FACULDADE DE CIÊNCIAS SOCIAIS E HUMANAS
UNIVERSIDADE NOVA DE LISBOA

CLIMATE AND ENERGY POLICY INTEGRATION IN THE EU: A PATHWAY TO GLOBAL ENVIRONMENTAL GOVERNANCE?

Felisa Falcon Fabreau

Master in Political Science and International Relations, with specialization in Globalization and Environment

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Author: Felisa Falcon

ABSTRACT

Climate change is a crosscutting, long term, global problem and one of the biggest challenges that humankind is facing. As the fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC) 2013 said, it is clear that climate change is caused by human activity - and more importantly by burning fossil fuels (such as coal, oil, and gas), which emit dangerous greenhouse gases (GHGs). The European Union has sought to be a leader in the international arena in the fight against climate change. For this, the EU has developed a common integrated strategy on energy and climate that aims a low carbon economy as well as a competitive and secure energy. This research is conducting a study of this strategy, specifically the most current energy and climate change Framework for Climate & Energy 2030 policies.

First, the aim of the research is to identify whether the political climate model of European integration can become a path to global environmental governance.

Second, the historical development of this strategy, its origins and the progressive convergence to its consolidation in the form of an integrated European strategy is discussed.

Based on the background analysis of the Single European Act to 2020 Europe Strategy internally, and from the Kyoto Protocol to the Paris Agreement from an external point of view, the dissertation will outline the initiative of EU leadership in this area.

For this purpose, it is necessary to make a prospective analysis (SWOT and PESTLE) in which all possible recommendations to be considered for this scenario 2030 will be made according to the Framework for Climate & Energy 2030 policies.

From this analysis the main recommendation that emerges is that the EU should support especially small- and medium-sized businesses that are unable to invest great monetary resources in the establishment of an increasing greenhouse-gas-reduced production. As a result, this model could be adopted to other regions as well, for example in South America in MERCOSUR.

Keywords: Climate Change, European Union, Agreements, Climate Integration, Global Governance.

Titulo: Políticas de integração climática e energética da UE: um caminho para um modelo de governaça global ambiental?

Autora: Felisa Falcon

RESUMO

As alterações climáticas são um problema global, transversal e de longo prazo, para além de um dos maiores desafios que a humanidade enfrenta. Como afirmado no quinto relatório de avaliação do Painel Interngovernamental das Alterações Climáticas de 2013 (IPCC), é evidente que as alterações climáticas são causadas por ação do ser humano – e ainda mais importante através da combustão de energias fósseis (como o carvão, petróleo e gás), que emitem perigosos gases com efeito de estufa (GHGs).

A União Europeia tem procurado ser líder na cena internacional na luta contra as alterações climáticas. Para isso a UE tem desenvolvido uma política comum de estratégia integrada no domínio das energias e do clima que ambiciona uma economia de baixo carbono bem como uma economia competitiva e de segurança energética. Esta investigação tem como ponto de partida um estudo aprofundado desta estratégia, especificamente o mais recente quadro relativo ao clima e à energia para 2030.

O objetivo primeiro desta investigação é identificar se o modelo de políticas climáticas da integração Europeia pode ser um caminho para uma governaça global ambiental.

De seguida, propomo-nos analisar o desenvolvimento histórico desta estratégia, as suas origens e a convergência progressiva até à sua consolidação sob a forma de uma estratégia Europeia integrada.

Tendo por base uma analise interna e de fundo desde o Acto Único Europeu até à estratégia europeia Europa 2020, e partindo de uma perspectiva externa do Protocolo de Quioto até ao Acordo de Paris, a dissertação pretende resumir a iniciativa de liderança da UE nesta area.

Com este propósito em mente, é necessário levar a cabo uma análise prospectiva (SWOT e PESTLE) na qual todas as recomendações possíveis serão consideradas para este cenário 2030 de acordo com as políticas do quadro relativo ao clima e energia para 2030.

Partindo desta analise, a principal recomendação que emerge é a de que a UE deve apoiar especialmente pequenas e médias empresas que são incapazes de investir grandes quantidades de

fundos financeiros no estabelecimento de produção de energia com reduzidos gases de efeitos de estufa, que estão a aumentar cada vez mais. Como resultado, este modelo pode ser também ser adoptado para outras regiões, por exemplo na América do Sul no quadro do MERCOSUL.

Palavras-chave: Alterações Climáticas, União Europeia, Acordos, Integração Climática, Governança Global

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ACRONYMS

BaU: Business-as-Usual

CPI: Climate Policy Integration

EAPs: Environmental action plans

EC: European Commission

EP: European Parliament

EPI: Environmental Policy Integration

EU: European Union

EU ETS: EU emission trading system

EU SDS: EU Sustainable Development Strategy

GDP: Gross domestic product

GEG: Global Environmental Governance

GHG: Greenhouse gas

IEA: International Energy Agency

INDC: Intended Nationally Determined Contributions

IPCC: Intergovernmental Panel on Climate Change

KP: Kyoto Protocol

NGOs: Nongovernmental organizations

R&D: Research and development

SCBA: Social Cost Benefit Analysis

SDG: Sustainable Development Goal

SEA: Single European Act

TFEU: Treaty on the Functioning of the European Union

UNCED: United Nations Conference on Environment and Development

UNCHS: United Nations Centre for Human Settlements

UNFCCC: United Nations Framework Convention on Climate Change

WCED: World Commission on Environment and Development

INTRODUCTION

This dissertation arises in the context of the countless problems in climate change at an international level. Preventing climate change or at least mitigating its negative effects will require innovative political leadership through a wide range of actors at different levels of governance. Since climate change is a global problem, it needs to be addressed through efforts of all states as well as articulate and encourage them on this fight. In this context, the international community agreed on ratifying the Paris agreement. The issue of climate change is of significant interest for the international community, which is clearly seen in the 2015 United Nations Climate Change Conference that was held in Paris from 30 November to 12 December 2015. It was the twenty-first session of the Conference of the Parties (COP 21). In this conference, the Paris Agreement was negotiated, which constituted a historical and global agreement to combat climate change and unleash actions and investment towards a low carbon, resilient and sustainable future. It was agreed by 195 nations in 12 December 2015.

Nevertheless, the European Union (EU) has developed into a leader in international climate change politics. This leadership is the result of environmental management more generally, and was born in the 1970s at internal level with a successive ratification of the treaties until the present, with the creation of a wide range of strategies against climate change. Moreover, with the ratification of the Kyoto protocol, the EU shows a significant instance of leadership at global level having account of the US intention to withdraw it. More specifically, the EU climate change leadership can fall under a new structure in terms of policy: the climate policy integration. Thus, it is a strategy of deployment to combat climate change and consist essentially in mainstreaming or integrating into the climate policy of the non-climate policy sectors, which are affected by climate change. These are for instance, among others, agriculture, biodiversity, energy, fisheries, health, industry, migration, transport, waste management, and water.

The key message of this dissertation is to illustrate across the European context how legislation on climate policy integration can be designed to contribute as a paradigm for the rest of the international arena and if their strategy can be a pathway to global environmental governance. The global environmental governance, according Vogler (2005), at a formal level, is virtually a synonym for international environmental cooperation for the network of international environmental organizations and conventions and the spaces between them. Even though, the economic and geographic circumstances between the different regions at international level are widely different, the

EU´s climate policy integration model could be applied as an exit way from this problem. Furthermore, if the EU is achieving their targets of de-carbonization or emission reduction, through EU emission trading system (EU ETS)[1] for example, it could be considered the possibility of extent towards other regions with this de-carbonization system.

The dissertation will address climate policy integration concept based on the European climate policy strategy, specifically within the Framework for Climate & Energy policies 2030, thus is to explore the integration of long-term climate policy objectives into the EU energy policies.

The research hypothesis relays on the discussion, if Climate and Energy integration in the EU could be a pathway to global environmental governance. The methodology of this research will be qualitative; this dimension is specifically for the study case and will be addressed for the rest of the research through documentary and bibliographic analysis.

In the first place, an analytical framework of methodology will be applied. In the first chapter called "Climate Policy Integration: its background and Global Environmental Governance", the thesis will outline a conceptualization of policy integration theories, environmental policy integration and climate policy integration. Afterwards, it will give an elaborated overview of sustainable climate policy integration within the EU and finally the approach of global environmental governance.

In chapter II, the dissertation addresses the origin and evolution of environmental, energy and climate EU policies. Basically, this chapter analyses why the EU has been leading in policy integration on these issues. The research will focus on the EU´s evolution and leadership as a brief summary, from general theories and official reports of European integration and literature on environmental integration, from the Single European Act to Lisbon Treaty to the Europe 2020 Strategy with an overview of its plans. The analysis of the EU is based on international climate change agreements (Kyoto and Paris). The role of the European Commission and European Parliament are illustrated regarding this issues.

In Chapter III, the Framework for Climate and Energy policies 2030 as a case study, their implementation, and challenges faced by the EU will be explored. A forecasting analysis, through a

[1] The EU emissions trading system (EU ETS) is a cornerstone of the EU's policy to combat climate change and its key tool for reducing industrial greenhouse gas emissions cost-effectively. It is the world's first major carbon market and remains the biggest one. Available at The EU Emission Trading System (EU ETS). European Commission. Climate Action. Available at http://ec.europa.eu/clima/policies/ets/index_en.htm [Accessed 6 September 2016].

SWOT and PESLTE analysis of public policies and identifying the EU´s future challenges towards the year 2030 will be used.

This research is presented about the state of art of two major variables that are climate and energy integration in the EU on the one hand and global environmental governance on the other hand. Therefore, the dissertation implements a descriptive methodology that allows an explanation of a) the strategic reality of climate integration from the European point of view, and b) the analytical method to describe the evolution and progress of it is as proposed. In this regard, a study based on a documentary and bibliographic analysis will serve both official reports produced by the European institutions relating to the policies, objectives and strategies, which are the focus of the study.

In this study, both primary and secondary sources were used. Primary sources are various institutional documents produced by the EU - treaties, directives, regulations, communications and technical reports among others - as well as studies or analyzes produced by international organizations such as the Intergovernmental Panel on Climate Change (IPCC) and International Energy Agency (IEA). As for the secondary sources, different authors of specialized books on the subject, scholarly journal articles, working papers from think tanks and research centers, newspaper articles or electronic publications were used.

The objective of this research is to test, if the variables of Climate and Energy Policy Integration based in the study case of the EU energy and climate strategy can be linked with Environmental Global Governance. Thus, an innovative political paradigm could be suggested which emphasizes on the integration of climate policy as a model to follow the international community.

