisiz.htm#:~:text=Earnings%20stagnate,unevenly%20distributed%20across%20the%20world>.

128 WORLD ECONOMIC FORUM, “The Global Risks...”, op. cit., footnote 6, p. 10.

129 REAL INSTITUTO ELCANO, loc. cit., footnote 5.

130 TOOZE, loc. cit., footnote 122.

governmental organisations, will all have to play their part,<sup>131</sup> and the level of financial effort needed will be even greater than any Marshall Plan.<sup>132</sup> All the more difficult now during the health crisis the world is facing, which is seeing many funds diverted towards combating the COVID-19 virus and the economic effects of the lockdown.

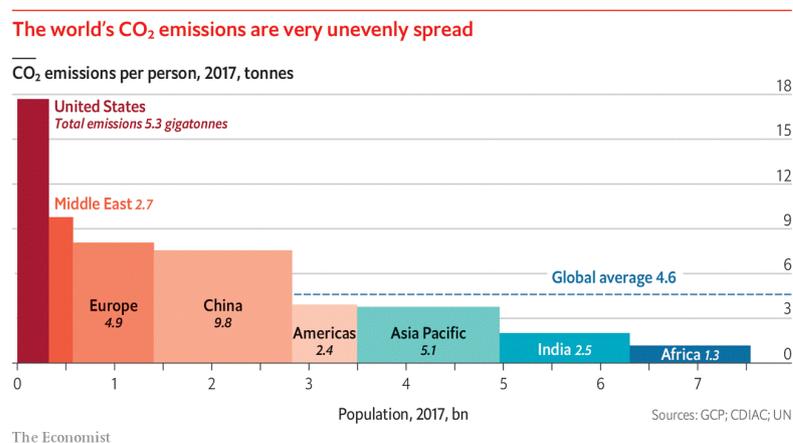


Figure 5: The distribution of the World's CO<sub>2</sub> emissions. Source: Global Warming 101, loc. cit., footnote 133.

It's clear by now that important actions towards combating climate change will not arise from international forums no matter how much the UN and activists push for it. In this context, the policy response to climate change undertaken in national jurisdictions is essential. It influences markets for low-carbon products and determines the extent to which carbon leakage safeguards are required. Therefore, a brief overview of how the largest economic blocks are doing in terms of climate policy and GHG emissions is necessary to understand the situation:<sup>133</sup> China (27% of emissions), the US (15%), the EU (9.8%), India (6.8%), Russia (4.7%) Japan (3.3%). These countries emit 2/3 of the world's CO<sub>2</sub> and account for just over half of the population. Looking closer, it seems to be the other way around, US accounts for 25%, the EU 22%, China 12.7%, Russia 6% Japan 4% and India 3% – in per capita<sup>134</sup> emissions.

Furthermore, in the past 15 years, the progress towards decarbonisation can be seen as uneven among the major emitters, only the US and the EU have achieved a relatively sustained reduction in their CO<sub>2</sub> emissions<sup>135</sup> although insufficient compared to their sustained high emissions over the past decades. As we saw earlier, the European Green Deal has set the EU for an ambitious net-zero GHG emissions level by 2050. And it all seems to be working globally: energy-related CO<sub>2</sub> emissions flattened in 2019 at around 33 gigatons, after two years of growth. This result can be related to reductions from a steep decline in energy emissions of advanced economies,<sup>136</sup> thanks to the increased role of renewables (mainly wind and solar), fuel switching from coal to natural gas, and higher nuclear power output.<sup>137</sup> The same has happened with the COVID-19 lockdown, driving down emissions, but it is unlikely that this will be a stable trend, as the world will speed up again.<sup>138</sup> Moreover, for some parts of the world, especially in the fast-developing

131 BUSBY, J. Warming World: Why Climate Change Matters More than Anything Else. Foreign Affairs [Online]. July/August 2018, vol. 97, no. 4 [Consulted 14 December 2019]. Retrieved from: <https://www.foreignaffairs.com/articles/2018-06-14/warming-world>

132 TOOZE, loc. cit., footnote 122.

133 Global Warming 101: The past, present and future of climate change. The Economist [Online]. September 21st, 2019 [Consulted 16 May 2020]. Retrieved from: <https://www.economist.com/briefing/2019/09/21/the-past-present-and-future-of-climate-change>; IEEE, op. cit., footnote 27.

134 Ibid.

135 MUNTEAN, loc. cit., footnote 18.

136 Advanced economies: Australia, Canada, Chile, EU, Iceland, Israel, Japan, Korea, Mexico, Norway, New Zealand, Switzerland, Turkey, and the US; IEA, loc. cit., footnote 125.

137 Ibid.

138 VICTOR, loc. cit., footnote 78.

economies like China, India and Southeast Asia, a robust coal demand seems to remain their best way of combating poverty for now.

### Unexpected Challenges

We cannot overlook in this thesis that the world suffers through the COVID-19 pandemic, which brings dramatic numbers of people infected, a mounting death toll, and social and economic disruption for countries and communities.

At the beginning of April 2020, about a third of the world's population was subject to measures intended to slow down the spread of the novel coronavirus (SARS-CoV-2) which leads to infection with the COVID-19 disease. These measures range from mild restrictions, such as bans on large events, to very severe ones, such as confinement at home, travel restrictions and closure of schools and non-essential businesses. These measures lead to significant reductions in mobility and economic activity, with a corresponding drop in energy consumption and greenhouse gas (GHG) emissions. The COVID-19 crisis is expected to plunge almost all G20 countries into a recession, according to an analysis by the Economist Intelligence Unit.<sup>139</sup> This expectation is confirmed by falling prices in the major stock markets.<sup>140</sup>

The health crisis has brought about far-reaching behavioural changes. Many office workers are now teleworking, in-person meetings and business travel are being replaced by videoconferences, and shopping has increasingly moved online. These developments have reduced individual travel and associated emissions.

The priority seemed to have shifted temporarily from climate change, and its focus on saving as many lives as possible, bringing the health emergency under control and alleviating the hardship. Moreover, governments are embarking on the monumental task of implementing stimulus and recovery packages, such as the EU has done with an emergency package of 540 billion euros and another much-debated economy support package in the range of trillions, assimilated to a new Marshall Plan.<sup>141</sup> These are actions that will continue to shape societies and economies for many years to come, making it impossible to return to the pre-pandemic normality.

Nevertheless, this response must align with other medium and long-term global priorities, because while the pandemic will eventually be eradicated, we are still faced with the slower but equally disastrous effects of climate change.<sup>142</sup> The goals proposed in the 2030 Agenda and the Paris Agreement might not be perfect, but they are the best we have for now, and they can serve as a “compass to keep us on course during this disorienting period”. They can help to ensure that the short-term solutions adopted in the face of the pandemic are in line with the development and climate objectives. “Stimulus and recovery packages should accelerate the shift to sustainable, decarbonised economies and resilient, inclusive societies” according to the latest report from the International Renewable Energy Agency (IRENA). The report argues that NDCs to be presented by the end of this year, as required under the Paris Agreement, should be the backbone of the stimulus packages.<sup>143</sup>

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139 <https://www.eiu.com/n/covid-19-to-send-almost-all-g20-countries-into-a-recession/>

140 EUROPEAN PARLIAMENT. Impact of the coronavirus crisis on climate action and the European Green Deal [Online] European Parliament Think Tank, 14 May 2020, pp. 1-7 [Consulted 15 May 2020]. Retrieved from: [https://www.europarl.europa.eu/thinktank/es/document.html?reference=EPRS\\_BRI%282020%29649370](https://www.europarl.europa.eu/thinktank/es/document.html?reference=EPRS_BRI%282020%29649370)

141 Covid-19: the EU plan for economic recovery [Online]. European Parliament, 2020 [Consulted 20 May 2020]. Retrieved from: <https://www.europarl.europa.eu/news/en/headlines/priorities/eu-response-to-coronavirus/20200513STO79012/covid-19-the-eu-plan-for-the-economic-recovery>

142 International Mother Earth Day 22 April: Secretary General's Message [Online]. United Nations, 2020 [Consulted 22 April 2020]. Retrieved from: <https://www.un.org/en/observances/earth-day/message>

143 IRENA, “Global Renewables...”, op. cit., footnote 44, pp. 4, 53.

# 1. The Impact of Climate Change on International Policy in the Global Context

Climate change undoubtedly has effects at the planetary level, but beyond the increasing global risks, it can also be seen as a unique opportunity for the evolution of the international system, by presenting the rational need for coordinated collective action in prevention and mitigation of its effects.<sup>144</sup>

Some of the main topics that may hamper a collaborative scenario are the “Trump factor” and Brexit: it is of little good for the vast majority of the international community to deal with global warming when the most prominent historical polluter, the U.S., turns its back on international agreements like the Paris Agreement. The world’s largest economy and second-largest emitter, has played a pivotal role in global climate diplomacy so far.<sup>145</sup> The weight of their emissions is sufficient to derail global efforts. But it is also highly unlikely that the world will reach net zero by 2050 if the first economy does not contribute financially to the UN Green Fund, Adaptation and Mitigation mechanisms, and technology transfer initiatives to developing countries. This decision to step away from Paris sets a precedent that can be devastating for global efforts.

The same can be said about Brexit, “the loss of the UK in the EU means the loss of an important voice for more aggressive climate action, and a country that was at times pivotal in finding a compromise between certain Western European countries, on the one hand, and a handful of less prosperous central and eastern European countries more reticent to embrace highly ambitious climate goals, on the other. In this sense, the UK’s pragmatism on energy and climate issues in Brussels will be missed”, says David Livingston, deputy director for climate and advanced energy in the Atlantic Council’s Global Energy Centre.<sup>146</sup>

Another significant actor that can’t be ignored in this scenario is China – the world’s biggest emitter and second-largest economy – where emissions continue to grow even if the rate of emissions growth has dropped considerably. At the same time, China has invested massively in renewables in the 2010s, thereby contributing heavily to cost reductions of which the whole world benefits. It is also the frontrunner in some forms of electric mobility, with the public transport systems in certain cities making use of large numbers of electric buses. At about 13 billion tonnes in CO<sub>2</sub> equivalent in GHG (over a quarter of global totals), China’s climate policies will continue to be pivotal in determining global success in reducing emissions. Its NDC under the Paris Agreement sets a goal of “peaking carbon dioxide emissions by 2030 at the latest”. In terms of carbon intensity, China also committed to reducing it with 60-65% by 2030.<sup>147</sup>

On the other hand, an important aspect – already started in the 1990s – energy security – which is becoming more impacted by global climate change policy. This phenomenon will transform most industrial value chains, especially those from energy industries. The changes will probably lead to new infrastructures and industries, based on new technologies with synergies across different sectors. The Energy Charter Treaty (ECT) started in 1991, is an international investment agreement that establishes a multilateral cooperation framework in the energy sector. The legally binding treaty covers all aspects of commercial energy activities including trade, transit, investments and energy efficiency.<sup>148</sup>

Nowadays, governments and academics are both increasingly exploring market-based options not only for the sake of the environment but also to address the issue of energy security. This all has been highly

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144 TUÑEZ, F. La Dimensión Geopolítica Del Cambio Climático [Online]. July 2019 [Consulted 10 March 2020]. Retrieved from: [https://www.researchgate.net/publication/335170226\\_La\\_Dimension\\_Geopolitica\\_del\\_Cambio\\_Climatico](https://www.researchgate.net/publication/335170226_La_Dimension_Geopolitica_del_Cambio_Climatico)

145 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS, op. cit., footnote 27, pp. 198-200.

146 LIVINGSTON, D et al. What will Brexit mean for energy markets? [Online]. Atlantic Council, 3 February, 2020 [Consulted 8 March 2020]. Retrieved from: <https://www.atlanticcouncil.org/blogs/new-atlanticist/what-will-brexit-mean-for-energy-markets/>

147 China: Pledges and Targets [Online]. Climate Action Tracker, 2019 [Cited 9 March 2020]. Retrieved from: <https://climateactiontracker.org/countries/china/pledges-and-targets/>

148 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, pp. 198-201; EUR-LEX. European Energy Charter [Online]. [Consulted 23 June 2020]. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:l27028>

accentuated by the “globalisation crunch” that COVID-19 has triggered, awakening a more urgent need to be self-sufficient.<sup>149</sup>

Furthermore, climate policies can create certain constraints that will affect both the supply and demand for energy. In attempting to keep a check on the concentration of GHG in the atmosphere, carbon-intensive fossil-based energy sources will be targeted each time by more policy, both of a pricing and regulatory character, or even investor activism and legal action. The aim is to strongly reduce, if not eliminate the use of fossil fuels in those countries that have adopted the most stringent emissions targets. At the same time, renewable and alternative energy sources will continue to expand. The growth and cost reductions of wind and PV solar solutions are already evidence of this.<sup>150</sup>

Global GHG emissions have barely started to come down in certain OECD economies, and the trend is now accentuated by the COVID-19 lockdowns. However, this is only temporary, so the urgency and the potential speed with which fossil-based energy sources will have to be substituted by carbon-neutral alternatives is more present than ever. To the extent that mitigation policy will be insufficient, more efforts in adaptation to manage the impacts of climate change will be required as well as substantial technological advances.<sup>151</sup>

We know from the previous chapter that existing policy allows for emissions to be offset financially, according to the carbon markets system originated in Kyoto<sup>152</sup> that allow pollutants, companies and states, to buy emissions bonds from other actors that can afford to do without them. The critics, as we have seen in the previous section, report that sometimes prices are set too low for the ton of CO<sub>2</sub> and that they create “perverse dynamics with a zero-sum system” and promote “free-riding”. They argue that this makes it easier to contaminate more than some countries can afford and that it can discourage the economic development of those most financially needed (by securing income by selling emissions certificates rather than investing in progress).<sup>153</sup> For now, it is highly unlikely that a consensus on the pricing of carbon dioxide will be reached in the near future, which aggravates the situation overall.

Even at current GHG concentrations, some climate impacts such as extreme weather events and sea level rises are set to intensify over the coming decades, irrespective of the extent to which climate mitigation policies are pursued. Combatting global warming is politically tricky, and we will try to exemplify some of the reasons why, based on the IEEEE’s research and ideas we have seen so far in this thesis:<sup>154</sup>

- The benefits – the prevention of catastrophic phenomena – will be obtained by future generations, but the cost involved must be paid for by today’s citizens and voters.
- There is the classic problem of the “stowaway” or “free rider” because any CO<sub>2</sub> emission raises the global level in the atmosphere and harms everyone, without anybody having an incentive to reduce their emissions.
- As what matters is the cumulative level of CO<sub>2</sub> in the atmosphere and the industrialised countries mainly contributed to past emissions, the emerging countries (China, India, Brazil, etc.) now consider they have the right to emit their own, and they need to do so in order to grow.
- The total “decarbonisation” of the world economy would keep a significant proportion of the already existing reserves of fossil fuels in the ground, turning them into “stranded assets” causing the consequent economic damage to their owners.<sup>155</sup>

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149 FANJUL, E. El coronavirus, ¿nuevo impulso a la desglobalización? [Online]. Real Instituto Elcano, March 12, 2020 [Consulted 12 March 2020]. Retrieved from: <https://blog.realinstitutoelcano.org/el-coronavirus-nuevo-impulso-a-la-desglobalizacion/>

150 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS, op. cit., footnote 27, pp. 198-201.

151 VICTOR, loc. cit., footnote 78.

152 UNITED NATIONS, loc. cit., footnote 50.

153 NORDHAUS, loc. cit., footnote 31.

154 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 65.

155 TOOZE, loc. cit., footnote 122.

- In contrast to initial expectations, cheap methods of CO<sub>2</sub> capture and storage still haven't been developed (“sinks” or Carbon Capture Storage systems: CCS). Therefore, efforts must focus on limiting new emissions.

All in all, we have seen that the urgent need is to reach zero net emissions. For this, the international community must undertake an unprecedented effort by 2050 to contain the rise in temperatures and avoid the most catastrophic effects of global warming. But action must begin immediately, encompass all human activity and radically transform it, a determination missing in current international actions and policies. The main question is whether there is an alternative to fighting climate change. Given the scientific evidence and certainty of irreparable consequences in all areas of inaction, the international community has no choice but to get to work to try to bring emissions to zero. Or try to get as close as possible to this goal because there's no planet B.<sup>156</sup>

This is not a zero-sum game. The alternative is not a world in which a powerful state actor dominates the clean-energy field alone. It is more likely to be one in which the cost of clean energy does not drop as quickly as needed, particularly in the developing world, and in which massive markets for clean-energy technologies along with adequate policy do not materialise.<sup>157</sup> In that case, the whole world will lose.