I. CLIMATE POLICY INTEGRATION. ITS BACKGROUND AND GLOBAL ENVIRONMENTAL GOVERNANANCE

1.1 Policy Integration

In order to understand the term policy integration and its' importance; the meaning, scope and concept of policy integration need to be explored in more detail. Moreover, since the international issues are inter-related, the challenge of coordination and integration has increased in the last few decades at every level of policy-making. In the literature, the concept of policy integration is not a new idea; conversely, it is becoming gradually more prevalent.

On the one hand, the most accurate definition of policy integration is based on Evert Meijers (2004: 1) statement:

"Policy Integration concerns the management of cross-cutting issues in policy-making that transcend the boundaries of established policy fields, which often do not correspond to the institutional responsibilities of individual departments. While these cross-cutting issues are also sectoral objectives in some cases, it is often the case that they do not fall neatly under single sectoral departments and their objectives"[2].

This relates to the idea of a "holistic government". In academic literature, several disciplines address the concept with similar terms. Sometimes it is used as a synonym, such as policy coherence, cross-cutting policy making, concerted decision-making, policy consistency, holistic government, joined-up government and, most extraordinary, policy co-ordination.

As observed, the concept of policy integration is a process where different key actors (such as private actors, networks of experts and intergovernmental organizations) play a role and has a complex combination of various concepts and theories involved. On the other hand, as Underal (1980: 162) is regarded as one of the early writers on the subject, it is necessary to consider his viewpoint on policy integration:

"a policy is integrated when the consequences for that policy are recognized as decision premises, aggregated into an overall evaluation and incorporated at all policy levels and into all government agencies involved in this execution".

[2] Policy integration: what does it mean and how can it be achieved? A multi-disciplinary review. Available at http://userpage.fu-berlin.de/ffu/akumwelt/bc2004/download/meijers_stead_f.pdf [Acceded 21 August 2016]

The concept of policy integration is becoming prominent for a variety of factors, namely, the modernization agendas, planning systems and policy sectors. These include factors such as the increasing interdependence between government and society, the growing number of actors and agencies or organizations involved in policy-making process.

A large number of scholars have been discussing this issue, e.g: Underdal (1980) states that the most general purpose of policy integration is to prove outcomes and to take into account the consequences of policy outside of a specific policy sector. Cameron (2004) views policy integration as a mechanism to contribute to sustainable development whereas Stead and the Jong (2006) identify a range of arguments for more integrated policies. Despite this wide range of references in literature, policy integration concepts remain scarce. Likewise, according to Meijers (2009), the idea tends to focus on the main dimensions of sectoral policy integration and/or the basic criteria for integrated policy-making.

Underdal (1980) identifies three basic criteria for integrated policymaking:

- Comprehensiveness: This is recognizing a broader scope of policy consequences in terms of time, space, actors and issues.
- Aggregation: Which is the evaluation policy alternative as a whole.
- Consistency: This penetrates all policy levels and government agencies in policy execution.

Nevertheless, the definition from Underal (1980) generates a complementary idea from Meijers (2004) point of view. Building on both definitions, we can develop a new archetype: policy integration is about policy affairs that transcend domestic or government issues that must be addressed and approached in a cross-border manner.

1.2 Environmental Policy Integration (EPI)

Environmental Policy Integration (EPI) refers to the incorporation of environmental concerns in non-environmental policy sectors. In fact, according to Lenschow, (2005) and Jabcob (2008), Environmental Policy Integration refers to the incorporation of environmental concerns in sectoral policies outside the traditional environmental policy domain.

The principle of Environmental Policy Integration has attracted growing scholarly interest and has acquired high status in academic and political arenas. It is worth noting that, EPI has gained strong political support In the European Union. The Environmental Policy Integration emerged in the 1990s

as a context of need - expressed in the 1987 Brundtland Report (WCED, 1987[3]) – to connect the goals of economic competitiveness, social development and environmental protection, and hence to ensure sustainable development. According to Lenschow (2002) EPI is intended to be an important first order principle to guide the transition to sustainability.

Therefore, on this matter, the literature is relatively well developed. Lafferty and his colleagues (Lafferty and Havden, 2003; Lafferty 2004; Lafferty and Knudsen 2007) have formulated the clearest definition of its meaning. Based on a close textual analysis of the Brundtland Report, they argue that its ´mother concept´ sustainable development attributed "principled priority" to environmental objectives in the process of balancing economic, social and environmental concerns. The whole point of EPI is ´to avoid situations where environmental degradation becomes subsidiary and to ensure that the long-term carrying capacity of nature becomes a principal or overarching societal objective´ (Lafferty and Hovden, 2003: 9).

In accordance with the above definition, Lafferty and Hovden (2010: 1) state that *"one of the key defining features of ´sustainable development´ is the emphasis on the integration of environmental objectives into non-environmental policy sectors. This entails a fundamental recognition that the environmental sector alone will not be able to secure environmental objectives, and that each sector must therefore take on board environmental policy objectives if these are to be achieved´. The integration of environmental concerns into other policy areas has been referred as 'environmental integration', ´environmental policy integration', 'sectoral integration', or simply 'integrating the environment into…´etc. In this article we will, for the sake of simplicity, follow Lenschow (1997,1999) and use the term ´environmental policy integration´´EPI´"*

Furthermore, the question should arise at this stage, what is EPI and what does it entail? In addressing these questions, a return to the early work of Underdal (1980) is warranted, which was mentioned above for policy integration. Underdal (1980) stipulates what distinguished integrated policy from another form of policy-making: comprehensiveness, aggregation and consistency. On this basis, Underdal (1980) defines an integrated policy as one where *"all significant consequences of policy*

[3] In 1983, the UN convened the WCED, chaired by Norwegian Prime Minister Gro Harlem Brundtland. Comprised of representatives from both developed and developing countries, the Commission was created to address growing concern over the "accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development." Four years later, the group produced the landmark publication Our Common Future (or the Brundtland report) that provided a stark diagnosis of the state of the environment. The report popularized the most commonly used definition of sustainable development: "Development that meets the needs of current generations without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 45).

decisions are recognized as decision premises, where policy options are evaluated on the basis of their effects on some aggregate measure of utility, and where the different policy elements are in accord with each other" Underdal (1980: 162).

As a conclusion, there is a full definition of the EPI, where the mother concept of ´sustainable development´ is the integration of non-environmental sectors such as economic competitiveness and social development to ensure sustainability in the practical field.

1.3 From Environmental to Climate Policy Integration (CPI)

In the following citation, the author mentioned all climate policy objectives that can be integrated into the elaboration of measures into other "non climate" sectors as a pathway and method for ensuring and adequately response for climate change. Climate Policy Integration (CPI) represents, in this sense, one possible strategy that can be deployed to respond to the challenge of making policy to combat climate change.

"Integrating climate policy objectives into the elaboration and agreement of policy measures in other sectors represents one promising method for ensuring coherent policies that respond adequately to the climate change... Policy sectors that affect climate change, or that will be affected by climate change, include agriculture, biodiversity, energy, fisheries, health, industry, migration, transport, waste management, water, among others. Effectively combating climate change means ensuring that climate change is 'integrated' or 'mainstreamed' into the policy process and policy output of each of these policy sector" Dupont (2016: 1)

What is meant by climate policy integration exactly? In some aspects, climate policy integration is an example of environmental policy integration (EPI). Art. 11 of the Treaty on the Functioning of the European Union (TFEU) 2007, states that:

'*Environmental protection requirements must be integrated into the definition and implementation of the Union´s policies and activities, in particular with a view to promoting sustainable development´*.

In turn, this provides a legal obligation on the EU to EPI. The focus of CPI for Dupont 2016 consists of EU´s internal energy policies and on whether they sufficiently integrate climate policy objectives.

Originally, combating climate change fell under the remit of environmental concerns only. Now because of Climate Policy Integration, it has reached further. Climate change is considered in social and economic terms too. Furthermore, environmental concerns are linked with sustainable development and can nowadays be linked with climate change concerns with CPI.

When focusing on the development of environmental to climate policy integration in the EU, it should be analyzed that the first development of the EU in environmental policy was in 1970, when the concept of environmental policy integration discussions began. Afterwards, the Single European Act (SEA, 1987) introduced the objective that ´environmental protection requirements shall be a component of the Community´s other policies´ (Art. 130.2).

In conceptualizing the CPI, Dupont (2016) followed the inspiration from the strong standard set by Lafferty and Havden (2010: 9) by these two definitions of EPI which state:

"the incorporation of environmental objectives into all stages of policy-making in non-environmental policy sectors, with specific recognition of this goal as a guiding principle for the planning and execution of policy"

And:

"accompanied by an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimize contradictions between environmental and sectoral policies by giving principled priority to the former over the latter"

In order to take principled priority as a definitional concept for CPI and simply replacing the word ´environment´ with ´climate´ results, in a reasonable definition (Ahmed, 2009: 11).

From another perspective, perhaps a more comprehensive approach, the PEER -Partnership for European Environmental Research-[4], Mickwitz et al (2001: 19), based on the definition of policy integration made by Underdal (1980), and environmental policy integration by Lafferty and Havden (2003) define climate policy integration in the follow two extracts as:

"-the incorporation of the aims of climate change mitigation and adaptation into all stages of policy-making in other policy sectors (non-environmental as well as environmental)"

And:

"complemented by an attempt to aggregate expected consequences for climate change mitigation and adaptation into an overall evaluation of policy, and a commitment to minimize contradictions between climate policies and other policies".

[4] PEER is a partnership of seven large European environmental research centers. PEER members cover the full spectrum of the environmental sciences and combine basic with applied research anticipating societal needs. PEER members carry out their research in strategic and interdisciplinary multi-annual programmes, working with partners worldwide to solve complex environmental challenges. The vision of PEER is to be a world leader in integrating knowledge and expertise for sustainable development, in support of policy makers, industry and society. http://www.peer.eu/publications/climate-policy-integration-coherence-and-governance/ [Acceded 21 August 2016]

To describe and understand the CPI's relationship in the EU, the three following variables will need to be explained:

- Neo-functionalism
- Inter-governmentalism
- Institutionalist perspectives

First, the neo-functionalism theory can help to explain the variation in the level of integration between policy areas according to the material inter-linkages or 'functional interrelations' of the policy sectors in question. Neo-functionalism places emphasis on supranational interest groups and on the multiplicity of actors in the decision-making process. Thus, a neo-functionalism perspective could help to explain the extent of CPI with a particular emphasis on the functional interrelations of the issue areas and the involvement of stakeholders in the policy process.

Second, liberal inter-governmentalism could also help to explain certain levels of CPI in the EU with emphasis on the role of member states. In particular, focus on political determination and the commitment of the member states to CPI (and thus an understanding of the role of the Council and the European Council). Political commitment and leadership are generally considered very important for the establishment and development of policy integration (Jordan and Lenschow, 2008a; Lafferty and Hovden, 2003, Persson, 2004).

Third, new institutionalist perspectives for the study of CPI can be useful especially due to the emphasis on policy pathways, in addition to how institutional traditions and cultures affect the development of policy in the EU. The emphasis on how institutions matter in the policy process provides a complementary perspective to that presented in liberal inter-governmentalism and neo-functionalism. Thus, emphasis is placed on the importance of the EU's supranational institutions, their decision-making procedures (and/or) traditions, and past decisions in policy development. New institutionalism perspectives can complement liberal inter-govermentalism's focus on the political commitment of member states as an explanatory variable for CPI with an understanding that other institutions (the Parliament and Commission) could also demonstrate political commitment to CPI (Dupont 2016).

1.4 Global Environmental Governance

At a formal level, Global Environmental Governance is virtually a synonym for international environmental cooperation, for the network of international environmental organizations and conventions between them (Vogler, 2005). In Global Environmental Governance (GEG), each of the three words in its' title are important. The concept of 'governance' requires discussion, because of the subtle but significant differences between it and the concept of 'government.' Even if they cover much of the same ground, governance is more than government. For example, according to the United Nations Centre for Human Settlements (UNCHS), the differences are between 'a single authority and shared purposes and responsibilities.' Furthermore, governance includes all methods of how individuals and institutions plan and manage their common affairs and consist of 'formal institutions, informal arrangements,' and what citizens know and do. (Saunier et al., 2009).

However, governance is not as often believed to reduce the importance of a government, since, as noted by the UNCHS, government still 'holds the regulatory powers and the majority of fiscal responsibility;' and, its 'normative and political legitimacy' helps to create and sustain the structures that encourage us to act together'. 'Global,' in the context of governance, is different from 'intergovernmental' and 'international.' While 'intergovernmental' treats the official affairs between and among governments, 'international,' in addition to considering the relationships among governments, also includes the common contacts and dealings of their citizens (Saunier et al., 2009).

'Global' has a far broader meaning that either of the two previous ideas and embraces the official and unofficial governance activities of a long list of institutions including governments, businesses, nongovernmental organizations (NGOs), universities, research centers, and foundations. The use of 'global' acknowledges that a large number of institutions inside and outside of the government and across national and institutional boundaries are responsible for much of the administration and management of our planet (Saunier et al., 2009).

According to Njam et al. (2006: 9):

"GEG refers to the sum of organizations, policy instruments, financing mechanisms, rules, procedures and norms that regulate global environmental protection. Within the context of the evolution of global environmental politics and policy, the end goal of global environmental governance is to improve the state of the environment and to eventually lead to the broader goal of sustainable development"

The foundation of the United Nations Environment Program (UNEP) came out of the United Nations Conference on the Human Environment (Stockholm, 1972) which played a key role in GEG by establishing a new coordination of environmental activities among UN agencies; and to act as a catalyst for newly developed initiatives. Two main political benchmarks of the GEG evolution were the Rio Earth Summit in 1992 and the Johannesburg Summit in Sustainable Development in 2002 Njam et al. (2006).

Environmental issues, in general, have become an example of interconnection and complexity in our contemporary world. The global aspect of the definition can also be seen in this aspect: the multiplicity factor of environment degradation of our contemporary environmental problems, have evolved over time, from minor emissions at local level to serious health hazards. To mention but a few, these problems can be seen in the form of smog across the industrialized world which generates trans-boundary air and water pollution, deforestation, fisheries depletion, biodiversity loss, and climate change. Therefore, to face these problems, it is necessary to coordinate and cooperate among countries and establish more coherent and effective institutional framework.

In the context of world politics, global environmental governance involves a multiplicity of actors, such as private actors, networks of experts, environmentalists and intergovernmental organizations. In this sense, according to Biermann (2004), in the characteristics of Global Environmental Governance, he underlines:

"*Increased participation: Diversity through inclusion -Increased Privatization: Negotiation through partnerships -Increased segmentation: Complexity through fragmentation. The notion of global governance departs from traditional state-centred politics in accepting a host of non-state entities as new influential actors in transnational relations. The field of environmental policy provides ample illustrations for this evolution of a 'multi-actor governance system*"

From another perspective which is more social related, in the words of Baber et al. (2015: 32):

"The linkages among society and the environment generate normative challenges, across at least three distinct dimensions. First, environmental change imposes costs (both individual and collective) that fall disproportionately on some social groups -often those that have historically suffered from disadvantage and disenfranchisement. Second, the necessity of creating institutional arrangement for managing environmental change, and integrating those decisions with collective choices in other areas, poses value-laden questions of policy design. Third, the human causes and

consequences of environmental change and collective choices they involve pit citizens along their understating of the world against one another at the level of social action".

They analyse global environmental governance through the consensus of its citizens, rather than the state nation. They prioritize the environmental governance through developing a politic, normative and social consensus, necessary for managing the society-environment linkages in a way that are both ecologically sustainable and democratically legitimate.

1.5 Sustainable Climate Policy Integration in the European Union

Climate policy integration needs to be compatible with the overarching objective of sustainable development. It must first be considered how the European legislation integrates climate objectives that contribute to sustainable development and how this can be evaluated at the policy proposal stage. Based on the European Sustainable Development Strategy, Rietig (2013) argues that integrating the objective to reduce greenhouse gas emission into other sectoral policies is referred to as 'climate policy integration' in the academic literature from i.e. (Adelle and Rusell, 2013; Jordan and Lenschow, 2010) and as 'mainstreaming' by the EU.

The concept of sustainable development leads to environmental, social and economic concerns and is related to environmental policy integration (Jordan and Lenschow, 2008, 2010; Lafferty and Hovden, 2003) it can therefore be understood as the mother concept of the environmental policy integration (Adelle and Russel, 2013), but not necessarily of climate policy integration. There are two options to determine the criteria for sustainable climate policy integration: science-based quantitative sustainable development indicators (SDIs) and policy-based sustainability strategies, such as the EU SDS.

Rietig (2013) argues that sustainable development indicators are used to measure countries achievements towards sustainable development in ex-post evaluations, i.e. after a policy has been implemented. Examples include the green national net product, the ecological footprint, genuine savings (Nourry, 2008), the Indicator of Sustainable Economic Welfare/Genuine Progress Indicator (Daly and Cobb, 1989) as well as the Environmental Sustainability and Performance Index. These indicators for measuring sustainable development are predominantly ex-post indicators, which mean they measure after sustainable development has been achieved in a country at a certain time, based on available empirical data. However, they are not able to answer if a planned policy has positive or

negative effects on sustainable development. These indicators are meaningful to scientist, but not necessarily to the public and policy makers, who are also concerned with values and policy objectives.

Thus, needs to be knowledgeable by the question of whether the indicators are '*meaningful to the public and reflect an understanding of their values and objectives*' (Shields et al., 2002: 158). Consequently, sustainable development indicators and criteria serve as a benchmark for sustainable climate policy integration. Therefore, not only science-based requirements, but also normative and socio-political dimensions, need to be met (Rametsteiner et al., 2011). The communication and presentation of indicators and their results also need a design that reduces the complexity for policy makers and affiliated stakeholders to increase acceptability, transparency and accountability given the integration of sustainability into most aspects of policymaking.

The criteria for sustainable climate policy integration comes from the European Council which defines climate change as one of the nine key findings under the EU SDS (European Council 2009 Review of the EU Sustainable Development Strategy - Presidency Report -) [5]. There are many connections between climate issues and sustainable development. Climate policy and its influences on climate change will have a huge impact on future sustainable choices. Furthermore, answers to sustainable development will have an effect on the successful development and implementation on climate policies and the capability to respond in the best way to climate change (Robinson and Herbert, 2001).

[5] Council of European Union 16818/09: "Climate Change and Clean Energy: · The EU has made considerable concrete efforts to combat climate change and is well on track to meet its Kyoto commitments. Nevertheless, significant further efforts are needed to meet the long-term objective of limiting the temperature increase to 2°C. The EU must therefore continue to be in the forefront in addressing climate change, both by implementing and strengthening EU internal climate policies, and by calling on other regions and countries to do their part. Both adaptation and mitigation measures need to be integrated into relevant policy areas".

II. A BRIEF HISTORICAL OVERVIEW. FROM THE SINGLE EUROPEAN ACT TO THE LISBON TREATY

2.1 The Single European Act

The EU has positioned itself as the international agenda setter to combat climate change. At several critical situations, the EU and its members have adopted policies and programs that have put them at the forefront of international efforts to address climate change. The European Community has been engaged in environmental protection since the early 1970s. It was not until 1986 with the Single European Act (SEA)[6] , which added a Title on the environment that the Community´s competencies were explicitly extended to environmental realm. The Act called for Community action to *"be based on the principles that preventive action should be taken, that environmental damage should be rectified at source, and that the polluter should pay".*

In addition, the act introduces three new articles (Artices130R, 130S and 130T of the EEC Treaty) that permit the Community *"to preserve, protect and improve the quality of the environment, to contribute towards protecting human health, and to ensure a prudent and rational utilization of natural resources".* It specifies that the Community can only intervene in environmental matters when this action can be attained more efficiently at Community level than at the level of the individual Member States.

2.1.1 Maastricht Treaty

In 1992, the year of the Maastricht Treaty, which was known as *"instituting a European Union, the Maastricht Treaty marked a new step in the process of creating an 'ever-closer union among the peoples of Europe. The Union was based on the European Communities (1.1.1 and 1.1.2) and supported by policies and forms of cooperation provided for in the Treaty on European Union"*[7]

[6] The Single European Act, signed in Luxembourg and The Hague and came into force on 1 July 1987, was the first modification of the foundational treaties of the European Communities, that is to say, the Treaty in 1951 and the Treaties of Rome in 1957. Jacques Delors, president of the European Commission, summarized the main objectives of the Single European Act in the following way: "The Single Act means, in a few words, the commitment of implementing simultaneously the great market without frontiers, more economic and social cohesion, an European research and technology policy, the strengthening of the European Monetary System, the beginning of an European social area and significant actions in environment".