## 2. The Challenges of the Energy Transition

For the most part of the 20th century, the focus has been on a continuous supply of energy at affordable prices. The attention between physical availability, uninterrupted supply and price affordability kept shifting in line with the global oil markets and geopolitics, for example, the Cold War or the period of decolonisation. The security of supply focus has started to expand after the Cold War, though, a development that is still ongoing.<sup>158</sup>

For example, the growing EU imports of natural gas raised issues of economic and security implications of dependency for some states. The Eastern European member states, which often depend to a very high degree on Russian energy sources, has brought this matter at the centre stage of the EU energy supply agenda.<sup>159</sup> Hence, the EU is faced with the double dilemma of going net-zero by 2050, and performing an energy transition, while securing energy supply. This is probably the greatest challenge that the whole world faces as well.

Is it possible to achieve a world that does not emit CO<sub>2</sub> by 2050? Emily Farnworth, WEF's Climate Change Manager, has said that it is possible in a recent paper<sup>160</sup> arguing that “social and economic pressure is going to continue to increase for the political class until the effects of global warming are seriously taken into consideration and action is taken”. Adair Turner, chairman of the Energy Transitions Commission,<sup>161</sup> also says in this regard that “it is undoubtedly technically possible” to achieve a future with zero net emissions.

How? Firstly, technical difficulties must be resolved. The task must start with the energy sector, the primary source of polluting emissions. And we have some reasons for optimism thanks to the potential of renewables, according to a study<sup>162</sup> by the Lappeenranta University of Technology and the NGO Energy Watch Group, which assures that it is possible to completely eliminate pollution from this sector, even

156 PALOP, loc. cit., footnote 30.

157 ROSE, op. cit., footnote 3, p. 268.

158 SMIL, loc. cit., footnote 2; INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 166.

159 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, pp. 198-201.

160 WORLD ECONOMIC FORUM, “The Global Risks...”, loc. cit., footnote 6.

161 ENERGY TRANSITIONS COMMISSION. Mission Possible: Reaching Net-Zero Carbon Emissions from Harder-to-Abate Sectors by Mid-Century [Online]. November 2018 [Consulted 18 March 2020]. Retrieved from: [http://www.energy-transitions.org/sites/default/files/ETC\\_MissionPossible\\_FullReport.pdf](http://www.energy-transitions.org/sites/default/files/ETC_MissionPossible_FullReport.pdf)

162 RAM, M., et al. Global Energy System Based on 100% Renewable Energy – Power, Heat, Transport and Desalination Sectors. Study by the Lappeenranta University of Technology and Energy Watch Group [Online]. Berlin, Lappeenranta, March 2019 [Consulted 5 March 2020]. ISBN 978-952-335-339-8. Retrieved from: [http://energywatchgroup.org/wp-content/uploads/EWG\\_LUT\\_100RE\\_All\\_Sectors\\_Global\\_Report\\_2019.pdf](http://energywatchgroup.org/wp-content/uploads/EWG_LUT_100RE_All_Sectors_Global_Report_2019.pdf)

saving money and creating jobs, an idea that we also support in this thesis. However, many experts agree that a back-up power source is needed, for times when renewables are not sufficient. Some, like France, defend the controversial nuclear energy against which environmentalists protest. Others advocate the extension of biofuels or exploit the possibilities of hydrogen. Concerning renewables, there is also a need to continue to invest massively in the development of new technologies like large capacity batteries that allow electricity to be stored.<sup>163</sup>

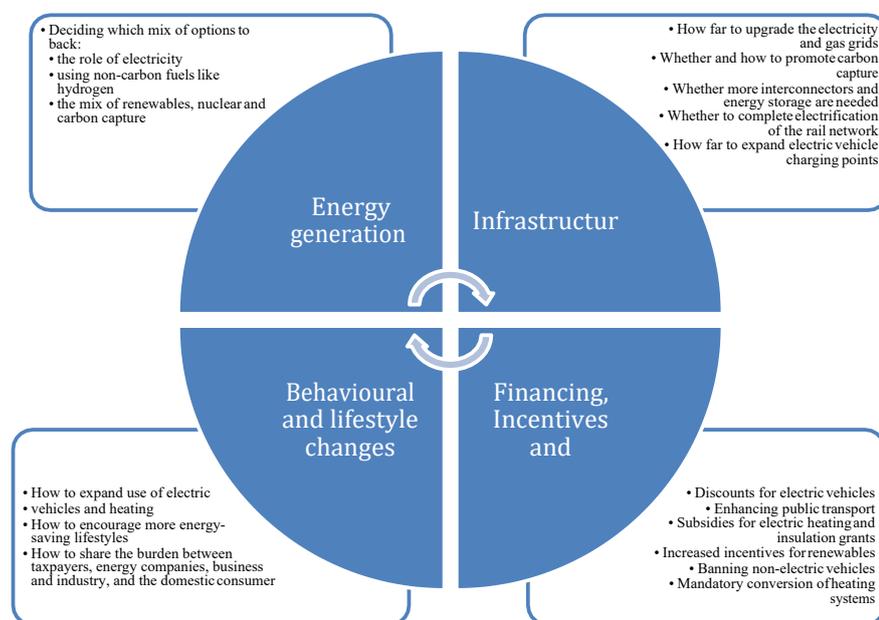


Figure 7: Key delivery challenges of the energy transition. Source: BBC Briefing, op. cit., footnote 24, p. 182.

The transformation of the economy from fossil-based energy to carbon-neutral energy will have major implications not just for the energy production sector. In energy-intensive industries, manufacturing processes will need to be reinvented to allow for electrification and alternative low-carbon approaches. Fossil fuels currently omnipresent in the housing and transportation sectors will likewise need to be substituted. As demand for zero-carbon electricity is set to grow, new value chains and business models will be developed around storage, mobility, hydrogen production and CO<sub>2</sub> transport and storage.<sup>164</sup>

It's quite clear that it takes a revolution to achieve all this, but so far it has only been very timid. Radical changes are needed at the legislative, technological, and behavioural levels. We need an unwavering political will and deep pockets. Cooperation between developing countries and industrialised economies is required. This is a qualitative and structural transformation of the global economy, from production to consumption, and from the ways of life of most of the world's population.<sup>165</sup>

The key is that there seems to be hope in the private sector, as mentioned in the first chapter. MNCs have the ability to make use of their Research, Development and Innovation (R&D&i), which is comparable to the technology transfer schemes built into the present framework for climate change.<sup>166</sup> On the other hand, learning from the mistakes of the past decade in renewables and reforming the industry more smartly is crucial.<sup>167</sup> Additional hope also comes, ironically from the COVID-19 crisis, which has amplified the talks for a green recovery and has shown that all these challenges are not insurmountable and that eventually, the economy comes second to health and safety. We will analyse the topic further on in this thesis, for the case of the European Union.

163 ROSE, op. cit., footnote 3, p. 272.

164 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, pp. 198-201.

165 PALOP, loc. cit., footnote 30.

166 ROSE, op. cit., footnote 3, p. 197.

167 ROSE, op. cit., footnote 3, pp. 158-160.

What remains a fact is that for years to come, sustainable energy is probably going to enhance, not replace, the classic energy mix. That is the reason two different actions will be as significant as renewable energy in tackling this issue. One is lowering the consumption of coal, gas, and petrol, which are liable to keep on producing a lot of the world's power for quite a while. The other is increasing the efficient use of the energy generated by any means. That implies making structures, machines, and mechanical procedures more proficient, a complicated yet extremely beneficial move that policymakers and businesses are taking a shot at. As indicated by IEA statistics, from now to 2035, improving the effectiveness of non-renewable energy power plants would probably cut worldwide carbon emissions by more than 1.5 times, as much as turning to renewable energy sources would.<sup>168</sup>

At this stage, it is uncertain how fast and how disruptive the transition process will be. Major implications for the oil industry may well take beyond 2030. Nevertheless, the kind of technological progress witnessed in electricity and now in cars may have the potential for disrupting value chains with knock-on effects for the energy sector. Similarly, climate impacts may affect the security of supply, first sporadically but over time more widely. It, therefore, seems time for both policymakers and academics alike to take a more thorough look at the energy climate interface and its implications for the energy security agenda.

The bottom line, as IRENA has put it in its first-ever Global Renewables Outlook, is that the existing dependencies between nations underscore the need for careful crafting of a series of policy interventions to enable a transition in which no one is left behind. "A just and inclusive transition requires a global compact among countries, adequate mobilisation of resources and tailoring of measures attuned to the challenges faced by various countries".<sup>169</sup>

## 2.1. Renewables and Electrification

To continue the previous ideas: in renewable power as in other industries, it is said that a competition-based system will produce the most efficient products, with the lead being taken by private companies. Wind and solar power cannot, for now, reach by themselves the scale needed to make a difference to energy security or the environment unless they can be produced economically, which also implies they shouldn't need subsidies at some point soon. Furthermore, the most enduring way for countries to enter the renewable-power market is to do certain things in a better way than other countries and not to try to deny national consumers commodities that other countries can make legally at a lower cost, and that means, of course, a free market.<sup>170</sup>

Decarbonisation is, therefore, not easy. Fossil fuels continue to bring countless benefits, especially in developing nations, despite the significant negative environmental consequences. The alternatives have diversified, but not sufficiently to replace the old system of fossil fuels. The effects of failing at this are too unclear or too far off in the future to motivate either action previously discussed like a Marshall Plan type of mobilisation to stimulate renewable energy and a global price of carbon high enough to rapidly cut emissions. Moreover, the downsides of fossil fuels, notably their geopolitical and environmental risks, are not fully reflected in their market prices. And everything about the infrastructure of the electrical system is based on the use of fossil fuels: the coal mines and gas fields that produce them; the railroads, pipelines, and ships that transport them; and the power plants that burn them. The existing system has been built up, and its costs have mostly paid down over decades. That is a big challenge for wind and solar to overtake, but significant progress is being made.<sup>171</sup>

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168 IEA, "World Energy...", loc. cit., footnote 125.

169 IRENA, "Global Renewables...", op. cit., footnote 44, p. 201.

170 ROSE, op. cit., footnote 3, p. 172.

171 ROSE, op. cit., footnote 3, p. 160.

The IEA also concluded that renewable energy worldwide receives less money in annual subsidies than fossil fuels do,<sup>172</sup> and developing next-generation technologies and business models that have the potential to make wind and solar power genuinely competitive with fossil fuels require much more spending.

The energy transition is a substantial common task, the most substantial likely to have ever been proposed to the international community. Governments have to invest massively in the transformation of electricity networks and the extension of public transport; promote and facilitate change, set an example and focus on the conversion of employment to new jobs in clean areas. They should also eliminate subsidies for fossil fuels and the most polluting industries, and they would have to opt for green R&D&i and put in place an incentive system that focuses on environmental sustainability first. They should also put an end to the degradation of all forest areas and recover the damaged ones, as they are the best sinks for our emissions. In turn, citizens would have to change their behaviour to adapt it to the new reality, with fewer flights, fewer cars, less consumption. We now have the opportunity to observe the benefits of these actions on the environment with the lockdown imposed due to COVID.<sup>173</sup> Everything is interconnected, as it has been strongly demonstrated by the COVID-19 pandemic, so thinking in a limited or short term way will obviously only lead to limited results and more risks for the whole system.

All in all, the rigour of changes that we have to undertake will be stark, in part also because today's energy challenge is much more different and harder than those of past decades. Throughout history, countries have made significant energy shifts only when faced with acute fossil-fuel crises: oil embargoes, debilitating pollution, or wars. That is how in the peak of the 1970s oil shocks, France embraced nuclear power, Denmark ramped up its energy efficiency and then its development of wind power, and Brazil tested fuelling some of its auto fleet with ethanol. But today's threats – climate change, fluctuating energy prices, and the prospect that other countries might dominate a still-nascent clean-energy industry – are more severe and less visible and thus, less likely to motivate the necessary spending that has powered the renewable energy sector so far, unless there is more pressure.<sup>174</sup>

## 2.2. Energy Efficiency and New Technologies

Like we have mentioned earlier, improving energy efficiency is crucial as it is one of the best ways at hand to reduce GHG emissions. Furthermore, in the case of a positive supply shock,<sup>175</sup> it has a favourable impact on all sectors, thanks to the lower prices, especially in the most energy-demanding industries, such as steel, aluminium, cement, transport, or the electricity sector itself. On the other hand, it makes no sense to pay for wind and solar power that they will be wasted away in inefficient buildings and machines. In a 2019 report, the consulting firm McKinsey & Company concluded that by switching to more efficient technologies, the world could substantially reduce its GHG emissions.<sup>176</sup>

Looking back, several attempts at energy efficiency were made, more or less successful, first during the 2004-2009 and 2010-2014 periods, global energy efficiency increased, as the variation in global primary energy consumption slowed because of the change in GDP in both advanced, emerging and developing countries. However, from 2014 onwards there was a deterioration in energy efficiency, possibly due to the fall in hydrocarbon prices from this period, with the consequent reduction of incentives for improving productivity. In 2018, when oil and gas prices rose, energy efficiency increased in Europe but fell in the U.S., the world's leading oil producer.<sup>177</sup> We can see here the trend that only when supply is low, one is really driven towards higher efficiency, but that does not have to always be the case.

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172 IEA, "World Energy...", loc. cit., footnote 125.

173 VICTOR, loc. cit., footnote 151.

174 ROSE, op. cit., footnote 3, p. 167.

175 A positive supply shock increases output, causing prices to decrease, a negative supply shock decreases production causing prices to rise.

176 WOETZEL, loc. cit., footnote 4.

177 IRANZO, S. Globalización 4.0: Eficiencia energética y emisiones de CO2. Blog New Deal [Online]. 2 December 2020. Retrieved from: <http://blognewdeal.com/silvia-iranzo/globalizacion-4-0-eficiencia-energetica-y-emisiones-de-co2/>

On the technological side, there is also the coal and gas problem: even if gas is considered as a less damaging fossil fuel, both are still being largely used especially carbon by developing countries, and that needs to be dealt with. Richard K. Morse, Director of Research on Coal and Carbon Markets at Stanford University's Program on Energy and Sustainable Development supports the idea that replacing obsolete coal plants or equipping them with new more efficient technologies that would also cut carbon dioxide emissions drastically, is an essential part of a transition model. This policy would lead to significant advancements in the tech field. He gives the example of the average efficiency of all existing coal plants that have the potential to be boosted to 50%, therefore driving down emissions from coal-fired power by a staggering 40%. At current emission levels, that is estimated to be equivalent to more than half of what the US releases every year.<sup>178</sup>

The intermediate goal, while we push for renewables, should be to develop the capacity to produce electricity from coal and gas with net-zero emissions. Technologies offering that possibility are beginning to emerge. Yet to become commercially viable, they will need financial and regulatory support from governments.

The best way forward seems to be after all, by counting on technology and funding research, but that requires high levels of motivation – for example, just as the US raised funding for space research when it wanted to send a man to the moon and pumped up spending on defence research when it wanted to win the Cold War,<sup>179</sup> or now with the extensive mobilisation of governments to fight the COVID-19 pandemic. Unfortunately, this determination is lacking especially at the political level, as we explained earlier in this thesis.

In figure 8 you can see a brief overview of different technologies and measures identified globally for improving energy efficiency and reducing GHG emissions, which have been mainly supported by technological advances as analysed by McKinsey in its 2020 report.<sup>180</sup> Furthermore, it has been shown that in the specific field of new digital technologies, they can open the door to greater energy efficiency in the energy and natural resources sector, as shown in the recent BBC Energy Briefing paper.<sup>181</sup>

Strategy	Method	Initiatives				
Double electric revolution	Electricity replaces carbon	Electric cars			Electrical heating pumps	
	Renewables and nuclear in electricity generation	Onshore wind	Offshore wind	Solar	Marine	Nuclear
Direct replacement or removal of carbon	Hydrogen production and usage	Hydrogen gas heating		Hydrogen fuel cell for cars and lorries		
	Carbon capture and offsetting	Carbon capture in power generation		Carbon capture in hydrogen production	Biomethane/ Biomass/ Biofuels	
Efficiency and lifestyle changes	Better input / output energy use ratios	More efficient engines and turbines		More efficient fuel mix	More efficient battery use	
	Less end use of energy by households etc.	Smart metering		Home insulation	Private to public or shared transport	

Figure 8: Strategies for cutting GHG emissions. Source: BBC Briefing, op. cit., footnote 24, p. 58.

178 ROSE, op. cit., footnote 3, p. 183.  
 179 ROSE, op. cit., footnote 3, p. 170.  
 180 WOETZEL, loc. cit., footnote 4.  
 181 BBC Briefing, op. cit., footnote 24, p. 58.