[7] Fact sheets on the European Union – 2016 Available at http://www.europarl.europa.eu/ftu/pdf/en/FTU_1.1.3.pdf [Acceded 23 August 2016]

This Treaty, according to Schreurs and Tiberghien (2007: 27), *"went a step further making the environment an explicit policy responsibility of the Community, giving the Commission greater powers to represent Member States in international organizations and with third parties, and calling upon it to promote measures to deal with regional and worldwide environmental problems. While the subsidiary principle assures that many environmental decisions remain at the local and national levels, there has been a steady strengthening of the Community's powers with time."* According to the EU, the Maastricht Treaty is based on three pillars, namely The European Communities, the cooperation in the field of justice and home affairs (JHI) as well as the Common Foreign and Security Policy (CFSP).

2.1.2 Treaty of Amsterdam

Later, on June 16 and 17 1997, the European Council, which was held in Amsterdam, approved the Treaty of Amsterdam[8] and signed on October 2 1997 by the Foreign Ministers of the fifteen member countries of the European Union at that time. On May 1 1999, the treaty came into force after being ratified by all member States, following their own constitutional rules. In the new treaty, the environmental aspect is addressed. Sustainable development was made an explicit objective of the EC with the agreement of the Amsterdam Treaty in 1997.

The Amsterdam Treaty also strengthened the requirement to integrate the environment into other EU policy sectors by placing it at the beginning of the Treaty (Article 6) and explicitly stating that 'Environmental protection requirements must be integrated into the definition and implementation of four (other) Community policies'

As with its predecessors, the Amsterdam Treaty made changes on the way in which decisions are made. Co-decision became the normal process for agreeing on environmental policy, thus further enhancing the role of the European Parliament (with the exception of fiscal measures etc.). It was also extended to transport policy, Trans-European Networks (TENs), and to the Structural Funds' implementing Regulations. The broad objectives, set out in Article 174 (now Article 191 TFEU), provided the Community with legal competence to act in all areas of environmental policy.

[8] As a legal document, the Treaty of Amsterdam has as main objective to modify certain regulations of the Treaty of the European Union, the constituent treaties of the European Communities (Paris and Rome) and of some acts related to them. It does not substitute the previous treaties, but rather it is added.

2.1.3 Nice Treaty

A mere few years later, the Nice Treaty was signed in February 26, 2001 and came into force on 1 February 2003. It reformed the institutional structure of the EU to facilitate the enlargement of the EU in May 2004, a task that was originally intended to be done by the Amsterdam Treaty.

The Treaty, under the XIX Title in Articles 174, 175 and 176 regulates environment with a text that modifies the Treaty establishing the European Community:

The Community policy on the environment shall contribute to pursuit of the following objectives: preserving, protecting and improving the quality of the environment, protecting human health, prudent and rational utilization of natural resources, promoting measures at international level to deal with regional or worldwide environmental problems.

Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.

2.1.4 Lisbon Treaty

8 years later, on the 1st of December 2009, the ratifications made in the Lisbon Treaty came into force. The signing of this treaty in 2007 made amendments to the after mentioned Maastricht Treaty.

According to Cremona (2012: 40):

"The Treaty of Lisbon is essentially an amending treaty; it amended the Treaty on European Union and the EC Treaty, renaming the latter the Treaty on the Functioning of the EU (TFEU). This decision, to act through an amending treaty and to retain the separated treaty structure of the existing constitutional architecture, was obviously predominantly driven by the need to demonstrate first that the Treaty of Lisbon is something different from the Constitutional Treaty (and that the public voice evidenced in the negative referendums on the Constitution had been heard), and second that the new Treaty does not in fact make major constitutional changes to the status quo (and that therefore new referendums did not need to be held)."

The Treaty of Lisbon has reformed the structure of the EU and the way in which it functions. It was necessary to adapt the way the European institutions function and how decisions are taken.

Regarding the environmental policy, the treaty includes modifications under Title XX "The Environment" the Articles 191, 192 and 193 where the main highlights are the following:

In this context, harmonization measures that are needed to meet requirements for environment protection requirements include, in appropriate cases, a safeguard clause allowing Member States to take, for non-economic environmental reasons, provisional measures subject to a control process European Union

The Council, acting unanimously on a proposal from the Commission and after consulting the European Parliament, the Economic and Social Committee and the Committee of the Regions, may make the ordinary legislative procedure applicable to the matters referred to in the first paragraph.

Furthermore, related to Energy specifically, under Title XXI "The Energy" Article 194: Not affecting the right of Member States determinates the conditions of exploitation of its energy resources, its choice between different energy sources and the general structure of its energy supply, without prejudice to point c of Article 192.

Nevertheless, from this legislation and policy, an environmental agenda emerges from the EU of the founding treaties in the initiatives in late 70s. Likewise, at that moment, political pressure existed from the Green Party in the European Parliament, as well as from Germany, the Netherlands and the Scandinavians states. In the 1980s and early 1990s, this led to a broader demand for a coherent policy at European level. Thus, generated a shifting of political paradigm, giving birth of so-called Environmental Action Plans (EAPs)[9].

The sixth EAP, which in this case; is the most relevant, was a decision agreed upon by the European Parliament and the Council adopted on 22nd July 2002 which aimed to improve the

[9] "In the past 30 years the EU has adopted a substantial and diverse range of environmental measures aimed at improving the quality of the environment for European citizens and providing them with a high quality of life. Our environment can only be well protected if Member States properly implement the legislation they have signed up to.
Implementation of Community environmental legislation is to be ensured in the first place by Member States who need to monitor and report on it to the Commission.
In addition to any implementation and enforcement action taken at national level, the European Commission fulfils the role of "Guardian of the Treaty": according to Article 211 first indent of the EC Treaty, the Commission is to ensure that the provisions of the Treaty and the measures taken by the institutions pursuant thereto are applied. In performing that function, the Commission may open infringement procedures" Available at European Commission Environment http://ec.europa.eu/environment/legal/implementation_en.htm [Acceded 24 August 2016].

implementation of existing legislation by integrating environmental concerns into other policies, promoting full integration of environmental protection of all community policies, into four focus areas: Climate change, Nature and biodiversity, Environment and health, Natural Resources and Waste. In conclusion, the EU's political and legal framework is a comprehensive environmental scheme where the "greening" evolution was born from the SEA. In addition, the Maastricht Treaty (1992), linked with the promotion of the sustainable growth to the environmental protection, and then from Amsterdam Treaty (1997) where the European Parliament had considerable influence by giving its veto power for environmental legislative proposals through the application of the co legislative procedures.

2.2 From the Lisbon Strategy to the Europe 2020 Strategy

2.2.1 The Lisbon Strategy

In March 2000, the European Council in Lisbon set out a ten-year strategy to make the Union "the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth, with more and better jobs and greater social cohesion". In 2000, the strategic goal was based on economic and social pillars. One year later, it was implemented by an environmental and sustainable development dimension at the European Council in Gothenburg, in other words the environmental aspect was integrated into the Lisbon strategy.

The economic pillar had been characterized by the transition of a competitive, dynamic and knowledge-based economy. There is a necessity of adapting quickly to changes in the society and to invest in research and development.

Meanwhile, the social pillar is designed with the idea to modernize the European social model through investing in human resources and combating social exclusion. It is expected that the Member States invest in education and training, and drive an active policy for employment.

According to the Institute for Economic Forecasting (2006: 74), *"The Lisbon Strategy is a commitment by EU governments to concentrate their efforts on a single overarching goal - to bring about economic, social and environmental renewal in the EU. The Lisbon Strategy means that growth should be created on an ecologically, economically and socially sustainable basis."*

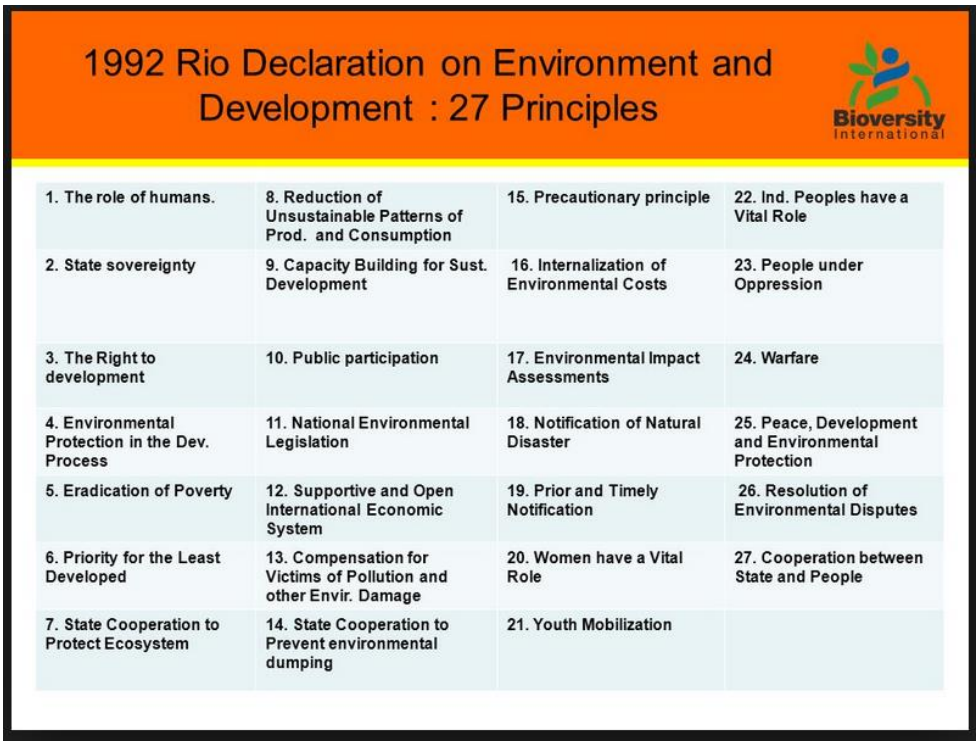
2.2.2 The EU Sustainable Development Strategy

Before straining with the EU Sustainable Development Strategy, it accurately offers a definition regarding sustainable development.

Therefore, sustainable development is defined as: "*Development that meets the needs of the present without compromising the ability of future generations to meet their own needs*" (WCED, 1987: 45).

Moreover, sustainable development was the main theme of what is often called the Earth Summit, which was held in Rio de Janeiro in 1992. Here, world leaders signed a convention on both climate change and biodiversity. A declaration at the end of the summit listed a development of 27 principles of environmental and sustainable development.

FIGURE 1: 1992 RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT: 27 PRINCIPLES (BIODIVERSITY INTERNATIONAL)



However, in 2001 the European Council at Gothenburg launched a broad strategy for sustainable development: *"This strategy provides an EU-wide policy framework to deliver sustainable development, i.e. to meet the needs of the present without compromising the ability of future*

generations to meet their own needs."[10] In 2002, this strategy was extended to include the external dimension, confirming the Union's leading role in the run-up to the 2002 Johannesburg World Summit.

The characteristics of the strategy are based on four pillars, which need to reinforce one to another. These are namely: Economic, Social, Environmental, Global governance.

Furthermore, it is remarkable, that the EU strategy assumes a role of responsibility and commitment with regard to sustainable development, whose various aspects – including democracy, peace, security and liberty – showing the necessity to be promoted and applied beyond EU borders.

The strategy identifies seven key challenges on which action needs to be taken: - Climate change (by meeting commitments under the Kyoto Protocol) and clean energy, efficiency energy and renewable energy. Also, - Sustainable transport (will be product of specific efforts) - Sustainable consumption and production (EU need to create sustainable consumption which takes into account both economic efficiency and the greater social and environmental good) - Conservation and management of natural resources (the EU has signed up to the United Nations convention on biological diversity which recognizes the importance of our natural heritage. The 2006 EU Biodiversity Communication sets out a detailed action plan to respond to the challenge of halting biodiversity loss by 2010) Public health (The EU has a recognized responsibility to safeguard a high level of health protection.[11]

An article in the EC Treaty says that actions shall be directed at improving public health by preventing human illness and diseases and reducing the dangers to human health), social exclusion and poverty (the EU commitment to generate a pension found and social protection systems, integrate legal migrants and develop a Community of immigration policy as well as that to promote gender equality) and the fight against global poverty. In this point in international governance, the EU is commitment in "monitoring global sustainable development and compliance with international commitments" through increase the amount of aid provided to the less developed countries.[12]

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[10] Commission Communication of 15 May 2001 'A Sustainable Europe for a Better World: A European Union Strategy for Sustainable Development' Available at EUR-Lex Access to European Union Law http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV%3Al28117 [Acceded 25 August 2016].

[11] Strategy for sustainable development EUR-Lex Access to European Union Law Available at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV%3Al28117 [Acceded 24 August 2016].

[12] Strategy for sustainable development EUR-Lex Access to European Union Law Available at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV%3Al28117 [Acceded 24 August 2016].

As observed, the presented strategy covered a wide range of topics towards diversity of objectives and targets that will enable Europe to achieve an increasingly dynamic and sustainable society. This strategy allows the EU to use a more dynamic economy without neglecting the social and environmental ambition.

2.2.3 Europe 2020 Strategy "A strategy for smart, sustainable and inclusive growth"

In March 2010, the European Commission presented the proposal for the Europe 2020 Strategy. The final decision on Europe 2020 was taken by the European Council in March and June 2010. The context, in which this strategy had been created, was clearly characterized by the European Crisis. For previous two years, the council had left millions unemployed, bringing a broad pressure in the social cohesion system. Their short-term priority as the Official Communication from the Commission describe in their preface[13] was seen as a positive departure from the crisis. Progress in dealing with unstable banks, corrections in financial markets and a strongly reliable political organization in the Eurozone, was and still is, essential for a sustainable and long-term future.

Europe 2020 puts forward three mutually reinforcing priorities:

- Smart growth based in developing the economy in factors such as knowledge and innovation.
- Sustainable growth oriented to promote a more resource efficient, greener and more competitive economy.
- Inclusive growth aimed at an encouragement for a high-employment economy and delivering social and territorial cohesion.

Moreover, the Commission defines key strategic points, which are the objectives to be in place and successful by 2020. These points reflect all the main priorities mentioned above and generate scenery of proposes and targets for all EU member states.

- 75% of the population aged 20-64 should be employed.

[13] Official Communication from the Commission Europe 2020 Strategy "A strategy for smart, sustainable and inclusive growth" Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF [Acceded 27 August 2016].

- 3% of the EU's GDP should be invested in R&D.
- The "20/20/20" climate/energy targets should be met (including an increase to 30% of emissions reduction if the conditions are right).
- The share of early school leavers should be under 10% and at least 40% of the younger generation should have a tertiary degree.
- 20 million less people should be at the risk of poverty.[14]

These targets have to be combined with the three priorities mentioned above, although the targets have to be flexibly adopted to different initial country circumstances and to be set according to Member States and national decision-making procedures. Under each priority theme, the strategy proposes seven flagship initiatives to generate the progress: "Innovation Union", "Youth on the move", "A digital agenda for Europe", "Resource efficient Europe", "An industrial policy for the globalisation era", "An agenda for new skills and jobs", and "European platform against poverty".

The following figure (figure 2) shows the targets combined with the flagships initiatives of the Europe 2020 strategy´s key points.

Figure 2: The Europe 2020 strategy´s key priorities, headline targets and flagships initiatives (Eurostat, 2015)

	Targets	Flagship initiatives
Smart growth	— Increasing combined public and private investment in R&D to 3 % of GDP — Reducing school drop out rates to less than 10 % and increasing the share of the population aged 30 to 34 having completed tertiary education to at least 40 %	— Innovation Union — Youth on the move — A digital agenda for Europe
Sustainable growth	— Reducing greenhouse gas emissions by at least 20 % compared to 1990 levels — Increasing the share of renewable energy in final energy consumption to 20 % — Moving towards a 20 % increase in energy efficiency	— Resource efficient Europe — An industrial policy for the globalisation era
Inclusive growth	— Increasing the employment rate of the population aged 20 to 64 to at least 75 % — Lifting at least 20 million people out of the risk of poverty and social exclusion	— An agenda for new skills and jobs — European platform against poverty and social exclusion

[14] Official Communication from the Commission SEC (2010) 114 Final Europe 2020 Strategy "A strategy for smart, sustainable and inclusive growth" Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF [Acceded 27 August 2016].

2.3 The actual leading role of the EU in the international agreements on climate change (Kyoto and Paris agreement)

2.3.1 The Kyoto Protocol

The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997. Due to a complex ratification process, it entered into force on 16 February 2005. The main aim of the Protocol is to reduce greenhouse gas emissions *"with a view to reducing their overall emissions of such gases by at least 5 per cent below existing 1990 levels in the commitment period 2008 to 2012"*[15].

The Kyoto Protocol obligates the group of countries that ratified to reduce their anthropogenic emissions of Greenhouse Gases (GHGs). The accumulation of these gases in the atmosphere generates some long-term implications for the climate on earth. The emissions objective approved in Kyoto may not sound very ambitious. Relative to the 1990 level, Annex 1 countries are due to reduce their total GHG emissions by around 5 per cent on average for the period from 2008 to 2012. However, the magnitude of this reduction effort is best viewed when the reduction is compared to the level of the emissions that would be expected in the absence of any action, referred to as the baseline or "Business-as-Usual" (BaU) level.

The commitments under the Protocol vary from nation to nation. The EU formally agreed to the KP on 25 April 2002.[16]

The 15 Member States of the EU, represented by Jaume Mata Palou, Minister of the Environment of Spain (which held the EU presidency at that time), and the European Commission, represented by Margot Wallstrom, presented their instruments of ratification to the United Nations on 31 May 2002.[17]

The KP came into force on 16 February 2005, after a long persuasion of Russia that had ratified the protocol in November 2004. Consequently, the emission threshold of industrial countries had been

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[15] United Nations Framework Convention on Climate Change. A summary of the Kyoto Protocol. Available at http://unfccc.int/kyoto_protocol/background/items/2879.php [Acceded 28 August 2016].

[16] Council Decision 2002/358/EC of 25 April 2002, p. 4 Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002D0358:EN:HTML [Acceded 28 August 2016].

[17] "EU unanimously ratifies Kyoto Protocol to combat climate change" European Union Delegation to the United Nations – New York EU @ UN – *Partnership in Action.* Available at http://eu-un.europa.eu/eu-unanimously-ratifies-kyoto-protocol-to-combat-climate-change/ [Acceded 28 August 2016].

exceeded, as the protocol covered 63% of the emissions at that time. By 2005, 181 countries had ratified the protocol. 2006–2007 became the climax years of climate change discussions. Nicholas Stern, former Chief Economist of the World Bank, had drawn up a report for the British government just ahead of the Nairobi Climate Conference in autumn 2006. According to this report, combating climate change becomes much cheaper for humankind than the expenses that severe climate catastrophes would generate for the world economy. The report states that damages resulting from global warming may annually between 5 to 20% of the global GDP unless it starts combating climate change in time (Stern, 2006).

At the same time, the climate campaign of former US Vice-President, Al Gore, and especially the film *An Inconvenient Truth* written by and featuring him, gained media attention. The Intergovernmental Panel on Climate Change (IPCC) published the summary of its 4th Assessment Report in February 2007, and in October of the same year, the IPCC and Al Gore received the Nobel Peace Prize *"for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change"*[18]. Since the climate change is an extremely controverted issue, see Annex A, that explains the concept from a scepticism evaluation point of view.

The emission target and initial amount is in the core Article 3 of the KP, which requires each Annex I Party to ensure that its total emissions from GHG sources listed in Annex A to the Kyoto Protocol over the commitment period do not exceed its allowable level of emissions. In the case of the EU, the first period of the Protocol between 2008 to 2012, the Commission's annual progress report on EU greenhouse gas emissions shows that the 15 EU member states at that time have overachieved their ratification and their joint reduction commitment for the first period of the Kyoto Protocol. *"While their commitment called for an annual 8% reduction below base year levels (1990 in most cases), averaged over the period, the actual cut achieved through domestic reduction measures alone is expected to be 12.2%. For the second Kyoto period, which runs from 2013 to 2020, the EU has committed to achieve an average of 20% reduction below annual base year levels over the period. The*

[18] The Nobel Peace Prize 2007 IPCC Intergovernmental Panel on Climate Change Available at http://www.nobelprize.org/nobel_prizes/peace/laureates/2007/ [Acceded 28 August 2016].

EU intends to fulfill its commitment jointly with Iceland."[19] The following table shows the GHG emission reduction target contained in Annex B of the KP.

TABLE 1: QUANTIFIED EMISSION LIMITATION OR REDUCTION TARGETS AS CONTAINED IN ANNEX B TO THE KYOTO PROTOCOL (UNFCCC, 2008)

Annex I Parties[a]	Emission limitation or reduction (expressed in relation to total GHG emissions in the base year or period inscribed in Annex B to the Kyoto Protocol)[b]
Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, European Community, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Monaco, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland	–8%
United States of America[c]	–7%
Canada, Hungary, Japan, Poland	–6%
Croatia	–5%
New Zealand, Russian Federation, Ukraine	0
Norway	+1%
Australia	+8%
Iceland	+10%

[a] At the time of publication of this manual, the amendment to the Kyoto Protocol that contains an emissions target for Belarus (–8%) had not been ratified by a sufficient number of Parties for it to enter into force.
[b] Countries with economies in transition have flexibility in the choice of base year.
[c] Country which has declared its intention not to ratify the Kyoto Protocol.