These technologies could generate global savings in 2035 of between \$900 billion and \$1.6 trillion in the energy and natural resources sector, according to McKinsey,<sup>182</sup> and energy productivity in the global economy could increase by 40-70% by 2035. Such benefits that cannot be ignored by anyone, especially now with a frightening economic crisis lurking as an aftereffect of COVID-19 pandemic, when renewable energy and efficiency should be placed at the centre of the economic recovery and growth plans by investing in a sustainable, inclusive and resilient future, creating an enabling environment for clean energy and empowering people to drive the energy transition forward.<sup>183</sup>

Moreover, the digitisation envisaged by the proponents of a new era of Globalisation: 4.0, like WEF,<sup>184</sup> will allow for a significant increase in energy efficiency in the coming years, which in turn will reduce energy use and CO<sub>2</sub> emissions, although it is unclear whether they will decline enough to achieve the objectives of the Paris Agreement.<sup>185</sup>

Much more effort is needed, which is less likely to come from the political sector in the midst of a global pandemic. A more promising approach is to make sure that efficiency technologies and practices are integrated into the massive investments that multinational corporations undertake each year. By themselves, MNCs amount to a quarter of global GDP and well over one trillion dollars of yearly global investment. If every sizeable MNC implemented policies that set efficiency and emissions reduction goals, for their own facilities as well as their associates', it would inevitably ripple across the entire world economy. Their efforts could help develop new modalities and technologies that can help others take similar steps.<sup>186</sup> Moreover, measures taken during the pandemic have demonstrated the strong link between economic activity and GHG emissions, which needs to be dealt with by decoupling the two.<sup>187</sup>

### 3. The EU Leading by Example

Considering all the aforementioned challenges, we continue in this subchapter by discussing the perspective and actions of the EU regarding climate and energy policy, since the EU is the most active and a world leader in this sector. The EU understood that while people and countries may come to realise that a change is necessary, someone needs to set an example and show that it is possible.

#### 3.1. The Energy Union: Objective and Tool

The Energy Union Strategy,<sup>188</sup> published on 25 February 2015, as a key priority of the Juncker Commission (2014-2019), aims at “building an energy union that gives EU consumers – households and businesses – secure, sustainable, competitive and affordable energy”. Since its launch in 2015, the European Commission (EC) has been monitoring and updating the progress towards the goal of a fully integrated Energy Union. This comes in response to the EU's energy needs and situation: it spends 350 billion euros every year to import energy, it buys from third countries more than half of what it consumes, making the EU the largest energy importer in the world which relies heavily on a limited number of suppliers.<sup>189</sup>

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182 WOETZEL, loc. cit., footnote 4.

183 Wind Industry and COVID-19 Response Hub [Online]. Global Wind Energy Council, 2020 [Consulted 20 May, 2020]. Retrieved from: <https://gwec.net/wind-industry-covid-19-response-hub/>

184 WORLD ECONOMIC FORUM, “Globalisation 4.0”, loc. cit., footnote 68.

185 IRANZO, loc. cit., footnote 177.

186 ROSE, op. cit., footnote 3, p. 193.

187 EUROPEAN PARLIAMENT. “Impact of...”, loc. cit., footnote 140.

188 EUROPEAN COMMISSION. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy COM/2015/080 final [Online] [Consulted 5 March 2020]. Retrieved from : <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2015:80:FIN>

189 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATEGICOS, op. cit., footnote 27, pp. 275-277.

Developing a “resilient Energy Union with a forward-looking climate policy” was agreed as a strategic priority for the next five years, as an objective in itself by EU leaders in 2014. In February 2015, the EC set out an agenda for what this should look like, which included a strong clean energy vision:<sup>190</sup>

1. An Energy Union with citizens at its core, where citizens take ownership of the energy transition.
2. Energy efficiency and demand-side response can compete on equal terms with generation.
3. Becoming the world leader in renewable energy.
4. An integrated continent-wide energy system where energy flows freely across borders.
5. Move away from an economy driven by fossil fuels and outdated business models.
6. Longer-term policy coherence that provides long term certainty and guidance for investors.

The Regulation on the governance of the energy union and climate action (EU)2018/1999<sup>191</sup> entered into force on 24 December 2018 as part of the Clean Energy for all Europeans package. The Regulation emphasises the importance of meeting the EU’s 2030 energy and climate targets and sets out how EU countries and the Commission should work together, and how individual countries should cooperate, to achieve the energy union’s goals. It takes into account the fact that different countries can contribute to the energy union in different ways. The fourth State of the energy union report<sup>192</sup> was published in April 2019 and shows that Europe’s energy supply is now safer, more viable and more accessible to everyone than it was only a few years ago.

Furthermore, the Energy Union is also a tool to assist in the energy transition. A full-fledged energy transition is becoming economically and technically feasible, with most of the necessary technologies now available and technology costs declining. Key policy priorities to foster the EU energy transition identified by the Bruegel Think Tank and backed by the Commission are:<sup>193</sup>

Priority 1: adopt transformative policies to decarbonise the transport sector.

Priority 2: prepare the electricity system for a substantial increase in renewables.

Priority 3: strengthen the EU’s comparative advantage in low-carbon technologies.

Priority 4: foster the decarbonisation of industry and buildings.

Additionally challenging, the EU has to strengthen its energy security strategy during the transition phase and also realise a fully integrated Internal Energy Market, which is also considered a priority. Despite progress made in recent years, Europe’s energy system is still underperforming. The current market design does not lead to sufficient investments, market concentration and weak competition remain an issue and the European energy landscape is still too fragmented. The EU has to give a new political boost to completing the internal energy market.<sup>194</sup>

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190 Energy Union, loc. cit., footnote 82.

191 Ibid.

192 EUROPEAN COMMISSION. Fourth Report on the State of the Energy Union [Online]. Brussels, 9.4.2019 COM(2019) 175 final [Consulted 30 May 2020]. Retrieved from: [https://ec.europa.eu/commission/sites/beta-political/files/fourth-report-state-of-energy-union-april2019\\_en\\_0.pdf](https://ec.europa.eu/commission/sites/beta-political/files/fourth-report-state-of-energy-union-april2019_en_0.pdf)

193 TAGLIAPIETRA, S. European Union energy transition: key priorities for the next five years [Online]. Zachmann, G. et al. Brussels: Bruegel, July 2019, Issue 1, pp. 1-8 [Consulted 15 June 2020]. Retrieved from: [https://www.bruegel.org/wp-content/uploads/2019/07/Bruegel\\_Policy\\_Brief-2019\\_01.pdf](https://www.bruegel.org/wp-content/uploads/2019/07/Bruegel_Policy_Brief-2019_01.pdf)

194 EUROPEAN COMMISSION. A fully integrated internal energy market [Online]. 2015 [Consulted 15 June 2020]. Retrieved from: [https://ec.europa.eu/commission/priorities/energy-union-and-climate/fully-integrated-internal-energy-market\\_en](https://ec.europa.eu/commission/priorities/energy-union-and-climate/fully-integrated-internal-energy-market_en)

## FOUR PRIORITIES UP TO 2024 TO FOSTER THE EU ENERGY TRANSITION

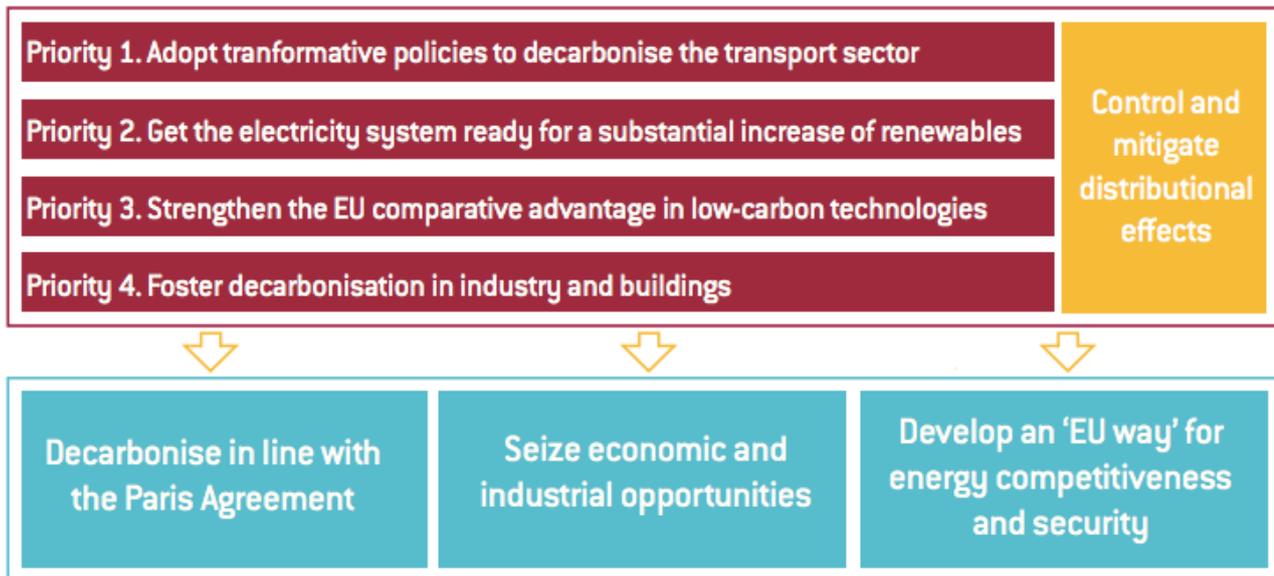


Figure 9: Priorities of the Energy Transition in the EU. Source: TAGLIAPIETRA, loc. cit., footnote 193.

### 3.2. Energy Security and the Internal Energy Market

We have mentioned before the importance of the energy security topic, and now we will look deeper into it to better understand it in the EU context. The EU is largely sticking to its market approach when it comes to energy security, supporting the functioning of energy markets in the EU and its neighbourhood as well as globally, combined with diversification. Russia, a major supplier, is displaying new assertiveness, so the EU is also considering a more government-led energy security strategy.<sup>195</sup>

In order to harmonise and liberalise the EU's internal energy market (IEM), which has a legal basis Art. 194 and Art. 114 of the Treaty on the Functioning of the European Union (TFEU),<sup>196</sup> measures have been adopted since 1996 to address market access, transparency and Regulation, consumer protection, supporting interconnection, and adequate levels of supply. According to the EU Parliament, "these measures aim to build a more competitive, customer-centred, flexible and non-discriminatory EU electricity market with market-based supply prices. In so doing, they strengthen and expand the rights of individual customers and energy communities, address energy poverty, clarify the roles and responsibilities of market participants and regulators and address the security of the supply of electricity, gas and oil, as well as the development of trans-European networks for transporting electricity and gas".<sup>197</sup>

A more explicit approach to energy security has been taken in the 2014 European Energy Security Strategy (EESS),<sup>198</sup> which systematically takes stock of short, medium and long-term security of supply and energy security situation. The IEEA noted the switch from the concept of "security of supply" – which very much associates with the market-driven energy policy up to the 2010s – to "energy security" that has a far stronger political connotation. The strategy has been driven by the realisation that the integration of Russia into a strategic energy partnership is very unlikely. Despite an institutionalised energy dialogue

195 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, pp. 200-202.

196 EUR-LEX. Consolidated version of the Treaty on the Functioning of the European Union -PART THREE: UNION POLICIES AND INTERNAL ACTIONS - TITLE XXI: ENERGY [Online]. Article 194, Official Journal 115 , 09/05/2008 pp. 0134 – 0134 [Consulted 11 June 2020]. Retrieved from: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12008E194:EN:HTML> ; EUR-LEX. Consolidated version of the Treaty on the Functioning of the European Union - PART THREE: UNION POLICIES AND INTERNAL ACTIONS - TITLE VII: COMMON RULES ON COMPETITION, TAXATION AND APPROXIMATION OF LAWS - Chapter 3: Approximation of laws - Article 114 (ex-Article 95 TEC) [Online]. DOC 115 de 9.5.2008, pp. 94/95 [Consulted 11 June 2020]. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A12008E114>

197 EUROPEAN PARLIAMENT. Fact Sheets on the European Union: Internal energy market [Online]. 2020 [Consulted 11 June 2020]. Retrieved from: <https://www.europarl.europa.eu/factsheets/en/sheet/45/internal-energy-market>

198 Energy topics [Online]. European Commission, 2020 [Consulted 12 May 2020]. Retrieved from: [https://ec.europa.eu/energy/topics\\_en](https://ec.europa.eu/energy/topics_en)

(since 2000) and some foreign investments in the Russian energy sector, the strategy aimed at opening the Russian market to the European one and other western enterprises and thus to gain large scale access, has not been very fruitful.<sup>199</sup>

The main focus points of the EU strategy have been improving resilience, new infrastructure and cooperation with neighbouring countries, for example, the Energy Union in the short term, which then later was followed up by legislation. The long-term strategy, by and large, has been a reiteration of previous positions: integrated energy market and more interconnections, gas diversification, energy transition and low carbon as well as more coordination between member states. Under the governance regulation, EU countries were also required to develop long-term national strategies by 1 January 2020.<sup>200</sup> In short, the EESS<sup>201</sup> largely relies on ongoing policies: market, efficiency, diversification (regions, fuels), solidarity mechanisms (interconnectors) and better coordination (speaking with one voice).

Although the EU external energy policy has been criticised by some as ineffective, things have improved considerably in the past few years.<sup>202</sup> Judging from the above, one would conclude that EU external energy policy has been successful.<sup>203</sup> EU infrastructure has been strengthened and integrated. The transition to a low carbon economy will reinforce this trend. The renewable energy will increasingly substitute imports policy and provide technological independence. The substitution of fossils combined with renewables may reduce pricing power by importers.

Completion of the EU's IEM is still pending, and it requires the removal of numerous obstacles and trade barriers, the approximation of tax and pricing policies and measures in respect of norms and standards and environmental and safety regulations. The objective is to ensure a functioning market with fair market access and a high level of consumer protection, as well as adequate levels of interconnection and generation capacity, not forgetting higher energy efficiency.<sup>204</sup> The European Commission believes that “energy should flow freely across the EU – without any technical or regulatory barriers. Only then can energy providers freely compete and provide the best energy prices, and can Europe fully achieve its renewable energy potential”.

The question is whether this strategy will continue to be adequate in addressing future challenges, and more so in the uncertain future of post-COVID-19. What is certain is that renewable energy and efficiency must be the key building blocks for economic recovery from the impact of the COVID-19 health and economic crisis, which will enable the governments to expand critical infrastructure for a sustainable future. We are of the opinion that there is no better time for a change than now.

### 3.3. Mitigation

Mitigation is described as an effort to reduce the loss of life and physical assets by lessening the impact of disasters. In order for mitigation to be effective action needs to be taken before a disaster occurs, to reduce human and financial consequences later (analysing risk, reducing risk, and insuring against risk). An example on point is the health crisis we are experiencing which we are mostly adapting to as the

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199 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, *op. cit.*, footnote 27, pp. 181-185.

200 *Ibid.*

201 EUROPEAN COMMISSION. European Energy Security Strategy [Online]. Brussels, 28.5.2014, COM(2014) 330 final [Consulted 11 June 2020]. Retrieved from: <https://www.eesc.europa.eu/resources/docs/european-energy-security-strategy.pdf>

202 YOUNGS, R. Europe's External Energy Policy: Between Geopolitics and the Market [Online]. CEPS Working Documents No. 278, 20 November 2007 [Consulted 15 May 2020]. Retrieved from: <http://aei.pitt.edu/7579/1/Wd278.pdf>; YOUNGS, R. Energy security: Europe's new foreign policy challenge [Online]. 2019, 1-230. 10.4324/9780203882627 [Consulted 15 May 2020]. Retrieved from: [https://www.researchgate.net/publication/286114282\\_Energy\\_security\\_Europe's\\_new\\_foreign\\_policy\\_challenge](https://www.researchgate.net/publication/286114282_Energy_security_Europe's_new_foreign_policy_challenge)

203 BOERSMA, T.; O'HANLON, M. E. Why Europe's Energy Policy Has Been a Strategic Success Story [Online]. Brookings Institution, 2 May 2016 [Consulted 21 May 2020]. Retrieved from: <https://www.brookings.edu/blog/order-from-chaos/2016/05/02/why-europes-energy-policy-has-been-a-strategic-success-story/>

204 EUROPEAN PARLIAMENT, *loc. cit.*, footnote 197; EUROPEAN COMMISSION, “A fully integrated...”, *loc. cit.*, footnote 194.

mitigation measures were not adequate, but the climate change can bring unexpected health risks and physical damage to inhabited areas, of higher magnitudes.<sup>205</sup>

We have seen that the governance of the Paris Agreement allows countries to set their own climate commitments, as a mitigation measure. It is the process of revising these commitments during pre-determined review cycles that should lead to increased ambition over time. To operationalise this, a *rulebook* has been (mostly) completed at COP24 in Katowice<sup>206</sup> in late 2018, prescribing different degrees of binding processes for revising the NDCs.<sup>207</sup> Reducing emissions is also in line with the precautionary principle, which in the case of the EU is incorporated in the Treaties.<sup>208</sup>

For the commitments made under the Paris Agreement, both developing and developed countries, consequently adopted emission reduction targets in their NDCs.<sup>209</sup> In its own words, “the EU has been at the forefront of international efforts to fight climate change. It was instrumental in brokering the Paris Agreement and continues to show global leadership. The EU’s NDC under the Paris Agreement is to reduce greenhouse gas emissions by at least 40% by 2030 compared to 1990, under its wider 2030 climate and energy framework. All key EU legislation for implementing this target was adopted by the end of 2018”.<sup>210</sup>

Furthermore, the EC adopted a Communication entitled “A Roadmap for moving to a competitive low carbon economy in 2050”.<sup>211</sup> In support of this Communication, it carries out modelling activities to assess the technological and economic effects of various scenarios designed to meet the 2°C target. Similarly to the IRENA models seen in the previous subchapters, three scenarios are assessed for the EU through the Prospective Outlook for the Long term Energy System (POLES)<sup>212</sup> model, comprising air quality, carbon capture and storage, deforestation and land use, agriculture, renewable energies, CO<sub>2</sub> emissions from vehicles and from maritime transport:

- Global Baseline: no additional climate action is undertaken globally by 2050.
- Global action: global action is taken to halve global emissions by 2050 compared to 1990.
- Fragmented action: the EU pursues a decarbonisation strategy, but other countries do not follow.

Unfortunately, the last scenario is the most likely. We have seen in our first chapter that the outset does not look very positive both from the nature of the targets and from the ambition of the participants, but in light of the COVID-19 crisis and the postponing of COP26 for 2021, there could be a further loss of ambition in this direction, although the deadlines for the NDC submissions (2020), or their levels have not changed.

### 3.4. Emphasis on Adaptation and Recovery in the Framework of a European Green Deal

In developed countries and industrialised economies, most of the climate policy is about mitigation. However, certain climate impacts are unavoidable or are even taking place already. Moreover, many of the developing countries generally have fewer emissions, and harsher impacts to face. Consequently, adaptation holds the same importance on a global scale as mitigation. The Paris Agreement includes

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205 What is Mitigation? [Online]. Federal Emergency Management Agency, 2020 [Consulted 11 June 2020]. Retrieved from: <https://www.fema.gov/what-mitigation>

206 COP24, loc. cit., footnote 107.

207 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 190.

208 OFFICIAL JOURNAL OF THE EUROPEAN UNION. Consolidated version of the Treaty on the Functioning of the European Union: Part three - union policies and internal actions - environment. Article 192 (ex-Article 175 TEC) [Online] [Consulted 5 March 2020]. Retrieved from : <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A12012E192>

209 MUNTEAN, op. cit., footnote 18, pp. 20-27; INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 190.

210 “EU climate action...”, op. cit., footnote 80, Paris Agreement.

211 EUROPEAN COMMISSION. A Roadmap for moving to a competitive low carbon economy in 2050 COM/2011/0112 final [Online] [Consulted 5 March 2020]. Retrieved from : <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52011DC0112>

212 POLES Global energy model [Online]. EU Science Hub, 2017 [Consulted 10 May 2020]. Retrieved from: <https://ec.europa.eu/jrc/en/poles/model>

adaptation policy provisions.<sup>213</sup> There are, of course, trade-offs between adaptation and mitigation policies: as mitigation fails, more adaptation efforts would be required.

If this situation is not balanced and recognised, it may be necessary to incur in a disruptive course of action once climate impacts start to become acute, shifting focus to disaster risk management. Such a disruptive transition would highly increase the risk of stranded assets, as we have shown in the previous subchapters. At the same time, the costs of adaptation would increase, which is already more expensive, as some damages are unavoidable. It also follows that disruptive actions would threaten the security of supply, as low-carbon energy alternatives might not be developed at scale fast enough.<sup>214</sup>

Adaptation is a key component in the EU's actions and policy. The Commission adopted the EU adaptation strategy in April 2013 which has been welcomed by the Member States. It complements the activities of Member States and supports action by promoting greater coordination and information sharing between the Member States, and by ensuring that adaptation considerations are addressed in all relevant EU policies.<sup>215</sup>

**Table 2: National energy and climate plans (NECPs) [Online]. European Commission, 2019 [Cited 30 May 2020]. Retrieved from: [https://ec.europa.eu/energy/topics/energy-strategy/national-energy-climate-plans\\_en](https://ec.europa.eu/energy/topics/energy-strategy/national-energy-climate-plans_en)**

The EU was the first major economy to put in place a legally binding framework to deliver on its pledges under the Paris Agreement. To meet the EU's energy and climate targets for 2030, EU Member States had to establish a 10-year integrated national energy and climate plan (NECP) for the period from 2021 to 2030. Introduced under the Regulation on the governance of the energy union and climate action discussed earlier in this paper, the rules required the final NECP to be submitted to the Commission by the end of 2019, taking account of the Commission's assessment and recommendations on the draft plans, with a follow-up progress report every two years, with the next one in June 2020.

The national plans outline how the EU Member States intend to address the topics of energy efficiency, renewables GHG emissions reductions, interconnections, research and innovation. This approach requires a coordination of purpose across all government departments. It also provides a level of planning that will ease public and private investment. The fact that all EU Member States are using a similar template means that they can work together to make efficiency gains across borders. The Commission will, as part of the energy union report, monitor EU progress as a whole towards achieving these targets. Citizens, businesses and regional authorities must be consulted in the drafting and finalisation process.

The Commission published a Communication assessing the 28 draft NECPs in June 2019<sup>216</sup> together with specific recommendations and a detailed "Staff Working Document" for each Member State. The Commission also published detailed annexes on methodology<sup>217</sup> and national forestry accounting plans.<sup>218</sup>

The EU's role can be very appropriate when climate change effects transcend borders—for example, rivers—and when impacts vary considerably across regions. The EU's role can be especially useful to enhance solidarity among the Member States and ensure that those regions and people most affected by climate

213 Paris Agreement, loc. cit., footnote 17.

214 TOOZE, loc. cit., footnote 122; INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 195.

215 "EU climate action...", op. cit., footnote 80, Adaptation.

216 EUROPEAN COMMISSION. United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition [Online]. Brussels, 18 June 2019 COM(2019) 285 final [Consulted on 20 December 2020]. Retrieved from: <https://ec.europa.eu/transparency/regdoc/?fuseaction=list&n=10&adv=0&coteId=1&year=2019&number=285&version=F&dateFrom=&dateTo=&serviceId=&documentType=&title=&titleLanguage=&titleSearch=EXACT&sortBy=NUMBER>

217 EUROPEAN COMMISSION. Commission staff working document accompanying the document: United in delivering the Energy Union and Climate Action - Setting the foundations for a successful clean energy transition [Online]. Brussels, 18.6.2019 SWD(2019) 212 final [Consulted 30 March 2020]. Retrieved from: [https://ec.europa.eu/energy/sites/ener/files/documents/staff\\_working\\_documet\\_en\\_213.pdf](https://ec.europa.eu/energy/sites/ener/files/documents/staff_working_documet_en_213.pdf)

218 EUROPEAN COMMISSION. Commission staff working document assessment of the national forestry accounting plans regulation (EU) 2018/841 of the European Parliament and of the Council on the inclusion of greenhouse gas emissions and removals from land use, land-use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU. [Online] [Consulted 5 March 2020]. Retrieved from: <https://eur-lex.europa.eu/legal-content/NL/TXT/?uri=CELEX:52019SC0213>

change are capable of taking the necessary measures to adapt. The EU's key climate policies are listed in the table below.

**Table 3: EU Climate-related policies. Source: «EU Climate Action... », loc. cit., footnote 80.**

Action	Provisions
EU Emissions Trading System (ETS), 2005 - The world's first international emissions trading system.	Reduce GHG emissions from the power sector, industry and flights within the EU <sup>219</sup>
The Effort Sharing legislation: Regulation (EU) 2018/842 and Decision No 406/2009/EC	Establishes national targets for sectors outside emissions trading, such as transport, buildings and agriculture <sup>220</sup>
REDD+, 2013 and Land Use and Forestry regulation for 2021-2030 (LULUCF), 2018	Ensuring forests and land contribute to the fight against climate change by controlling land-based emissions <sup>221</sup>
A European Strategy for Low-Emission Mobility, 2016	Reducing GHG emissions from transport, e.g. through CO2 emission standards for vehicles <sup>222</sup>
Clean Energy for All Europeans, 2016	40% emission reduction by 2030 and covers the electricity market regulation and governance - Energy Union, energy efficiency, renewables, innovation, and transport
Energy efficiency – targets, directive and rules, 2012 Renewable energy directive and cooperation mechanisms, 2009	Boosting energy efficiency, renewable energy and governance of EU countries' energy and climate policies <sup>223</sup>
Innovation fund, 2019	Promoting innovative low-carbon technologies <sup>224</sup>
The EU Regulation on F-gases, No 517/2014	Phasing down climate-warming fluorinated GHG <sup>225</sup>
EU' Ozone Regulation' (Regulation (EC) 1005/2009)	Protecting the ozone layer <sup>226</sup>
EU Adaptation Strategy 2013, 2014	Adapting to the impacts of climate change <sup>227</sup>
Funding climate action	The EU budget supports EU climate objectives through most budget programmes. <sup>228</sup>
The European Green Deal, March 2020 The European Climate Law - proposal March 2020 The European Climate Pact, Q4/2020	Proposes the legally binding 2050 target and sets targets for the amount of carbon member states should reduce by 2030, aiming for social inclusiveness. <sup>229</sup>

Many more policies have an environmental dimension beyond climate: for example, support for nuclear power generation is strongly affected by how to deal with nuclear waste and associated costs. But phasing out nuclear power quickly leads to a gap in the electricity supply that needs to be filled somehow. This could be a reason to accelerate renewables investment but can also lead to fossil fuel-generation being extended as a back-up option. Circular economy measures may have overall resource efficiency as their goal, but more efficient use of resources can also lower demand for energy and energy-intensive materials. Recycling will require a lot of energy, which will need to be low carbon.<sup>230</sup> On the side of the climate impacts and adaptation, there are also linkages to a broad set of security issues. This includes energy security itself, as discussed before, but also food security, water security and traditional hard security issues. In the

219 "EU climate action...", op. cit., footnote 80, ETS. 220 "EU climate action...", op. cit., footnote 80, Efforts. 221 "EU climate action...", op. cit., footnote 80, Forests.

220 "EU climate action...", op. cit., footnote 80, Efforts.

221 "EU climate action...", op. cit., footnote 80, Forests.

222 "EU climate action...", op. cit., footnote 80, Transport.

223 "Energy topics", loc. cit., footnote 198.

224 "EU climate action...", op. cit., footnote 80, Innovation fund.

225 European Union continues to phase-down its use of climate-warming fluorinated gases [Online]. European Environment Agency, 4 February 2020 [Consulted 30 March, 2020]. Retrieved from: <https://www.eea.europa.eu/highlights/the-eu-continues-to-phase>

226 "EU climate action...", op. cit., footnote 80, Ozone.

227 "EU climate action...", op. cit., footnote 80, Adaptation.

228 "EU climate action...", op. cit., footnote 80, Budget.

229 EUROPEAN COMMISSION, "El Pacto Verde...", loc.cit., footnote 86.

230 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 197.

case of food security, biofuels and the demands on land, or its degradation, in general, can strongly affect agricultural yields and food prices. Water security can be affected both in scarcity terms, threatening agriculture, but also in terms of extreme rainfall and flooding threatening a loss of territory in some cases (e.g. small-island states). In adapting to these challenges, transboundary water management becomes a more salient issue. Security issues may arise as climate impacts can be seen as a ‘conflict multiplier’ over land or scarce resources. In the words of Germany at the UN Security Council, “climate change aggravates existing threats to international security”.<sup>231</sup>

In the European context, the Green Deal also provides financial support and technical assistance to assist the adjustment of individuals, businesses and regions most affected by the transition to the green economy. To this end, it has launched the so-called Fair Transition Mechanism, which will help mobilise at least 100 billion euros during the period 2021 to 2027.<sup>232</sup> Moreover, the European Parliament resolution of 17 April 2020 on EU coordinated action to combat the COVID-19 pandemic and its consequences calls for a massive post-crisis recovery and reconstruction package centred around the European Green Deal and the digitalisation in order to kick-start the economy, improve its resilience and create jobs while at the same time supporting the ecological transition and the EU objective of climate neutrality.<sup>233</sup>

To conclude, adaptation strategies, along with the mitigation ones, will be unavoidable and are required at all levels of administration: local, regional and national, EU and also the international level. Due to the different degrees of severity and nature of climate impacts between regions in Europe and worldwide, most initiatives will be undertaken regionally or locally. The ability to cope and adapt also differs across populations, sectors and regions. Plenty of work is needed in this regard, as well as in all the other topics presented in this thesis. Nevertheless, the EU seems to be on the right track, and in the best-case scenario, with the European Green Deal it will provide the example and lead the way for the rest of the world to successfully tackle the complex – but not insurmountable – challenges, counting on the progress of digitalisation and social inclusion: “leaving no one behind”.

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231 GERMAN FEDERAL FOREIGN OFFICE. Climate change: a threat to international security [Online]. 27 September 2018 [Consulted 2 May 2020]. Retrieved from: <https://www.auswaertiges-amt.de/en/aussenpolitik/themen/klima/group-of-friends-on-climate-and-security/2142038>

232 EUROPEAN COMMISSION, “El Pacto Verde...”, loc. cit., footnote 86.

233 EUROPEAN PARLIAMENT. Legislative resolution of 17 April 2020 on the proposal for a regulation of the European Parliament and of the Council amending Regulation (EU) No 1303/2013 and Regulation (EU) No 1301/2013 as regards specific measures to provide exceptional flexibility for the use of the European Structural and Investments Funds in response to the COVID-19 outbreak (COM(2020)0138 – C9-0095/2020 – 2020/0054(COD)) [Online] [Consulted 11 June 2020]. Retrieved from: [https://www.europarl.europa.eu/doceo/document/TA-9-2020-0050\\_EN.html](https://www.europarl.europa.eu/doceo/document/TA-9-2020-0050_EN.html)

## CHAPTER III. EU in Crisis – Implications for Climate and Energy Policies

It is undeniable that today the EU finds itself in a state of crisis,<sup>234</sup> accentuating the complexity of the challenges that it has to face, as we have seen in the previous chapters. Anxiety in Europe is high today, although that is not a new feeling for the continent. Even in the supposedly *golden age* of the EU (the '60s to '80s), many were afraid – of rising crime, terrorism or destructive events such as a cold war turning nuclear. Refugees and the Euro crisis have also strained EU solidarity, but the EU was able to agree on significant reforms since the crisis began. The EU implemented significant financial markets reforms and achieved the stabilisation of the Euro for the time being. In climate and energy policies, it also achieved some significant progress since 2009.<sup>235</sup> Among the current problems, Brexit and the COVID-19 pandemic are adding the most strain, and we will dedicate particular attention to them.

Aware of the dilemma inherent to the international struggle against climate change, the EU opted to take the lead in the climatic effort, and in March 2020 the EC passed the ambitious Green Deal, that we have described earlier in this thesis. In the absence of a strong leader and climate advocate that the US was supposed to be, the world is in need of a “lead by example” figure, which the EU is ready to provide. As per the Carnegie Institute, the time is now favourable for two reasons: first, there is a renewed political appetite for a positive vision in which the EU provides solutions to people’s worries; second, there is no time to waste.<sup>236</sup>

We have seen that the EU is interested in decarbonisation not only because of the fight against climate change but also for energy security reasons, given that its primary energy production is low. Yet these limitations also mean that the European industrial companies – especially the ones that consume much energy – have to bear environmental costs that producers in other parts of the world do not have to put up with.<sup>237</sup>

On a more positive note, according to the Carnegie Institute Europe, the EU offers five key advantages that can help it in successfully addressing the crisis:<sup>238</sup>

1. **Scale:** The size of the EU can achieve things at the scale of a little less than half a billion (after Brexit) that the smaller communities are unable to.
2. **Open societies:** The EU, based on democracy, the rule of law and fundamental human rights, has well-educated people overall, including scientists and experts in different fields, who are free to express their opinions in a democratic way via an open media and to choose their identities and lifestyles.
3. **Solid agreements:** The EU’s community of law makes strong agreements. Unlike non-binding intergovernmental pacts that signatories can easily withdraw from, the EU’s members are bound into a system with legal remedies and political pressure, making it much more difficult to go back on agreements.
4. **Money:** The EU’s common budget is relatively small but big enough (at 1% of the EU’s GDP) to contribute with resources when the economic and social cost of adaptation becomes too great.

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234 Press statement by Michel Barnier following the second round of future relationship negotiations with the United Kingdom [Online]. European Commission, 24 April 2020 [Consulted 25 April 2020]. Retrieved from: [https://ec.europa.eu/commission/presscorner/detail/en/statement\\_20\\_739](https://ec.europa.eu/commission/presscorner/detail/en/statement_20_739)

235 MEYER-OHLENDORF, op.cit., footnote 9, pp. 7-15.

236 CARNEGIE EUROPE. *Refocus the European Union: Planet, Lifetime, Technology, A Report by the European Reformists* [Online]. Brussels: Grabbe, H.; Valášek, T., 2019 pp. 2-5 [Consulted 6 June 2020]. Retrieved from: <https://carnegieeurope.eu/2019/04/30/refocus-european-union-planet-lifetime-technology-pub-79008#introduction>

237 INSTITUTO ESPAÑOL DE ESTUDIOS ESTRATÉGICOS, op. cit., footnote 27, p. 70.

238 CARNEGIE EUROPE, op. cit., footnote 236.

5. Global norms: The EU has the power to set global norms in the public interest, thanks to its sophisticated legal and political infrastructure and its administrative capacity to lead multilateral cooperation.