2.3.2 The Paris Agreement

From 25 to 27 September 2015 in the United Nations headquarter New York, the Sustainable Development Summit was held and where more than 150 world leaders attended and adopted an ambitious new sustainable development agenda. The purpose of this summit was concreted in the following document, titled "Transforming our world: the 2030 Agenda for Sustainable Development" by the General Assembly Resolution A/RES/70/1[20] and agreed by plenary consensus of the General Assembly. From this Agenda; 17 Sustainable Development Goals and 169 Targets followed, shaping a wide, ambitious and detailed action plan of universal policy with the intention to have a better world.

[19] EU over-achieved first Kyoto emission target, on track to meet 2020 objective 2013. European Commission Climate Action. Available at http://ec.europa.eu/clima/news/articles/news_2013100901_en.htm [Acceded 28 August 2016].

[20] Resolution adopted by the General Assembly on 25 September 2015 A/RES/70/1. Transforming our world: the 2030 Agenda for Sustainable Development. Available at: http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&referer=/english/&Lang=E [Acceded 29 August 2016].

In this subchapter, the focus will be on the analysis in the environment dimension in the context of the Sustainable Development Agenda, specifically in the Sustainable Development Goal 13 (SDG13) to take urgent action to combat climate change[21].

The Climate Change issue is of significant interest for the international community, which is clearly seen in the 2015 United Nations Climate Change Conference, which was held in Paris, from 30 November to 12 December 2015. It was the twenty-first session of the Conference of the Parties (COP 21). In this conference, the Paris Agreement was negotiated, which constituted an historical and global agreement to combat climate change and unleashed actions and investment towards a low carbon, resilient and sustainable future. It was agreed by 195 nations in 12 December 2015.

The universal agreement's main aim is to keep a global temperature rise in this century below 2 degrees Celsius and to drive efforts to limit the temperature increase even further to 1.5 degrees Celsius above pre-industrial levels. The Paris Agreement welcomed the adoption of the United Nations General Assembly Resolution A/RES/70/1 by "Transforming our world: the 2030 Agenda for Sustainable Development", in particular its SDG13 that is mentioned above. Moreover, this agreement recognized in the preface *"that climate change represents an urgent and potentially irreversible threat to human societies and the planet and thus requires the widest possible cooperation by all countries, and their participation in an effective and appropriate international response, with a view to accelerating the reduction of global greenhouse gas emissions"*[22]. With this pact, the representation of 195 states meeting in Paris, not only admits that the climate change exists but recognizes that is an irreversible threat to humankind, thus the agreement establishes measures to combat it.

When the climate change's causes are analysed, you must focus on the energy issue, because the energy is fundamental for the daily development activities of the humanity and for the energy's production necessarily to burning fossil fuels, among other activities for example deforestation of tropical forest. The burning of fossil fuels generates a result of high level of greenhouse gas emissions to the atmosphere (anthropogenic emissions), which added to the natural origin existing, conforming both an intensification of global warming causes. Therefore, to counter this situation, the

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[21] Goal 13: Take urgent action to combat climate change ant its impacts. Available at http://www.un.org/sustainabledevelopment/climate-change-2/ [Acceded 29 August 2016].

[22] Conference of the Parties Twenty – First session. Paris, 30 November to 11 December 2015. Adoption of the Paris agreement. Available at http://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf [Accessed 29 August 2016].

implementation of alternatives to traditional energy sources become necessary in order to reduce greenhouse gas emissions.

However, with regard to the Climate Change, it is essential to define the scope of the concept, because it is a highly controversial issue and raises concerns in different interest sectors. Climate Change may be understood as a wide concept. However, by referring to the United Nations Framework Convention on Climate Change, there is an approach to a defined concept by referring to the Article 1.2 *"Climate change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."*[23]

The Paris Agreement, to reach these ambitious goals, it is necessary to have an appropriate financial flow and a new technology framework supporting action by developing countries and the most vulnerable countries, in line with their national objectives. Regarding to this, the Paris Agreement requires the implementation of all Parties to put forward their best efforts through "nationally determined contributions" (NDCs). This includes requirements that all Parties report regularly on their emissions and on their implementation efforts. There will be an assessment every five years to assess the collective progress towards achieving the purpose of the agreement and to inform individual actions by Parties.

The EU's role in the Paris Agreement (see Annex B), has been in the forefront of international efforts towards a global climate deal. The EU was the first major economy to submit its intended contribution and highlight that the EU and its 28 Members States have submitted their INDC, are fully committed to the UNFCCC. The negotiating process has a view to adopting a global legally binding agreement applicable to all Parties. The EU is already taking action in areas such as energy, transport, land-use and agriculture, resilient cities, fewer emissions and financing for climate action in their internal policy level as well as participating in the global action level. To achieve this objective, the council stressed that global emissions of greenhouse gases should reach their peak in 2020 at the latest and reduce by at least 50 % by 2050 compared to 1990 and close to zero or be below zero by 2100.

[23] United Nations Framework Convention on Climate Change. Available at https://unfccc.int/resource/docs/convkp/conveng.pdf [Accessed 29 August 2016].

2.4 The role of the European Commission and European Parliament in the climate and energy policy making process

In general, the legislative process in the EU involves the European Commission (independent from national governments), the European Parliament (elected by EU citizens), and the Council of the European Union, which represents the Member States. Most often, the Commission proposes new legislation, but it is a combined agreement between the Council and Parliament which pass the laws.[24]

2.4.1 The European Commission

The European Commission, according to Schreus and Tiberghien (2007), can be identified with three main goals. At one level, it seeks to respond to the public opinion with outcomes. At the second level, the Commission has implemented the climate policy as a means to push EU integration forward and empower the Commission with new regulatory tools and monitory powers, which is highly important. Last but not least, the Commission has used climate change to build the EU's foreign identity, especially relative to the US. As a top official of the Directorate General Environment puts it, the environment is a great unifying issue for EU integration (an issue of predilection), one where everyone expects that the EU must act and lead.

The Commission is the institution with the right of formal initiation of policy and responsibility for ensuring policy implementation. It therefore plays a key role within the EU climate and energy policy-making process. The role of the Commission, according the EU´s founding Treaties of the 1950's, was to be a small supranational executive taking the lead in policy proposals to facilitate the integration agenda (Hayward, 2008)

Amongst specific tasks, the Commission has made a significant contribution in international climate change politics, also taking on an active role in the international climate change negotiations where it represents the EU within the it is called "Troika", which it forms together with the current and the incoming EU Presidency. The Commission's cognitive powers should also not be

[24] How the European Union Works. Available https://eeas.europa.eu/delegations/singapore/documents/more_info/eu_publications/how_the_european_union_works_en.pdf [Acceded 29 August 2016].

underestimated because climate change policy requires a high degree of technical expertise (Barnes, 2011).

The powers of the Commission include: agenda setting; formal right to initiate legislation; consensus-building between the national governments, the EP, and other interested parties and stakeholders; management of Commission programs; representation of the EU in external (economic) relations; provision of oversight and enforcement of European Law as well as representation of the general interest of the EU.

Likewise, the Commission President leads the political leadership and overall direction within the Commission. Therefore, any climate policy proposal cannot come from the Commission without some review or commitment from the President. The Commission President is a member of the European Council and has the capability and responsibility for managing the Commission and distribution of portfolios to individual Commissioners (Treaty of Amsterdam, 1999).

Related to the internal implementation of international commitments, when accepted as an EU policy, the responsibility of the Commission is that all associated measures are implemented by all Member States. Consequently, measures to meet external commitments are not separate from internal climate change policy. Nevertheless, the Commission may not be able to propose radical initiatives on behalf of the EU in international climate change negotiations without a relevant mandate from the national governments (Barnes, 2011).

However, this does not prevent the Commission proposing initiatives for internal climate change policy. It does not prevent to the President and other individual Commissioners playing an active role in international climate change negotiations. Within the "Troika", the Commission has the advantage of being involved in the international climate change negotiations. The Commission has the authority to be signatory of the United Nations Framework on Climate Change UNFCCC (1992) and the Kyoto Protocol (1997) according Article 24 of the UNFCCC.

As a conclusion, the policy process in which the European Commission participates is a result of a complex negotiation and consensus building between large amounts of actors with varying interests, which interests need to be taken into consideration. As a result, the Commission takes the role of entrepreneurial leadership to facilitate agreements into this context.

2.4.2 The European Parliament (the voice of the people)

The European Parliament (EP) has historically limited scope to shape the EU´s climate change policy as the lead has traditionally been taken by the Commission and Council. Under Article 218 of the Treaty of the Functioning of the European Union, the Parliament has circumscribed de jure role in international environmental politics. Nevertheless, the EP has limited ability to develop negotiations, its policy impact has been limited, thus is visible in the literature on the EU and climate change where the EP is barely mentioned. "The EP has picked climate change as a strategic issue through which it can gain more legitimacy and power relative to the Council and the Commission" (Schreurs et al., 2007: 36).

Members of the European Parliament (MEPs) are directly elected by EU citizens to represent their interests. Elections are held every five years and all EU citizens over 18 years old (16 in Austria) — some 375 million — are entitled to vote. The Parliament has 754 MEPs from all 27 Member States. The Parliament has three main roles:

- It shares with the Council the power to legislate — to pass laws. The fact that it is a directly elected body helps guarantee the democratic legitimacy of European law.
- It exercises democratic supervision over all EU institutions and in particular the Commission. It has the power to approve or reject the nomination of the President of the Commission and Commissioners and the right to censure the Commission as a whole.
- It shares authority with the Council over the EU budget and can therefore influence EU spending. At the end of the budget procedure, it adopts or rejects the budget in its entirety.[25]

In Hayward´s words (2008), the EP has typically sought to exercise cognitive and entrepreneurial leadership but its leadership style has typically been symbolic, however the EP´s increased its institutional power, which opened a window of opportunity to shift from this rhetorical approach to a more heroic style as it sought to tighten and strengthen the climate change and energy package that was adopted by the EP and Council in late 2008.

[25] The European Union Explained. How the European Union Works. 2012. Available at https://eeas.europa.eu/delegations/singapore/documents/more_info/eu_publications/how_the_european_union_works_en.pdf [Acceded 29 August 2016].