These five points are vital to handling the cross-border dimensions of climate change and global public goods. Moreover, the EU governments and political elites are used to working together and finding common ground, which, as we have seen, is absolutely necessary for climate policy negotiations.<sup>239</sup>

**Table 4: Brief overview of the latest EU budget negotiations. Source: EUROPEAN COUNCIL, loc. cit., footnote 239.**

In a nutshell, on 23 April 2020, the European Council decided to work towards establishing a recovery fund to respond to the COVID-19 crisis. It tasked the European Commission with coming up with a proposal urgently, which would also clarify the link between the fund and the EU's long-term budget.

Next, leaders discussed the proposal for a new recovery instrument and for the multiannual financial framework (MFF) for 2021-2027, presented by the European Commission on 27 May 2020. The Commission's proposal is a seven-year EU budget of 1 850 billion:

- a revised long-term EU budget of €1 100 billion for 2021-2027
- a temporary reinforcement of €750 billion – Next Generation EU

On 19 June, the members of the European Council met via video conference. EU leaders discussed the issue of a recovery fund to respond to the COVID-19 crisis and a new long-term EU budget. They also followed up on EU-UK relations. President Michel will start serious negotiations with the member states, and will convene an in-person summit, around mid-July in Brussels, to focus on concrete proposals and said: “We are aware that it is essential to take a decision as soon as possible”.

We believe that the EU should take advantage of these resource to the full extent for managing the current crisis. Europeans have a monumental opportunity to adapt to the inevitable restructuring of economies, politics, and society. If successful, the roadmaps they take could also help other parts of the world.<sup>240</sup> Unfortunately, Brexit and the COVID-19 crisis make it all the more difficult.

## 1. Climate and Energy Policies Side-Lined by COVID-19

The global warming represents humanity's greatest challenge today, but the recent devastating COVID-19 pandemic has threatened to push the debate on climate emergency to the background of all nations' public and political agenda. However, despite initial fears by experts and politicians that the “green transition” would be parked in the face of the need for a health emergency, climate change and awareness of accelerating an ecological transition – on which some deadlines have already been put in place – retain the strength of a fundamental debate.<sup>241</sup>

According to the European Parliament Think Tank, “the COVID-19 crisis and the need for economic recovery programmes come at a critical moment for European climate action. The EU not only has to implement the challenging targets of the 2030 climate and energy framework. It is also in the process of assessing and raising its 2030 targets, with a view to revising much of the EU's climate and energy legislation in 2021. The challenge is to set up crisis recovery programmes in such a way that they remain compatible with raised climate ambitions and avoid investments in carbon-intensive industries and processes”.<sup>242</sup>

The Centre on Regulation in Europe considers the COVID-19 crisis as a “game-changer for EU climate and energy policies,” and sets out recommendations such as price corridors for the EU ETS, modelling of crisis scenarios in the development of the 2030 climate target plan, flexible guidelines for State aid

239 Ibid.; EUROPEAN COUNCIL. Long-term EU budget 2021-2027 [Online]. 19 June 2020 [Consulted 19 June 2020]. Retrieved from: <https://www.consilium.europa.eu/en/policies/the-eu-budget/long-term-eu-budget-2021-2027/>

240 CARNEGIE EUROPE, loc. cit., footnote 238.

241 MONJE, C. Ideas para acortar la distancia: Crisis Ambiental y el Covid-19 [Online]. Fundacion Felipe Gonzalez, 29 May 2020 [Consulted 29 May 2020]. Retrieved from: <https://www.fundacionfelipegonzalez.org/ideas-para-acortar-la-distancia-crisis-ambiental-y-el-covid-19/>

242 EUROPEAN PARLIAMENT. “Impact of...”loc. cit., footnote 140.

for environmental protection and energy, a greater role for regulatory authorities in the governance of National Energy and Climate Plans (NECPs), and the establishment of an EU observatory for distributional effects of the energy transition.<sup>243</sup>

Measures to contain the COVID-19 pandemic have led to a dramatic reduction in travel and economic activity. In consequence, energy consumption and GHG emissions have fallen sharply, leading the prices of energy commodities, especially oil to crash, and affecting emissions allowances, which have also dropped rapidly.<sup>244</sup>

Thanks to lessons learned after the 2008 economic crisis, which caused a massive surplus of carbon emission allowances in the EU ETS, a market stability reserve was put in place in 2019 to automatically adjust the supply of these allowances to actual demand and prevent a collapse of the carbon price. The handling of the COVID-19 crisis has already created an economic slowdown, reduced tax incomes and increased government spending to support companies and citizens.<sup>245</sup> However, post the financial crisis, experts point out that the opportunity to invest in sustainable infrastructure and green growth was missed and that the same should not happen this time.<sup>246</sup>

While the health crisis may have changed the way we act, it has not changed at all the need for acting against climate change. Consequently, improvement programs are viewed as important to relaunch the economy after the emergency. While a few governments consider that projects like the European Green Deal will block monetary recuperation after the emergency, the EU keeps up that the European Green Deal is the prime development system that can support Europe's financial recuperation while simultaneously tending to the worldwide climatic crisis. The limitations on travel and social gatherings may likewise hinder action identified with the European Green Deal, as EU establishments change their schedules, plans and needs, so everything is likely to proceed at a slower pace. Dynamics under the UNFCCC and other International Organisations are likewise influenced by the crossing out and deferment of significant gatherings and high-level meetings.<sup>247</sup>

It is worth pointing out in this context, one of the main weaknesses with which the Green Deal arises: the lack of an adequate budget. Experts such as Javier García Brea note<sup>248</sup> that the implementation of the European Green Deal requires an investment of 260 billion<sup>249</sup> euros per year, 1.5% of European GDP. As it is known, the EU 2021-2027 budgetary framework<sup>250</sup> is under discussion, and central states such as Germany or the Netherlands maintained restrictive policies so as not to exceed 1%. If the hurdle of harmonising environmental taxation is joined by this, the result is the difficulty of implementing a budget that will enable a Green Deal with the necessary ambition.

As if that wasn't hard enough, the Commission's new recovery plan called Next Generation EU, prompted by the pandemic and worth 750bn has been proposed to help the EU tackle an "unprecedented crisis". Ms Von der Leyen said<sup>251</sup> the 750bn fund proposes 500bn in grants and 250bn in loans. It would be raised by lifting the EU's resources ceiling to 2% of EU gross national income and would be reliant on the EU's

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243 Ibid.

244 IRENA, "Global Renewables...", op. cit., footnote 44, pp. 4-5.

245 EUROPEAN PARLIAMENT. "Impact of...", loc. cit., footnote 140.

246 GILL, V. Mark Carney: "We can't self-isolate from climate change". BBC [Online]. 7 May 2020 [Consulted 10 May 2020]. Retrieved from: <https://www.bbc.com/news/science-environment-52582243>

247 EUROPEAN PARLIAMENT. "Impact of...", loc. cit., footnote 140.

248 BREVA, J. G. El Pacto Verde: de la emergencia climática a la emergencia nuclear [Online]. 13 January 2020 [Consulted 10 March 2020]. Retrieved from: <https://www.tendenciasenenergia.es/pacto-verde-de-la-emergencia-climatica-a-la-emergencia-nuclear/5703>

249 EUROPEAN COMMISSION. Sustainable Europe Investment Plan. European Green Deal Investment Plan [Online]. Brussels, 14.1.2020, COM(2020) 21 final [Consulted 10 June 2020]. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0021&from=EN>

250 Multiannual financial framework for 2021-2027: negotiations [Online]. European Council and Council of the EU, 2020 [Consulted 30 May 2020]. Retrieved from: <https://www.consilium.europa.eu/en/policies/eu-budgetary-system/multiannual-financial-framework/mff-negotiations/>

251 "Europe's moment...", loc. cit., footnote 12.

strong credit rating. When added to a proposed 1.1 trillion budget for 2021-27, and to an earlier 540bn rescue package, it will amount to a total of 2.4tn,<sup>252</sup> said the Commission president, needed to “kick-start our economy and ensure Europe bounces forward”.

Needless to say, this adds to the strain of tense debate between northern *frugal* states of EU and the southern countries which are once more in a position of relief seeking little over a decade after the 2008 crisis. This topic will be more amply discussed in the next subchapter.

Furthermore, plans for the Green Recovery Fund have been given a partial welcome by environment groups. These have argued that it is of vital importance for the EU to spend most of its post-COVID-19 stimulus package on projects that will aid the climate crisis at the same time. They say the investments should be driven into green projects needed to meet Europe’s net-zero emissions targets. But there’s the annoyance that Brussels has allowed regions to spend their funds freely until 2022 – even if that means investing in schemes which are not good for the climate.<sup>253</sup>

Calls by some States and MNCs to delay measures in the ecological transition, or the relaxation of environmental requirements have raised alarms. Hence, particularly important movements such as the one on 14 April 2020 that resulted in European Alliance for a Green Recovery are particularly important. At the initiative of Pascal Canfin, chair of the Environment Committee of the European Parliament, with 180 political representatives, business leaders, trade unions and NGOs part of its birth to call on the EU to overcome this recession with the fight against climate change. According to this Alliance, COVID-19 will not make climate change and nature degradation go away. The fight against the pandemic cannot be won without a solid economic response and an inclusive strategy. Therefore, we should not oppose those two battles, but fight and win them at the same time.<sup>254</sup>

There is a silver lining even in this tragic situation: the lower energy demand associated with the coronavirus pandemic – in combination with Brexit – should enable the EU as a whole – as well as many of the Member States – to reach their 2020 targets for renewable energy sources.<sup>255</sup> However, while this might appear to be good news, Hans Bruyninckx,<sup>256</sup> Executive Director of the European Environment Agency (EEA), warns that ‘major and abrupt shocks with an extremely high cost to society are not at all how the European Union has committed to transform its economy and achieve climate neutrality by 2050.’ The World Meteorological Organization reports that while emissions<sup>257</sup> may have dropped, the observed concentrations of CO2 in the atmosphere this year have been higher than in 2019.

Furthermore, aside from lifting the smog and air pollution curtains around the world – the pandemic is said to have also lifted the curtain of disinformation. It has shown us the depth of the inequalities both within richer societies as well as between developed and developing nations. And most importantly it has demonstrated that action can be taken rapidly when there is political will and the conviction that the threat is real, and it may provide a roadmap and opportunity for dealing with the climate crisis. The timeline is the key difference between the climate and the health crisis – one is immediate while the

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252 EUROPEAN COMMISSION. The EU budget powering the recovery plan for Europe COM/2020/442 final [Online] Brussels, 27 May 2020 [Consulted 29 May 2020]. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:442:FIN; Coronavirus: Von der Leyen calls 750bn recovery fund> <https://www.bbc.com/news/world-europe-52819126>

253 Coronavirus: Von der Leyen calls 750bn recovery fund “Europe’s moment”. BBC [Online]. 27 May 2020 [Consulted 27 May 2020]. Retrieved from: <https://www.bbc.com/news/world-europe-52819126>

254 ECESP Coordination Group shares its views on the Green Recovery Initiative [Online]. European Circular Economy Stakeholder Platform, 29 April 2020 [Consulted 30 April 2020]. Retrieved from: <https://circulareconomy.europa.eu/platform/en/news-and-events/all-news/ecesp-coordination-group-shares-its-views-green-recovery-initiative>

255 EUROPEAN PARLIAMENT. “Impact of...”, loc. cit., footnote 140.

256 Ibid. BRUYNINCKX, H. Reflecting on climate-neutrality ambitions in Europe in times of Covid-19 [Online]. European Environment Agency, March 2020 issue, EEA Newsletter 01/2020 [Consulted 12 June 2020]. Retrieved from: <https://www.eea.europa.eu/articles/reflecting-on-climate-neutrality-ambitions>

257 WORLD METEOROLOGICAL ORGANIZATION. Economic slowdown as a result of COVID is no substitute for Climate Action [Online]. 24 March 2020 [consulted 12 June 2020]. Retrieved from: <https://public.wmo.int/en/media/news/economic-slowdown-result-of-covid-no-substitute-climate-action>

other is foreseen in the near future. Nevertheless, both are non-discriminatory towards their victims and suppose health and economic risks for humanity – in fact, much amplified in the climate change case.

The outbreak of the COVID-19 and its impact on economic growth and oil demand and price, serve as reminders that in a complex world, there are also unforeseen factors that have the potential of disrupting an actual trend or a planned process. It highlights the fact that the close interconnections between nature, the energy system and the wider economy are of prime importance.

The health crisis will have an impact on the energy transition, too, threatening global supply chains in many sectors.<sup>258</sup> The oil price volatility can have contradictory effects, such as lowering fuel costs for motorists, which may encourage more driving and could lessen the appeal of electric vehicles. The severity and duration of the impacts in both cases remain to be seen, but this will not change the path required to build a low-carbon society.

## 2. Strained EU Solidarity Between the North and South of Europe

The current crisis is evidently testing the limits of our system. A worrying issue, on the one hand, is that the least ambitious Member States could exercise a veto<sup>259</sup> and the EU's efforts would be reduced considerably. The political consequences of such a potential practice seem harsh – although it is too simplistic to assume the least ambitious Member State would necessarily determine the speed and level of ambition of future EU climate policies. However, as we have stated throughout this thesis, climate objectives are rather meaningless if achieved only by some, they need the full involvement of all nations.

On the other hand, there is the issue of climate financing, in line with the previous subchapter. This crisis is also a test of our great European solidarity and of our institutions, which acted fast from the start of the crisis to deploy protection measures and support packages. The problem arises as we shall see in this subchapter between the ones who provide most of the finances, generally the North and the ones mostly asking for help, the South.

As part of a forward-looking EU agenda on energy and climate policy, there are areas which will need further improvement to achieve all the policy objectives. Of special importance to this forward-looking agenda on future energy policies, is examining how the Union takes decisions in this area. Looking back to the State of the Union address of 2017, former President Juncker made clear that “for important single market questions, decisions in the Council should be taken more often by qualified majority – with the equal involvement of the European Parliament. This latter issue is particularly relevant in the nuclear area where decisions under the Euratom Treaty do not involve the European Parliament on the same terms as foreseen in the ordinary legislative procedure of the Lisbon Treaty.<sup>260</sup> It is also to be noted that states from the North of Europe are more advanced on environmental protection, in part due to the culture of a stricter, more organised and *frugal* nature, and they also possess more financial means for addressing such challenges. In exchange, we have seen that the southern countries keep having economic problems and are once more in need of significant help from the already reticent “wealthier” neighbours. We can take, for example, the EU new recovery package, which includes a large part of grants versus loans, and has received contradictory remarks as follows.<sup>261</sup> French President Emmanuel Macron spoke of an “essential day for Europe” while Italian Prime Minister Giuseppe Conte said: “Now let’s speed up the negotiation and make the resources available soon”. Spanish Prime Minister Pedro Sánchez said the plan included “many

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258 IRENA, “Global Renewables...”, op. cit., footnote 44, p. 53.

259 Andrej Babis, Czech Prime Minister, said on 16 March 2020 that Europe should abandon the Green Deal and focus on the coronavirus instead. This view is shared by Janusz Kowalski, Poland’s Deputy Minister of State Assets, who suggested that the EU should abolish the Emission Trading System or exempt Poland from it. The Polish climate ministry indicated that important energy projects might be delayed or suspended while crisis-struck companies lack the funds for investment; EUROPEAN PARLIAMENT. “Impact of...”, loc. cit., footnote 140.

260 EUROPEAN COMMISSION. A more efficient and democratic decision making in EU energy and climate policy [Online]. Brussels, 9.4.2019 COM(2019) 177 final [Consulted 30 May 2020]. Retrieved from: [https://ec.europa.eu/commission/sites/beta-political/files/communication-efficient-democratic-decision-making-eu-energy-c-limate-april2019\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/communication-efficient-democratic-decision-making-eu-energy-c-limate-april2019_en.pdf)

261 “Coronavirus...”, loc. cit., footnote 253.

of our demands” and was “a starting point for negotiations”. Greece said it was a “bold proposal” and it was now up to member states to “rise to the occasion”. There was a more cautious reaction from some of the so-called *frugal* states. Danish Foreign Minister Jeppe Kofod said the current budget plan was “simply too high”. Dutch Prime Minister Mark Rutte had already warned that a recovery fund “should consist of loans, without any mutualisation of debts”. Austria suggested 500bn in grants was a “non-starter” at this point. The Commission’s proposal for paying this amount back hopes to dissipate some tensions and it is based on a green recovery and digitalization: a carbon tax based on the Emissions Trading Scheme, a digital tax and a tax on non-recycled plastics. Negotiations are continuing and will convene for a presential summit, towards mid-July in Brussels, to focus on concrete proposals.<sup>262</sup>

The EU Solidarity spirit is definitely not lost, but significant efforts need to be made to keep this situation afloat as it seems unsustainable to continuously provide financial assistance to the same countries. These tensions are essential and need to be resolved because in the face of climate change, the efforts will have to be even greater, and most of all, inclusiveness will have to prevail.

### 3. Rise of EU Sceptical Sentiment and Anti-Climate Policy Agendas

Criticism of globalisation, EU scepticism and nationalist political opinions have been gaining support in Europe over the past few years. The Economist<sup>263</sup> has even described the new political divide between attitudes open to multilateralism and closed nationalist views as more divisive than the historical split between left and right. For example, the Brexit campaign was almost exclusively inward-looking – only about what serves Britain’s interests and the discussion about how Brexit would affect the rest of the continent was practically absent from the debate. This trend is a problem for how the EU pursues its ambitious climate and energy policies, especially if it gains more support or even majorities. As a definition, the nationalistic view supporters and EU-sceptical opinions also believe that nation-states are better suited to addressing the needs of their population. The EU, in contrast, is deemed by them as a “bureaucratic project that lacks transparency and causes more problems than it solves”. Such a trend could weaken EU support for climate and energy policies as the EU might be regarded by them not as part of the solution, but as part of the problem.<sup>264</sup>

With the atmosphere as an essential global public good and climate policies being inherently international, the path to preventing dangerous climate change will demand in practice extensive global cooperation. Additionally, the public goods system depends on a specific level of universal solidarity, that the individuals who are in a situation to take on more part in ought to do as such. Nationalistic strategies, on the other hand, have practically no will to seek after global arrangements. Moreover, they are considerably opposed to moving national abilities to a supranational body. This could likewise hinder the further improvement of EU climate policies, specifically where it includes a transfer of national power to the EU. In a general sense, the EU is seen universally as the most developed model where a gathering of nations has consented to surrender a portion of their power to mutually seek after beneficial common causes and goals.<sup>265</sup>

More than likely, climate warming will affect each region in various manners and at various paces. A few nations may profit by new farming grounds and improved seasons, while others are required to experience the ill effects of rising ocean levels, heat waves, dry spells, or tempests. All things considered, Europe – especially Northern Europe – won’t be hit first or hardest. Tolerating climate change as an issue along these lines requires a significant measure of sympathy for those that will be influenced more by it – living in especially vulnerable parts of the world. Inherently, nationalistic perspectives tend to ignore the destiny of others; the own nation matters more than what happens somewhere else. However, climate

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262 Ibid.

263 The new political divide. The Economist [Online]. 30 July 2016 [Consulted 30 May 2020]. Retrieved from: <https://www.economist.com/leaders/2016/07/30/the-new-political-divide>

264 MEYER-OHLENDORF, op. cit., footnote 235, pp. 16-20.

265 HEPBURN, C.; TEYTELBOYM, A. Climate change policy after Brexit. *Oxford Review of Economic Policy* [Online]. Volume 33, Issue suppl\_1, 1 March 2017, pp. S144-S154 [Consulted 8 March 2020]. Retrieved from: <https://doi.org/10.1093/oxrep/grx004>

policies need to take account of the deep inequalities that exist internationally and the effects on others, possibly in very distant countries.<sup>266</sup>

In an interconnected and globalised world, where digitalisation and fast transport prevail, decisions in China or the US, for example, can impact local energy policies. We only have to look at the lessons learned from the COVID-19 crisis in terms of how fast it spread and the need for innovation and digitalisation to adapt. A nationalistic view does not generally take these developments into account but instead take a narrow and limited focus about what is best for their country. There is a general lack of understanding that it is in the enlightened self-interest of countries to consider the shortcomings of others and to make a contribution to the good of the entire community.<sup>267</sup>

Moreover, right-wing parties are on the rise in many European countries. In Poland and Hungary, they are governing, supported by parliamentary majorities. In some other Member States, they are an opposition force that is starting to shape political speech. This is no good news for transformative climate policies because the attitudes of these parties towards climate change go from indifference to outspoken denial. All of these parties have a critical view of international cooperation and believe in re-nationalisation, when contrary to this, effective climate policies largely depend on international cooperation and possibly the transfer of some competencies to international bodies.

The sense of fear instilled by right-wing populists do not easily lead to an optimistic outlook into the future, the courage to tackle great changes or acceptance of short-term costs in exchange for a longer-term benefit. This sits uneasily with the transformation narrative of climate policies within the EU.

Particularly distressing is the observation that, beyond the confines of climate policy, the rising populist parties have a tendency of rejecting scientific methods and empirical evidence when it does not fall in line with their arguments, often relying on emotions, ideologies or intuition. Former Tory Justice Secretary Michael Gove asserted during the Brexit referendum that “people in the country have had enough of experts”.<sup>268</sup> This is of particular concern for the development and prevalence of climate policies because climate change identification, prediction and planning necessarily rely on the interpretation of data by experts. If scientific findings as an objective and impartial basis for policymaking are contested, this is bad news for climate policy of any sort.<sup>269</sup>

## 4. Brexit effects on EU Climate and Energy Policies

After the General Election which took place in the UK in December 2019 and the ratification by both the UK and EU parliaments of the Withdrawal Agreement, the UK left the EU on 31 January 2020 to enter a transition period that is set to end on 31 December 2020. The existing rules for the UK and EU will continue to apply during the transition period, but the UK is no longer a member of the EU’s political institutions, including the European Parliament and European Commission, as well as other EU bodies.<sup>270</sup>

Climate change did not play a prominent role in the Brexit referendum campaign but following the vote to leave there has been a scramble among academics and policymakers to understand exactly what the exit from the EU will mean for climate policy. This chapter examines the implications of Brexit for the politics of climate change in the EU and beyond. The three key climate change policy issues at stake after Brexit are:<sup>271</sup>

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266 MEYER-OHLENDORF, *op. cit.*, footnote 235, pp. 16-20.

267 STARKEY, B.; BOYER, MA; WILKENFELD, J. *International Negotiation in a Complex World* (New Millennium Books in International Studies). Updated Fourth Edition. New York: Rowman & Littlefield Publishers, 2016, p. 218. ISBN-10: 1442276711

268 MANCE, H. Britain has had enough of experts, says Gove. *Financial Times* [Online]. 3 June 2016 [Consulted 29 May 2020]. Retrieved from: <https://www.ft.com/content/3be49734-29cb-11e6-83e4-abc22d5d108c>

269 MEYER-OHLENDORF, *op. cit.*, footnote 235, pp. 16-20.

270 ENERGY UK. Brexit and future EU-UK energy relationship [Online]. 02 February 2018 [Consulted 2 June 2020]. Retrieved from: <https://www.energy-uk.org.uk/publication.html?task=file.download&id=6547>

271 HEPBURN, *loc. cit.* footnote 265.

- British climate policy, especially the carbon price faced by firms and households, as well as reduction of support for research and development in clean energy technologies in Britain
- The EU’s climate and energy policy
- The likelihood that nations collectively reach rational international agreements to reduce emissions, partly affected by underlying shifts in the perceived value of expertise.

Our focus in this thesis is on the last two. In our opinion, environmental problems are invariably transboundary and therefore require cooperation across states, so any divisions are counterproductive. The UK exit from the EU will have negative implications – limited, however – for the EU climate policies from our point of view, for a number of reasons. A powerful advocate for ambitious climate policies and ETS is leaving the Union. The UK has been a powerful proponent for a strong international climate regime. Nevertheless, the UK’s departure could open up new opportunities for the EU. The UK has been against legally binding renewable energy and higher energy efficiency targets. Higher EU budgets and harmonisation of energy taxation in the EU have also been focal points against which the UK has lobbied. On the other hand, with the departure of the UK, proponents of nuclear energy and the exploitation of unconventional gas lose an important ally.<sup>272</sup>

The implications of Brexit on EU climate and energy policies depend largely on the outcome of the exit negotiations between the EU and the UK. These negotiations have started, but so far, they are considered slow and disappointing, additionally marked by the COVID-19 pandemic. Brussels expects the UK to say “No”. That has been the often-repeated message out of Downing Street. We might then expect an announcement that they will begin stepping up no-deal preparations, as they head into a season of more tense negotiations, not made any easier by the social distancing.<sup>273</sup>

Regardless of the outcome of these negotiations, it is clear that the UK will have significantly less influence on EU climate and energy policies than a full EU member. There could, however, be a number of negative implications for EU climate and energy policy, which we will detail in this chapter:<sup>274</sup>

- With the UK, an advocate for ambitious climate policies departs.
- Brexit will strain political focus and diplomatic capacity as well as the administration.
- Effort sharing: the UK’s contribution to the EU’s climate targets will have to be shared across the remaining states.
- ETS: the EU would lose one of the strongest proponents of carbon pricing and ETS.
- EU loses an advocate for liberalised energy markets and against tax harmonisation.
- Less opposition against EU renewable energy policies but also less support of nuclear energy and the exploitation of unconventional gas.

As for the UK–EU integration on energy and climate change policy, it can be summarised as follows:<sup>275</sup>

1. The UK and the EU energy and climate change policies are closely aligned, and both energy sectors are integrated through trade, directives and interconnection of energy supply. On climate change, the UK acts both domestically and internationally, in accordance with its Climate Change Act, 2008 and EU climate-related directives.
2. A dual approach was reflected when the UK signed the 2015 Paris Agreement as both a national signatory and as part of the EU.

272 MEYER-OHLENDORF, *op. cit.*, footnote 9, pp. 22-25.

273 ADLER, *loc. cit.*, footnote 11.

274 MEYER-OHLENDORF, *op. cit.*, footnote 9, pp. 22-25.

275 HOUSE OF COMMONS BUSINESS, ENERGY AND INDUSTRIAL STRATEGY COMMITTEE. Leaving the EU: negotiation priorities for energy and climate change policy [Online]. Fifth Report of Session 2016–17 [Consulted 12 May 2020]. Retrieved from: <https://publications.parliament.uk/pa/cm201617/cmselect/cmbeis/909/909.pdf>

3. The UK has also led to the development of the EU’s coordinated approach to emissions reductions. The Committee on Climate Change (CCC) has recommended that the UK should continue to adhere to those EU policies and schemes that are working effectively. It has stated that “If the UK is to remain on track to meet its target to reduce emissions by at least 80% of 1990 levels by 2050, some 55% of the emissions reductions required by 2030 would be achieved by retaining or replicating EU policies and initiatives, such as product and efficiency standards, the EU ETS and sectoral targets.”<sup>276</sup>

**Table 5: Energy policy currently shared by the EU, UK and devolved administrations.**

Source: BBC Briefing, op. cit., footnote 24, p.185.

European Union (EU)	United Kingdom (UK)	Devolved administrations
<ul style="list-style-type: none"> <li>• Promoting energy efficiency</li> <li>• Promoting renewables</li> <li>• Internal gas and electricity market regulation</li> <li>• GHG emissions trading schemes</li> <li>• Innovation, research and development funding</li> <li>• Trade in nuclear materials (Euratom)</li> <li>• Cross-border market integration and network harmonisation (ACER)</li> </ul>	<ul style="list-style-type: none"> <li>• Regulating gas and electricity markets (Ofgem)</li> <li>• Securing energy supply</li> <li>• Renewable energy and energy efficiency subsidies and grants</li> <li>• Nuclear licensing and nuclear safety</li> <li>• Climate change targets and emissions reduction</li> <li>• Innovation, research and development funding</li> <li>• Supervision and licensing of oil, gas and coal resources</li> </ul>	<ul style="list-style-type: none"> <li>• Most transport policies (including air passenger duty from 2016)</li> <li>• Offshore and onshore energy installations</li> <li>• Fuel poverty support systems</li> <li>• Role in energy efficiency and renewable promotion</li> <li>• Economic development programmes</li> <li>• Housing law and construction regulation</li> </ul>

#### 4.1. The EU Loses an Advocate for Ambitious Climate Policies

The UK has committed to a range of international and EU targets relating to renewable energy, energy efficiency and climate change. It is a member of the UNFCCC – which acts as an umbrella organisation for international action to tackle climate change – and it is a signatory of the 2015 Paris Agreement under which most countries have made their pledges.<sup>277</sup>

As part of the EU, the UK has agreed to contribute towards the EU 2030 target of at least a 40% emissions reduction compared to 1990 levels. UK climate policy is mainly governed by domestic instruments, including the UK Climate Change Act (CCA), adopted in 2008.<sup>278</sup> The CCA established the long-term target to reduce GHG emissions by 80% on 1990 levels by 2050. The independent CCC gives advice to the government on the policies required to reach targets and reports on progress. The UK government has developed a Clean Growth Strategy<sup>279</sup> to help with the achievement of the targets up to 2032 and has committed to phasing out coal-fired electricity generation by 2025 and becoming net-zero by 2050.<sup>280</sup>

In addition, the GHG emissions of the EU are approximately eight times larger than the emissions in the UK.<sup>281</sup> The impact of Brexit on EU climate policy is, therefore, potentially of greater significance to climate

276 COMMITTEE ON CLIMATE CHANGE. Meeting Carbon Budgets: Implications of Brexit for UK climate policy [Online]. Briefing note October 2016 [Consulted 12 May 2020]. Retrieved from: <https://www.theccc.org.uk/wp-content/uploads/2016/10/Meeting-Carbon-Budgets-Implications-of-Brexit-for-UK-climate-policy-Committee-on-Climate-Change-October-2016.pdf>

277 BURNS, C. et al. *UK Environmental Policy Post-Brexit: A Risk Analysis Report for Friends of the Earth* [Online]. Brexit and Environment, March 2018, p 1-40 [Consulted 7 March 2020]. Retrieved from: <https://www.brexitenvironment.co.uk/wp-content/uploads/2018/04/Environment-and-Brexit-Risk-Analysis-C-Burns-Et-al-2018.pdf>

278 UK PUBLIC GENERAL ACTS. Climate Change Act 2008 [Online] [Consulted 30 May 2020]. Retrieved from: <http://www.legislation.gov.uk/ukpga/2008/27/contents>

279 UK GOVERNMENT, DEPARTMENT FOR BUSINESS, ENERGY & INDUSTRIAL STRATEGY. Clean Growth Strategy: An ambitious blueprint for Britain’s low carbon future [Online]. 12 October 2017, updated 16 April 2018 [Consulted 27 May 2020]. Retrieved from: <https://www.gov.uk/government/publications/clean-growth-strategy>

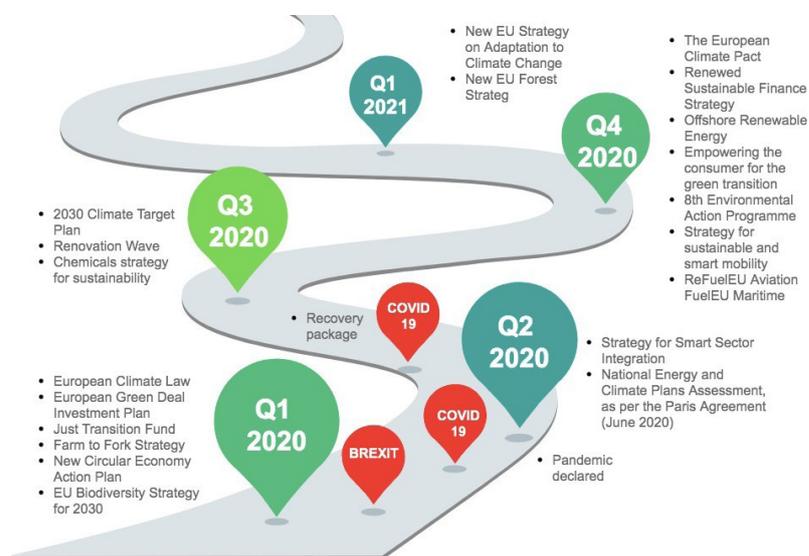
280 UK GOVERNMENT, DEPARTMENT FOR BUSINESS, ENERGY & INDUSTRIAL STRATEGY AND THE RT HON CLAIRE PERRY. Speech to the Conference of Parties (COP) 23 [Online]. 17 November 2017 [Consulted 20 May 2020]. Retrieved from: <https://www.gov.uk/government/speeches/speech-to-the-conference-of-parties-cop-23>; “BBC Briefing: Energy”, op. cit, footnote 24, p. 48.

281 MUNTEAN, loc. cit., footnote 18.

change than the impact of Brexit on British climate policy. In light of the risks that Brexit potentially raises for both the EU and the UK, the prime minister has decided to include in any future trade agreement an “environmental non-regression clause” and a reference to a new “environmental advancement principle”<sup>282</sup> that underlines the importance of pursuing ever-higher environmental standards after exit day. This will prevent regulatory stalemate at national levels, but it is unclear if, in fact, these more ambitious goals will be pursued successfully, without the strong back-up of the EU.