Over the years, the EP has been known as an environmental actor, developed a reputation of being the EU´s "environmental champion". Meanwhile, in climate change politics, there is a clear evolution of leadership nowadays. The EP can develop a significant role by amending legislation related to climate change, but its ability to shape directly in EU negotiations at international level is circumscribed.

III. CASE STUDY: FRAMEWORK FOR CLIMATE & ENERGY POLICIES 2030

For this case study, two methods of analysis, namely SWOT and PESTLE, were used. The SWOT analysis is an analytical tool used for the categorization of internal and external factors. It is an acronym that stands for Strengths, Weaknesses, Opportunities and Threats. Strengths and weaknesses are termed as internal while opportunities and threats are termed as external factors. A SWOT analysis can be conducted for a situation, an organization, a project, a new venture, a country, a nation and even individuals. It can help organizations in their strategic planning process, and in matching their capabilities and resources to the competitive environment in which it carries out its operations.[26]

Since the PESTLE analysis involves a macro-environment, the PESTLE analysis is the chosen methodological model that illustrates in the best way the approximation of the reality in 2030 in the case study. It is the most accurate model to show the strategy in a comprehensive vision. This is an analytical model analysis usually applied business science for developing marketing plans and business.

The "Framework for climate and energy policies 2030" emerged from an agreement made on 23 October 2014. The goal of reducing greenhouse gases by 2030 by at least 40% in comparison to the levels in 1990, along with other major building blocks in the 2030 political structure for climate and energy, was proposed by the European Commission in January 2014. The 2030 policy framework aims to make the economy and energy system of the European Union more competitive, safe and sustainable plus sets a target of at least 27% of renewable energy and energy saving.

Specifically, it proposes the following:

A commitment to further reduce greenhouse gas emissions by 2030 to set a reduction target of 40% over the 1990 levels. Also a target of renewable energy of at least 27% of the total energy consumption, with flexibility for Member States to set national targets. Improved energy efficiency through possible amendments to the Energy Efficiency Directive. A reform of the system of emissions trading in the EU to include a reserve for market stability as key indicators of energy prices, diversification of supply, interconnections between Member States and progress technological to measure progress in achieving a competitive, secure and sustainable energy system.

[26] PESTLE and SWOT analysis: When to use SWOT http://pestleanalysis.com/pestle-and-swot-analysis/ [Accessed 4 October 2016].

At the end of February 2015, the Commission presented its first legislative proposals for the implementation of the framework for action on climate and energy until 2030. The proposals contained in the package of the Union of Energy, aim to provide a coherent approach to climate change, energy security and competitiveness and contribute to achieving some of the goals agreed under the framework for action to 2030. The package of the Energy Union is currently under discussion in the Council and the European Council.

"The 2030 framework should fit in the longer-term perspective set out by the EC in 2011 in three separate documents: i) the Low Carbon Roadmap 2050; ii) the Energy Roadmap 2050; and iii) the Transport White Paper. The scenarios in these roadmaps suggested that by 2030 the EU's GHG emissions would need to be reduced by 40% to be on track to reach a GHG reduction of 80-95% by 2050, consistent with the internationally agreed target to limit atmospheric warming to below 2°C". (De Bruyn et al., 2014: 7). For further information, related to this topic see annex C, D and E.

The Targets for the 2030 framework climate and energy are:

- a 40% cut in greenhouse gas emissions compared to 1990 levels
- at least a 27% share of renewable energy consumption
- at least 27% energy savings compared with the business-as-usual scenario [27]

3.1 The actual state of the main targets of the 2030 framework

Regarding to the emission reduction, those are the main commitments that EU have adopted plus Paris Agreement.

[27] 2030 Energy Strategy. European Commission. Available at http://ec.europa.eu/energy/en/topics/energy-strategy/2030-energy-strategy [Acceded 2 September 2016].

TABLE 2: SUMMARY OF THE EU COMMITMENTS TO REDUCING ITS GHG EMISSIONS (IEA 2014)

Date	Commitment		Nature of commitment	Target date for achievement	Reduction in GHG below 1990 level: %	Progress to meeting target
1997 (into force 2005)	Kyoto Protocol	EU15	International treaty; binding	2008-12	8	Probably over-achieved
2012	Doha Amendment to Kyoto Protocol	EU	International treaty; binding*	2013-20	20	-
2009	2020 Climate and Energy Package	EU	Self-imposed; binding	2020	20	On track to meet
2014	2030 Climate and Energy Policy Framework	EU	Self-imposed; binding	2030	40	-
2011	2050 Roadmap for a competitive low-carbon economy	EU	Aspiration	2050	80-95	-

* Pending adoption/ratification.

At this stage, in accordance with the 2030 framework, it is essential to explore the following points.

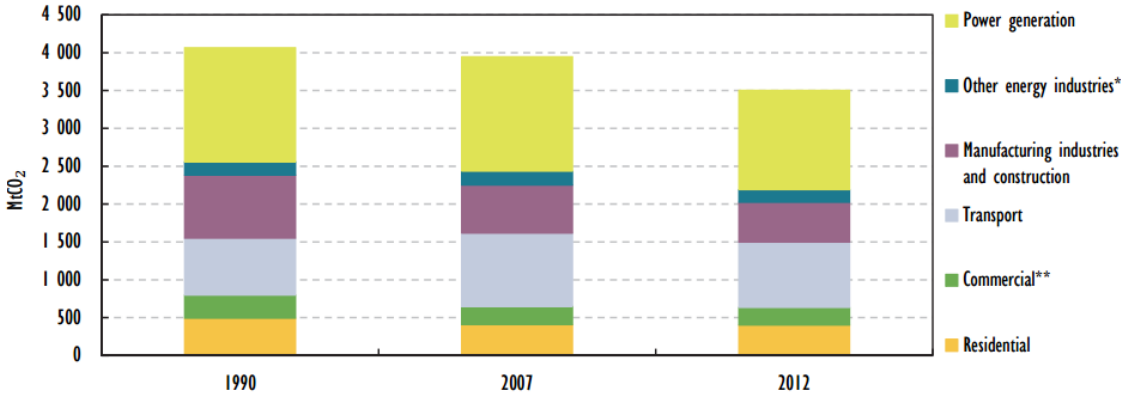
a. The actual state on emission reduction target in the EU

b. The actual state of share renewable energy target in the EU

c. The actual state in energy efficiency target in the EU

a. The most actual source of the IEA shows that in 2012 there has been a significant reduction of CO2 in the EU.

FIGURE 3: CO2 EMISSION IN THE EUROPEAN UNION BY SECTOR 1990-2012 (IEA, 2014)

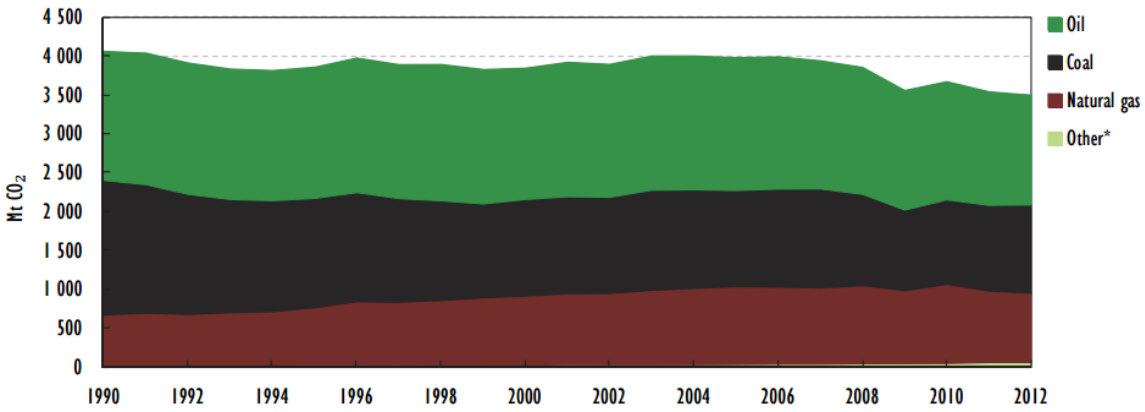


* *Other energy industries* includes refining/other transformations and energy own use.

** *Commercial* includes commercial and public service, agriculture/fishing and forestry.

Source: IEA (2014), *CO_2 Emissions from Fuel Combustion*, OECD/IEA, Paris.

FIGURE 4: CO2 EMISSION IN THE EUROPEAN UNION BY SOURCE 1990-2012 (IEA, 2014)



* *Other* includes industrial waste and non-renewable municipal waste.

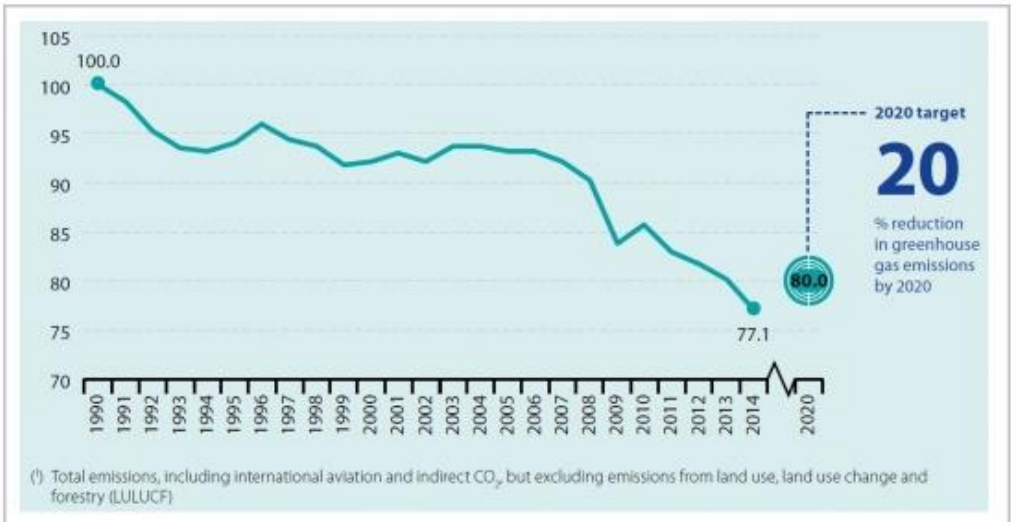
Source: IEA (2014), *CO_2 Emissions from Fuel Combustion*, OECD/IEA, Paris.