Initially, there was a strong sense at the EU level that the UK’s exit may weaken European ambition where the UK is regarded as a key player.<sup>283</sup> There were concerns that Brexit will see a shift in the balance of power within the EU Council that will enable more sceptical states – especially the ones that find the green transition more challenging, such as Poland – become more vocal and impact on lowering overall EU ambition. Losing the UK’s diplomatic expertise within the EU negotiating team in broader international forums was also a concern.<sup>284</sup>

Figure 10: European Green Deal Roadmap 2020 – own adaptation based on European Commission,



Loc. cit., footnote 284.

However, seeing how the chain of events is progressing, it doesn’t seem like the EU is budging from its ambitious plans, which are steady and on course, albeit with minor delays due to the health crisis<sup>285</sup> (see Appendix Table 8 for the Adjusted Commission Work Programme 2020).

#### 4.2. Loss of Political Focus and Added Strain on Administration

Independent of how and when Brexit evolves, it is already creating administration strain. This strain will be felt like a matter of first importance on the UK itself – which needs to upgrade a lot of its legitimate and political framework – yet additionally, it will be felt as well on the EU bodies. Sifting through the negotiations with the UK the way it has been, forced a huge strain on the EU, both strategically and on a managerial level. The equivalent is valid for political focus, including at high-level conferences. With

282 HARVEY, F. Boris Johnson urges major economies to go carbon neutral by 2050. *The Guardian* [online]. 4 February 2020 [Consulted 11 March 2020]. Retrieved from: <https://www.theguardian.com/environment/2020/feb/03/pm-urges-major-economies-to-go-carbon-neutral-by-2050>

283 HEPBURN, loc. cit., footnote 265.

284 Ibid.

285 EUROPEAN COMMISSION SECRETARIAT GENERAL. 2020 Commission Work Programme – key documents [Online]. 29 January 2020, Last updated on 27 May 2020 [Consulted 13 June 2020]. Retrieved from: [https://ec.europa.eu/info/publications/2020-commission-work-programme-key-documents\\_en](https://ec.europa.eu/info/publications/2020-commission-work-programme-key-documents_en)

Brexit dealings and its outcomes ordering a huge lump of political consideration and regulatory limit, these assets are not accessible for different purposes, including EU climate and energy policies.<sup>286</sup>

The decision of the UK to leave the EU does not change the underlying case for EU's energy and climate transition, but it does complicate efforts to take the Energy Union forward. The UK is deeply connected into EU energy policies, markets and physical systems. In both political and practical terms, dealing with the UK's exit will be complex especially in the case of Ireland, who is reliant on Great Britain for its gas supplies.<sup>287</sup> Beyond managing risks, the reform processes unleashed by Brexit are an important moment to recast not only UK-EU energy relationships, but also EU energy relations with third countries in general, and the role of the energy and climate transition in the "Future of Europe" debate itself.

Our position is that if some countries fail at delivering their objectives, then the whole international community fails, converting all actors to losers and rendering all efforts useless. The situation creates an unjust scenario as we have seen with the "free-riding", where other countries enjoy the benefits of a better climate without much effort. The idea is that this crisis should be considered an opportunity for change and focus on the main goals that should not be lost while tackling other urgent matters.

### 4.3. Effort Sharing and ETS

The UK is classified as the EU's second-largest emitter. At the same time, it has achieved higher emission reductions than average in the EU, basically by gradually phasing out coal.<sup>288</sup> The Commission's proposal of July 2016 for binding GHG reductions targets distribution shows a UK reduction target of 37%, that is higher than the average EU target of 30%.<sup>289</sup>

The size of the UK's emissions and its above-average emission reductions will have implications for the redistribution of national targets once the UK leaves. If the EU wants to maintain its 2050 targets, other Member States will have to take on higher reduction targets in order to make up for the UK reductions. Depending on the distribution formula, Member States would have to accept an increase of their national target between 0 and 2%. The key issue is that with Brexit, the UK's contribution to the EU's climate targets will have to be divided between the remaining states, making it more challenging and difficult to achieve.<sup>290</sup>

With the UK leaving, the EU would also lose one of the strongest proponents of carbon pricing in general, and the EU ETS in particular. British experts have been influential in shaping the system and in addressing some of its flaws, and the British financial sector has been key to the emergence of a liquid carbon market in Europe – to this day London is the main trading hub for EU allowances.<sup>291</sup>

Technically, leaving the EU ETS would not have to be a major issue. In case the UK were to exit the EU ETS entirely – which is a possibility under all scenarios – the ETS cap would need to be adjusted, and the auctioning and trading of allowances would most likely shift to an exchange on the continent. Yet, given the fact that the UK remains bound by its multiannual carbon budgets, that it has been an advocate of market-based approaches, and with the carbon price floor has voluntarily exceeded the requirements of the EU ETS, it does not seem likely that the UK would abandon carbon pricing entirely.

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286 MEYER-OHLENDORF, *op. cit.*, footnote 9, pp. 22-26.

287 GAVENTA, J. Brexit and the EU Energy Union: Keeping Europe's Energy and Climate Transition on Track [Online]. E3G Working paper, April 2017 [Consulted 10 May 2020]. Retrieved from: <https://www.e3g.org/library/brexit-and-eu-energy-union-keeping-europes-energy-and-climate-transition>

288 MUNTEAN, *loc. cit.*, footnote 18.

289 EUROPEAN COMMISSION. Factsheet on the Commission's proposal on binding greenhouse gas emission reductions for the Member States (2021-2030) [Online]. 20 July 2016 [Consulted 12 June 2020]. Retrieved from: [https://ec.europa.eu/commission/presscorner/detail/en/MEMO\\_16\\_2499](https://ec.europa.eu/commission/presscorner/detail/en/MEMO_16_2499)

290 KEATING, D. Brexit makes it harder to dole out EU climate burden. DW [Online]. 20 July 2016 [Consulted 15 May 2020]. Retrieved from: <https://www.dw.com/en/brexit-makes-it-harder-to-dole-out-eu-climate-burden/a-19414911>

291 BORGHESI, S. With or without U(K): A pre-Brexit network analysis of the EU ETS [Online]. Flori, A. Italy: Spelta, A., Università Cattolica del Sacro Cuore, PLoS ONE 14(9): e0221587 [Consulted 12 June 2020]. Retrieved from: <https://doi.org/10.1371/journal.pone.0221587>

**Table 6: Possible Environmental Outcomes Under the Main Brexit Scenarios. Source: BURNS, loc. cit., footnote 276.**

The Norwegian and Swiss Options	The Customs Union (Turkish) Option	The Canada Option	The 'Planned' No Deal Option	The 'Chaotic No Deal' Option
<ul style="list-style-type: none"> <li>• Environmental <i>acquis</i> applies, and there is continuity</li> <li>• UK either remains part of the EU ETS – like Norway, Iceland and Liechtenstein already do, even though they are not EU members – or that, akin to Switzerland, the UK would set up its own ETS, and then negotiate a bilateral link of this UK ETS to the EU ETS.</li> </ul>	<ul style="list-style-type: none"> <li>• EU protections no longer apply.</li> <li>• Expressed preference to weaken protection from some stakeholders.</li> <li>• No competition case for retaining and possible long-term costs associated with doing so. Equivalent international or domestic instruments offer some protection but with less developed enforcement.</li> </ul>	<ul style="list-style-type: none"> <li>• For environmental policy protections that are not related to product standards or trade (e.g. protecting the natural environment), there would be scope for divergence over the longer term. This issue of regulatory divergence would be a potential negotiating 'green' line for Brussels – the presence of an offshore pollution haven undercutting EU standards is unlikely to be palatable for the EU27.</li> </ul>	<ul style="list-style-type: none"> <li>• The UK is likely to find itself allowing products on the market that have lower standards, thereby de facto undercutting domestic standards even if they are set at a higher level.</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent environmental and economic risk</li> <li>• The prospect of deregulatory pressure to agree on a trade deal with third parties combined with potential regulatory gaps pose significant risks for environmental policy and governance.</li> </ul>
<ul style="list-style-type: none"> <li>• CLIMATE RISK: MODERATE</li> </ul>	<ul style="list-style-type: none"> <li>• CLIMATE RISK: HIGH</li> </ul>	<ul style="list-style-type: none"> <li>• CLIMATE RISK: HIGH</li> </ul>	<ul style="list-style-type: none"> <li>• CLIMATE RISK: HIGH</li> </ul>	<ul style="list-style-type: none"> <li>• CLIMATE RISK: VERY HIGH</li> </ul>

Lastly, not all MS were supporters of the ETS as much as the UK; to be sure, some may be glad to see the EU ETS progressively minimised. In fact, Brexit – by decreasing the expected growth in the UK and in mainland Europe – intensifies the principle issue from which the EU ETS has been criticised, which is the excess of 2 billion emissions allowances, making it much longer before shortage is restored on the carbon market and a higher carbon price rises. A recent report identified that “diplomatic work is required to ensure that there is on-going and constructive cooperation between the UK and EU at international climate meetings and the UK should seek to ensure that an environmental non-regression principle is included within any EU-UK trade deal.”<sup>292</sup>

#### 4.4. Liberalised Energy Markets and Harmonized Taxation

Being part of the EU made the UK also a member of the EU's IEM. This internal energy market allows harmonised, tariff-free trading of gas and electricity across Europe, contributing to lower prices and greater security of supply.<sup>293</sup> The UK Government has been “a leading advocate for the development of the IEM and has heavily influenced the EU-wide rules, which draw on UK practice”.<sup>294</sup> As a direct effect of Brexit, the UK may leave the IEM, either in the case of a Brexit deal or a no-deal Brexit.

During the 1990s, the EU and its Member States decided to liberalise energy markets, opening them to competition gradually. The EU-led changes, which have been developed through a series of legislative packages affecting the gas and electricity sectors, initially followed the more advanced liberalised status of the UK market. As part of the development of the IEM, trade across electricity interconnectors is increasingly integrated via “market coupling”. Market coupling uses an algorithm to set prices and trading volumes across interconnected markets. Markets are said to be coupled when interconnector capacity and electricity are sold in a single market transaction, whereas in uncoupled markets these are sold separately.

292 BURNS, loc. cit., footnote 277.

293 UK GOVERNMENT, DEPARTMENT FOR EXITING THE EUROPEAN UNION AND THE RT HON DAVID DAVIS MP. The United Kingdom's exit from and new partnership with the European Union White Paper [Online]. 2 February 2017, p. 43 [Consulted 29 May 2020]. Retrieved from: <https://www.linkedin.com/pulse/difference-between-policy-regulations-navya-b/>

294 UK PARLIAMENT. Exiting the EU Committee, Electricity and Renewables Sector Report [Online]. 21 December 2017 [Consulted 29 May 2020]. Retrieved from: <https://www.parliament.uk/documents/commons-committees/Exiting-the-European-Union/17-19/Sectoral%20Analyses/12-Electricity-and-Renewables-Report.pdf>

Market coupling is a more efficient means of trading, which reduces system costs. Decoupling markets can, therefore, increase the costs of imports.<sup>295</sup>

The UK is currently coupled to north-west Europe and the island of Ireland in the ‘day-ahead market’ (electricity that is bought and sold a day ahead of delivery) as well as ‘intra-day’ markets (for electricity that is sold between an hour and 24 hours ahead of delivery).<sup>296</sup>

Remaining a member of the IEM might require the UK’s compliance with current and future EU energy market rules, as well as some EU environmental legislation, which is not an outcome favoured by Brexit. The Lords EU Environment and Energy Sub-Committee has concluded that continued participation in the IEM “is unlikely to be possible if the Government pursues its policy of leaving the Single Market and the jurisdiction of the Court of Justice of the EU”.<sup>297</sup>

The UK Government has been clear that they want to secure broad energy cooperation with the EU. This includes an economic partnership that facilitates technical cooperation and ensures the security of supply and efficient trade over interconnectors over different timeframes.<sup>298</sup> However, it is not clear whether this “cooperation” would equate to the UK retaining access to the IEM. As such, it is possible that a “no-deal Brexit” could be much the same as a “deal Brexit” as the UK may leave the IEM in either scenario. In both cases, it is possible that the UK and EU will negotiate agreements to cooperate on electricity trading outside of the IEM.

In addition, British politicians are substantially more in favour of reducing what they call “red tape” than their continental counterparts – according to Vote Watch Europe.<sup>299</sup> In line with this general attitude, the UK advocated continuously for liberalised energy markets in the EU and were against strong regulatory powers of the European Commission and the European regulators.<sup>300</sup> Depending on their specific design, liberalised energy markets could become an important driver for effective climate policies. As such, the departure of the UK would have negative implications.

On the other hand, British MEPs – across all parties – have voted against tax harmonisation across the EU.<sup>301</sup> With the departure of the UK, it seems that opposition to more ambitious EU energy taxation would become weaker. Energy taxation in the EU remains technically complex and politically contested– with or without the UK.

However, since 2018, the EU has launched the EU Taxonomy project as a tool to help investors, companies, issuers and project promoters navigate the transition to a low-carbon, resilient and resource-efficient economy. The Commission says that “It will help scale up private and public investments to finance the transition to a climate-neutral and green economy, redirecting capital to economic activities and projects that are truly sustainable. This political agreement underlines the EU’s commitment to implementing the Paris Agreement and reach climate-neutrality by 2050”. This is, in fact, one of the most significant developments in sustainable finance and will have wide-ranging implications for investors and issuers working in the EU, and beyond. The Taxonomy Regulation (TR), agreed at the political level in December

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295 FROGGATT, A. et al. *Staying Connected: Key Elements for the UK–EU27 Energy Cooperation After Brexit* [Online]. Chatham House, May 2017 [Consulted 7 May 2020]. Retrieved from: <https://www.chathamhouse.org/publication/staying-connected-key-elements-uk-eu27-energy-cooperation-after-brex-it>; HINSON, S. and PRIESTLEY, S. *Brexit: Energy and Climate Change* [Online]. London: House of Commons Library. 5 September 2019 [Consulted 5 March 2020]. Retrieved from: <https://commonslibrary.parliament.uk/research-briefings/cbp-8394/>

296 Ibid.

297 HINSON, S. AND PRIESTLEY, S., loc. cit., footnote 295; HOUSE OF LORDS, EUROPEAN UNION COMMITTEE. *Brexit: energy security* [Online]. 10th Report of Session 2017–19 HL Paper 63 [Consulted 10 May 2020]. Retrieved from: <https://publications.parliament.uk/pa/ld201719/ldselect/lducom/63/63.pdf>

298 UK PARLIAMENT. *Energy: UK Trade with EU: Written question 220984* [Online]. 13 February 2019 [Consulted 10 May 2020]. Retrieved from: <https://www.parliament.uk/written-questions-answers-statements/written-question/commons/2019-02-13/220984>

299 VOTE WATCH EUROPE. *Top 8 effects of Brexit on the future EU policies* [Online]. 5 April 2017 [Consulted 12 May 2020]. Retrieved from: <https://www.votewatch.eu/blog/top-8-effects-of-brex-it-on-the-future-eu-policies/>

300 Ibid.

301 Ibid.

2019, creates a legal basis for the EU Taxonomy.<sup>302</sup> The prospect of the UK leaving seems to have pushed forward in some regards rather than stalled the EU's climate motivation.

#### 4.5. Energy and Efficiency Policies

On energy matters, post-Brexit, the UK is seeking agreements with the EU on electricity and gas trading, as well as on nuclear energy cooperation. The EU negotiating mandate foresees that a future relationship will include these issues. It has been emphasised by both sides that there is need to make as much progress as possible in the negotiations, but positions remain far apart and far from concluding a deal, with a matter of months left in hand.<sup>303</sup>

The UK has been a strong advocate of nuclear energy, unconventional gas, and CCS. Supporters of nuclear energy would lose a potent ally after Brexit. Similarly, there would be less backing for exploiting shale gas. The UK – in coalition with a number of Eastern European countries – has insisted on upholding national energy mixes. It has successfully lobbied against a legally binding national target for renewable energies. The UK has also worked for a low energy efficiency target of 27% by 2030, rather than the higher 30% target of the EU. A higher efficiency target, more ambitious EU energy efficiency policies, and binding renewable targets would be important contributions to EU climate policies. In this sense, the departure of the UK could open up new opportunities.<sup>304</sup>

Regarding nuclear energy, the actor of reference is the European Atomic Energy Community (Euratom), established in the 1950s as part of the creation of the European Community. The UK adhered to both on 1 January 1973. Euratom provides the framework for the regulation of civilian nuclear activity, implements a system of safeguards to monitor the use of civil nuclear materials, controls the supply of fissile materials within the EU and funds leading international research.<sup>305</sup> The UK Government has said that Euratom and the EU are “uniquely legally joined” such that “triggering Article 50 therefore also entails giving the notice to leave Euratom”.<sup>306</sup> The legal basis of this point is disputed by some nuclear energy lawyers.<sup>307</sup> Nevertheless, the UK Government has said it will leave Euratom as part of Brexit. The UK has been preparing for leaving Euratom, bypassing the Nuclear Safeguards Act 2018 and negotiating replacement Nuclear Cooperation Agreements for trade.

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**Table 7: Uncertainties arising from Brexit for the energy market, Source: BBC Briefing, op. cit., footnote 24, p.175.**

Regulation	Ireland	Interconnectors	Nuclear industry	Green policies
<ul style="list-style-type: none"> <li>The UK may be required to abide by EU rules on the internal energy market but is likely to lose the right to influence how they are set.</li> </ul>	<ul style="list-style-type: none"> <li>The Republic of Ireland receives 85% of its energy via the UK, and it is unclear how the Single Electricity Market (SEM) with Northern Ireland will be affected by Brexit.</li> </ul>	<ul style="list-style-type: none"> <li>The transfer of electricity through interconnectors is regulated, tariff-free, under the rules of the EU's Internal Energy Market (EIM)</li> <li>A no-deal Brexit will leave the UK outside the market, and subject to tariffs, pending further negotiations.</li> </ul>	<ul style="list-style-type: none"> <li>The UK has said it will withdraw from Euratom as part of Brexit, and this will have potentially negative effects.</li> <li>There have been concerns that supply chain workers would not qualify under stricter immigration controls post-Brexit.</li> </ul>	<ul style="list-style-type: none"> <li>The EU has driven a number of key policies, like the EU ETS and targets for renewable energy and efficiency. The effect of losing and advocate of ETS and integrated markets are uncertain.</li> </ul>

The latest developments after the high-level meeting on 19<sup>th</sup> of June, where talks with Boris Johnson, about Brexit continued the EU reaffirmed its commitment in order to reach an agreement, but not at any cost. In view of the United Kingdom not having the intention to ask for an extension of the transition period, an intensification of the negotiations is required.<sup>308</sup>

To conclude with a view to the future, in a recent paper,<sup>309</sup> Energy UK identifies three main areas the future UK–EU energy relationship should be based on: to maintain a close trade relationship through regulatory alignment with the Internal Energy Market, maintain the Single Energy Market on the Island of Ireland and work closely together with the EU to tackle climate change. Cooperation and policy coordination are key in the future EU-UK relationship in order to win the fight against climate change.

308 EUROPEAN COUNCIL, loc. cit., footnote 239.

309 ENERGY UK, loc. cit., footnote 270.

# Conclusions

There is widespread agreement that there needs to be a vast reduction in CO<sub>2</sub> emissions if we are to avert the extremes of climate change. The pathway to achieving low or zero-emissions is still being defined, and now more than ever, it has become economically and technically feasible, with many of the necessary technologies available and their costs declining fast. What is certain is that achieving net-zero will require a fundamental change in many aspects of our lives— how we heat or cool our homes, how we power our planes, trains and cars, and how we generate electricity by zero-carbon ways – a clean energy transition. Encouraging, implementing and financing these changes is an essential challenge for the European Union (EU), especially while its attention is being deviated to immediate and urgent matters like the COVID-19 pandemic or the Brexit negotiations. However, the EU is determined to weather this crisis successfully as it has done with the past ones, and even assume the leadership in the process of fighting climate change.

In terms of climate change policy, the EU has mobilised fast. It was the first major economy to put in place a legally binding framework to deliver on its Paris Agreement pledges, with the 2020 goals already achieved and the 2030 target still in place, of cutting Greenhouse Gas (GHG) emissions by at least 40% compared to 1990. The latest key instrument, the European Green Deal, is an ambitious roadmap for making the EU's economy sustainable on all fronts. Under the new proposal for regulation announced in March 2020, it sets the EU 2050 objective to become the world's first climate-neutral continent, as well as all relevant EU legislative and budgetary proposals aligned with this objective, including a Just Transition Fund (increased from 7.5 bn to 40 bn euros) and a Sustainable Europe Investment Plan of 1tn euros. As for the energy transition, the EU has set priorities like adopting transformative policies to decarbonise the transport, industry and building sectors, prepare the electricity system for a substantial increase in renewables as well as research and innovation for low-carbon technologies. Furthermore, the EU intends to place the social needs of the people at the forefront by launching the European Climate Pact.

As challenges to its plans, the EU has to strengthen its Energy Security Strategy during the transition phase and also realise a fully integrated Internal Energy Market, which is equally considered a priority. Financing is always a hurdle as well. On 23 April 2020, the European Council proposed a rescue package of 540bn to respond to the pandemic and a recovery plan called Next Generation EU of 750bn. In this context, the Commission proposed a seven-year EU budget (2021-2027) of 1.850bn, which was discussed together with the recovery fund, on 19 June via video conference. The tense debate between northern *frugal* states of EU and the southern countries persists because of the amount, the distribution and the conditions of these packages (for example grants versus loans), however, a decision is impending in the next presential Brussels summit in mid-July. The talks also followed up on EU-UK relations which requires heightened attention for the months to come and are considered here a source of additional strain to climate ambitions. It is clear nevertheless, that from the EU's side, political will is there. The plans and strategies are already in place. Projects like the European Green Deal have a considerable potential to build back in a better way and create an improved model of prosperity and environmental sustainability after COVID. We strongly believe that there is no better time than now to turn these plans into actions and investments.

With this in mind, we have formulated a series of conclusions directly related to our original hypotheses about the effect of the various crises on the EU's climate change and energy policies, as follows:

**Our first hypothesis stated that the way EU deals with COVID-19 might provide a roadmap and an opportunity for dealing with the climate crisis. Our analysis confirms this hypothesis:**

1. At first glance, the pandemic impact is a mix of negative and positive aspects of the environment. On the positive side, measures to contain the COVID-19 crisis have led to a dramatic reduction in travel and economic activity. In consequence, energy consumption and GHG emissions have been reduced, albeit temporarily. Less favourable for the environment, these events also had an impact on the prices of energy commodities, especially oil, and emissions allowances, which have also dropped. The limitations on travel and social gatherings, likewise hinder action identified with the

European Green Deal, as EU establishments change their schedules, plans and needs, so everything is proceeding at a slower pace. Dynamics under the United Nations Framework Convention on Climate Change (UNFCCC) and other International Organisations are also influenced by the crossing out and deferment of significant gatherings and high-level meetings. However, in spite of delays, this does not change the way the EU has to deal with climate change or the level of ambition that has to be displayed in actions like the National Energy and Climate Plans Assessment which are due for revision and scale-up in June this year.

2. The COVID-19 crisis has demonstrated the world's capacity to react to an existential threat and undertake strict measures in a short span of time as well as highlighted the role of governments and scientists in handling the crisis. The Green Deal that will lead the ecological transition in Europe has the opportunity to incorporate the lessons learned from the pandemic, as well as to propose strategic responses that contribute to the change of political, economic and social model, which we need today more than ever. The massive investments that are being planned do not only target a short term recovery but aim to trigger another European model: more resilient, more assertive and more inclusive. Every one of these goals lies in an economy constructed sustainably. In reality, the clean energy transition, protecting biodiversity or building mechanisms of adaptation to climate change have the potential to quickly deliver jobs, growth and improve the lifestyles of citizens all over the world, at the same time contributing to creating more resilient societies. All these results are highly needed in the wake of the pandemic and show that both crises have plenty of synergies that can be taken advantage of.

**The second hypothesis, regarding the current tensions between the North and the South of Europe, which can have negative implications, especially on financing the climate action, is confirmed:**

3. The strains between the North *frugal* states and the South more indebted nations are not new and have been put to the test most recently during the 2008 financial crisis. Now, faced with the EU new recovery package, which includes a large part of grants versus loans, there is a renewed pressure among all Member States to collaborate and show solidarity, but evident contradictory views are there. The Commission has made it clear that this package is tightly related to the environment and a green recovery and that the ways to recover money are in place in the form of environmental and digital taxes. Still, that does not dissipate the worries of a seemingly unsustainable model that continuously provides financial assistance to the same countries. Even more preoccupying, is the prospect of the large amounts that are needed just to finance the European Green Deal and the New Generation EU-hiking the multiannual budget to 2% of (Gross Domestic Product) GDP, when 1% was a limit some states were not willing to cross until recently. Worse still, similar or larger packages may be needed for relief from the effects of climate change in the future, so this kind of tensions are not beneficial.

**In third place, we had the presence of EU sceptical sentiment and anti-climate policy agendas that is incompatible with the transformation narrative of climate policies promoted by the EU and can lead to negative impacts, which is also confirmed:**

4. Over the last thirty years, the EU has provided a venue for progressive environmental collaboration and coordination in a framework of multilateralism, much accentuated in the past months by perhaps the farthest-reaching environmental policy initiative ever proposed by the European Commission, the ambitious and transformative European Green Deal. This sits uneasy with the general ideas of nationalist or EU-sceptical parties and is especially not benefited by anti-climate policy or climate negationist agendas. The attitudes of some of these parties towards climate change range from indifference to outright denial. All of them are critical of international cooperation and believe in re-nationalisation, when contrary to this, effective climate policies depend on international cooperation and possibly the transfer of some competencies to international bodies – like in the case of the supranational powers of the EU, which they do not favour. If these parties

were to gain more control, it would undoubtedly have adverse effects on the implementation of the climate change agenda in some Member States.

**Lastly, our fourth hypothesis stated that Brexit would create additional strain on the EU and its institutions, therefore having a negative effect on its capacity to pursue climate and energy policies. This hypothesis was partially confirmed:**

5. The strain on the EU is evident. Too many important details between the EU and the UK have to be settled in a brief timeframe. The UK's status, a potential linkage of Emissions Trading System (ETS), Internal Energy Market (IEM), the energy flow from the UK to EU countries like Ireland and the handling of nuclear material are just some of the complex legal and policy-driven issues. Furthermore, after Brexit, the EU may decide to recalibrate its 2030 GHG emissions. Depending on the strategy picked, this could suggest a shift in the commitment between the Member States or an adjustment in the EU's general degree of ambition. The UK, after Brexit, may suggest higher carbon prices in the long run. However, in the near term, the surplus of allowances held in the UK may cause prices to plunge, which, as we have seen, is counterproductive for the EU ETS mechanism. Not to mention that the focus and resources invested in the negotiation and administrative process of Brexit could be put to better use on matters of climate change, energy transition, and a clean recovery post-COVID.
6. Despite the uncertainties and complications that arise from Brexit, the effects on EU climate and energy policies or its capacities, although negative, will be limited. With or without the UK, the EU will have the ability to look after its energy and climate objectives generally as well as it has been doing so far. Moreover, the UK has lobbied against legally binding renewable energy targets and increased energy efficiency targets. It has also pressed against higher EU budgets and harmonisation of energy taxation in the EU. Without a powerful voice opposing these initiatives, the EU is now free to advance at a faster pace towards its climate commitments.

It is complicated to accurately predict the implications of the current crises on EU climate and energy related policies, especially in an ever-changing scenario as today's. Nevertheless, we believe that a crisis is sometimes the best catalyst for change and that the EU needs to work with other nations on all these fronts. One actor, no matter how powerful cannot solve the problems on its own. However, if the EU and other countries combine forces to embrace net-zero targets, the reward is no small feat: to maintain and safeguard our planet and the natural world as we know it.

APPENDIX

Table 8: Adjusted Commission Work Programme 2020. Source: European Commission, loc. cit., footnote 284.

No.	Policy Objective	Initiatives	Status/ Change
1.	The European Green Deal	Communication on the European Green Deal (non-legislative, Q4 2019, adopted March 2020) European Climate Law enshrining the 2050 climate neutrality objective (legislative, Article 192(1) TFEU, Q1 2020) The European Climate Pact (non-legislative, Q3 2020, <b>postponed</b> ) European Green Deal Investment Plan (non-legislative, Q1 2020, 1tn)	adopted adopted <b>Q4 2020</b> adopted adopted <b>Q4 2020</b>
2.	Financing the sustainable transition	Just Transition Fund (legislative, Article 175 TFEU, Q1 2020, <b>increased from 7.5 bn to 40 bn, made up of 30 bn from an EU coronavirus recovery fund and 10 bn from the bloc's budget for 2021-27</b> ) Renewed Sustainable Finance Strategy (non-legislative, Q3 2020, <b>postponed</b> )	adopted adopted <b>Q4 2020</b>
3.	Commission contribution to COP26 in Glasgow 2021 (delayed due to COVID)	2030 Climate Target Plan (non-legislative, incl. impact assessment, Q3 2020) New EU Strategy on Adaptation to Climate Change (non-legislative, Q4 2020, <b>postponed</b> ) New EU Forest Strategy (non-legislative, Q4 2020, <b>postponed</b> )	Q3 2020 <b>Q1 2021</b> <b>Q1 2021</b> adopted
4.	Sustainability of food systems	'Farm to Fork' Strategy (non-legislative, Q1 2020)	adopted
5.	Decarbonising energy	Strategy for smart sector integration (non-legislative, Q2 2020) Renovation wave (non-legislative, Q3 2020) Offshore renewable energy (non-legislative, Q4 2020)	Q2 2020 Q3 2020 Q4 2020
6.	Sustainable production and consumption	New Circular Economy Action Plan (non-legislative, Q1 2020) Empowering the consumer for the green transition (legislative, Article 114 TFEU, Q4 2020, <b>postponed</b> )	adopted <b>Q2 2021</b>
7.	Protecting our environment	EU Biodiversity Strategy for 2030 (non-legislative, Q1 2020) 8 <sup>th</sup> Environmental Action Programme (legislative, Article 192(3) TFEU, Q2 2020, <b>postponed</b> ) Chemicals strategy for sustainability (non-legislative, Q3 2020)	adopted <b>Q4 2020</b> Q3 2020
8.	Sustainable and smart mobility	Strategy for sustainable and smart mobility (non-legislative, Q4 2020) ReFuelEU Aviation-Sustainable Aviation Fuels (legislative, incl. impact assessment, Article 100(2) TFEU and/or Article 192(1) TFEU, Q4 2020) FuelEU Maritime-Green European Maritime Space (legislative, incl. impact assessment, Article 100(2) TFEU and/or Article 192(1) TFEU, Q4 2020)	Q4 2020 Q4 2020 Q4 2020 Q4 2020

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**Resumen:** La UE se ha posicionado como líder de las políticas climáticas y energéticas, y ha demostrado que el multilateralismo puede funcionar incluso en áreas políticamente difíciles como el cambio climático y la energía. La investigación afirma que una crisis en la UE, como BREXIT y COVID-19, probablemente tendría efectos negativos - en primer lugar sobre las políticas climáticas y energéticas de la UE y, por extensión, sobre la lucha mundial contra el cambio climático. En nuestra investigación, los temas más amplios de las políticas climáticas y energéticas se restringieron principalmente en relación con El Acuerdo Verde Europeo y el Acuerdo de París. Para determinar los efectos de la crisis en los planes de la UE y compromisos, utilizamos el método deductivo. Analizando los objetivos de la UE y cómo están siendo planificado, cumplido o pospuesto, pudimos determinar el alcance de los posibles impactos. A pesar de los complejos desafíos, nuestra investigación concluyó que una crisis es a veces el mejor catalizador para el cambio, especialmente uno con implicaciones tan profundas a todos los niveles como una pandemia, y que la UE podrá proceder con sus planes en general como lo ha hecho hasta ahora. Es encomiable cómo la CE respondió, manteniendo al mismo tiempo un fuerte enfoque en la prioridad de luchar contra el cambio climático y acelerar un transición de energía limpia socialmente inclusiva.

**Abstract:** The EU has positioned itself as a leader for climate and energy policies, and demonstrated that multilateralism can work including in politically tricky areas like climate change and energy. The research states that a crisis in the EU, such as BREXIT and COVID-19, would likely have negative effects – firstly on EU climate and energy policies and by extension on the global fight against climate change. In our investigation, the broader topics of climate and energy policies were restricted mainly in relation to the European Green Deal and the Paris Agreement. In order to determine the crisis effects on the EU's plans and commitments, we used the deductive method. By analysing the EU's goals and how they are being planned, fulfilled or postponed, we were able to determine the extent of the potential impacts. Despite the complex challenges, our research concluded that a crisis is sometimes the best catalyst for change, especially one with such deep implications at all levels like a pandemic, and that the EU will be able to proceed with its plans generally as well as it has been doing so far. It is commendable how the EC has responded while also keeping a strong focus on the priority of fighting climate change and accelerating a socially inclusive clean energy transition.

**Palabras clave:** Cambio climático, energía, política, Unión Europea, Acuerdo Verde Europeo, COVID-19, Brexit, Recuperación Verde, Acuerdos de París.

**Keywords:** Climate Change, Energy, Policy, European Union, European Green Deal, COVID-19, Brexit, Green Recovery, Paris Agreement.