"Carbon intensity in the EU has declined by 40.9% since 1990. Energy related CO2 emissions per capita in the European Union dropped by 19% between 1990 and 2012, from 8.5 t per capita to 6.9 t per capita, lower than IEA average. Largely because of the economic and financial crisis and the introduction of energy and climate policies, a 3.3% emissions decrease took place in households, power generation and industry alone between 2010 and 2012" IEA Energy policies of IEA countries EU (2014: 59)

According to the statistics of Eurostat (2014), European GHG emissions declined by 23% compared to the initial value in 1990 (Table 3). Therefore, the EU is probably going to surpass its own

Europe 2020 target of reducing GHG emissions by 20% by the year 2020. The statistics also show that all sectors besides fuel combustion in transport and global flying, accounted for the reduction between 1990 and 2014. Nevertheless, the regular global surface temperature keeps increasing with 2015 being the warmest year on record.

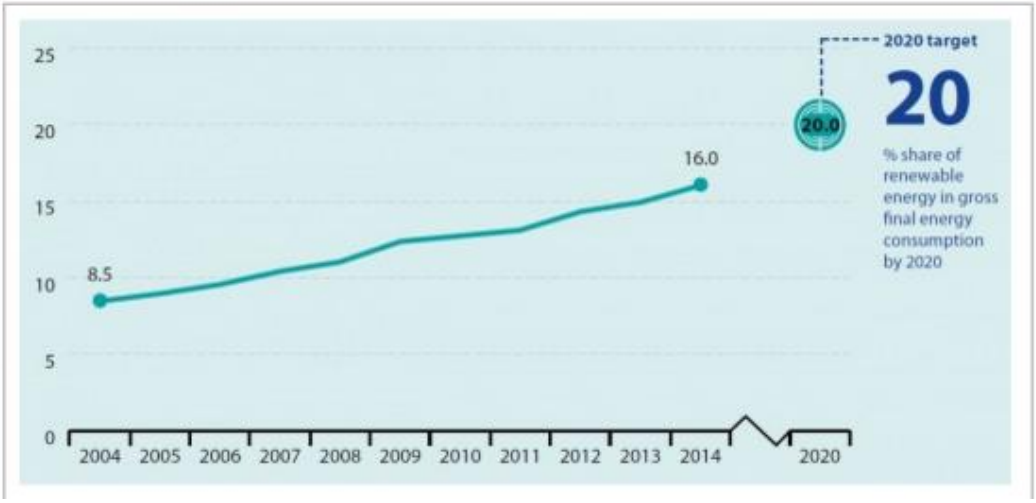
TABLE 3: GREENHOUSE GAS EMISSION, EU-28, 1990-2014 (EUROSTAT, 2016)



b. The actual state of share renewable energy target in the EU

The portion of renewable energy is rising. In 2004, just 8.5% accounted for gross energy consumption in the EU, whereas it rose to 16.0% in the year 2014 (Table 4). In the identical timeframe, gross electricity generation from renewable sources climbed up to 27.5%, coming from 14.4%. Furthermore, the portion of wind and solar energy has also increased, which is due to a rise in effectiveness in support schemes and overall cost reductions. In terms of transportation, renewable energy provided 5.9% of all used energy in 2014, which is a remarkable increase compared to its 1.0% in 2004.

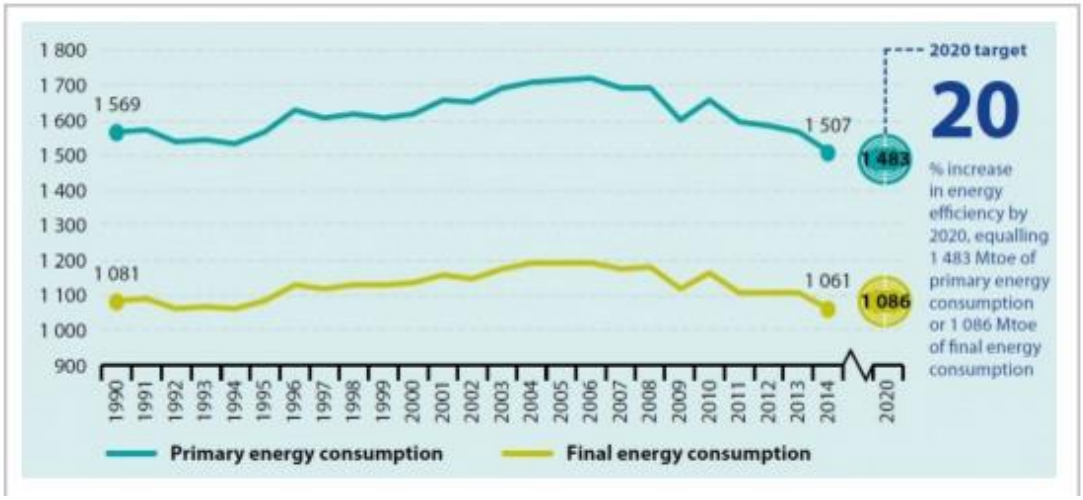
TABLE 4: SHARE OF RENEWABLE ENERGY IN GROSS FINAL ENERGY CONSUMPTION, EU-28, 2014-14 (EUROSTAT, 2016)



c. at least 27% energy savings compared with the business-as-usual scenario

The European Union reports exceptional developments concerning its energy efficiency objective. 12.0% less primary energy was consumed in 2014 compared to 2005. By compromising the basic 2020 target, the customs union saved 15.7% of primary energy up to 2014 (Table 5). However, the EU is still strongly reliant on energy imports from non-EU countries, which account for almost 54% of all consumed energy in 2014 with Russia being its main supplier. The Russian Federation provided a total of 29.9% of gas, 25.6% of petroleum and 25.9% of all solid fuel imports.

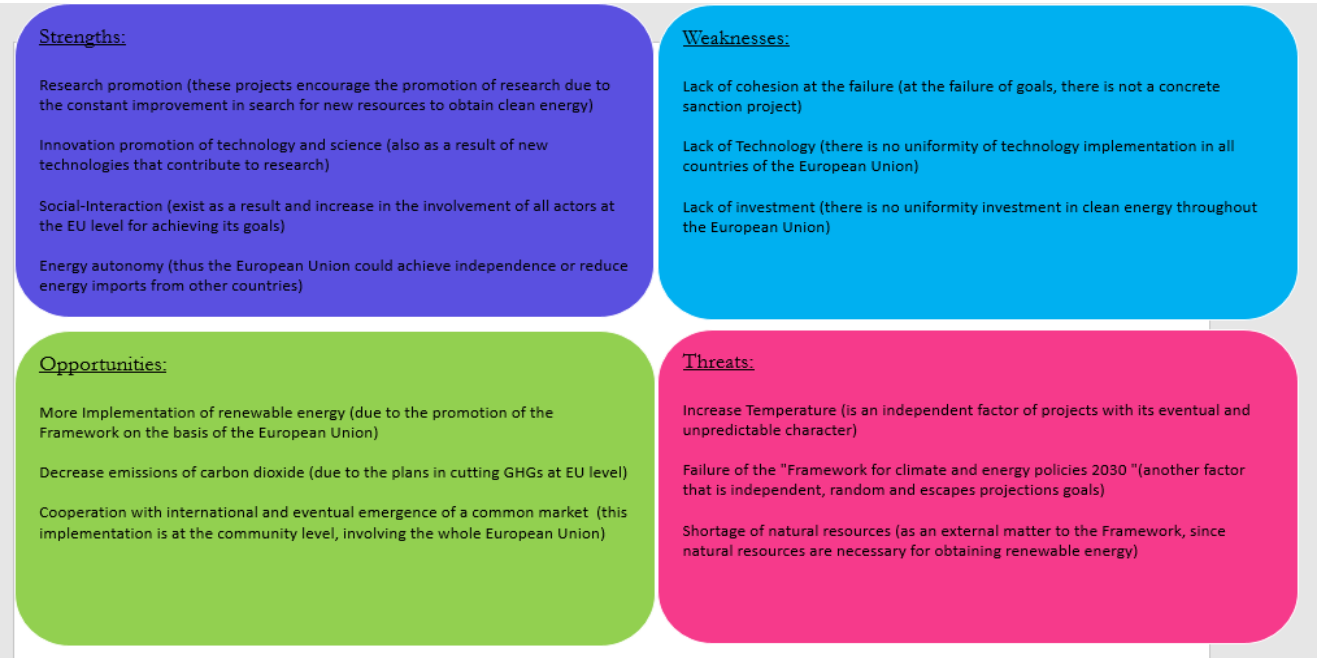
TABLE 5: PRIMARY ENERGY CONSUMPTION AND FINAL ENERGY CONSUMPTION, EU-28, 1990-2014 (EUROSTAT, 2016)



3.2 Looking into the future: SWOT forecasting analysis

Based on the average of transition probabilities estimated for the period 2016-2030, the dissertation addresses a SWOT analysis as a dynamic study of the development process. This tool allows to determine the collection of information relating to internal and external factors, which may have an impact on the Case Study. The SWOT analysis takes into consideration the weaknesses and strengths of the Framework of climate and energy 2030 along with the threats and opportunities it faces in the external environment. Based on these factors, the case study determines its future course of action, combining its strengths with imminent opportunities while trying to overcome weaknesses and combat threats. Figure 5 illustrates the main identifications of the Framework of climate and energy to 2030 in the EU.

FIGURE 5: SWOT ANALYSIS



Strengths, as internal factors, are a set of assets that combined give to the EU a wide range of benefits derivatives from the Framework of climate and energy 2030: -Research Promotion (These projects encourage the promotion of research due to the constant improvement in search for new resources to obtain clean energy)

-Innovation promotion of technology and science (also as a result of new technologies that contribute to research)

-Social-Interaction (exist as a result and increase in the involvement of all actors at the EU level for achieving its goals)

-Energy autonomy (thus the European Union could achieve independence or reduce energy imports from other countries)

Regarding the *opportunities*,

- More Implementation of renewable energy (due to the promotion of the Framework on the basis of the European Union)

-Decrease emissions of carbon dioxide (due to the plans in cutting GHGs at EU level)

-Cooperation with international and eventual emergence of a common market (this implementation is at the community level, involving the whole European Union).

Regarding the *weaknesses*, it is necessary to be cautious

- Lack of cohesion at the failure (at the failure of goals, there is not a concrete sanction project)

-Lack of Technology (there is no uniformity of technology implementation in all countries of the European Union)

-Lack of investment (there is no uniformity investment in clean energy throughout the European Union).

Lastly, *threats* can alter and/or modify the course of compliance of the Framework because they are not solvable externalities, for instance the increase of the temperature, are the following:

-Increase Temperature (is an independent factor of projects with its eventual and unpredictable character)

-Failure of the "Framework for climate and energy policies 2030 "(another factor that is independent, random and escapes projections goals)

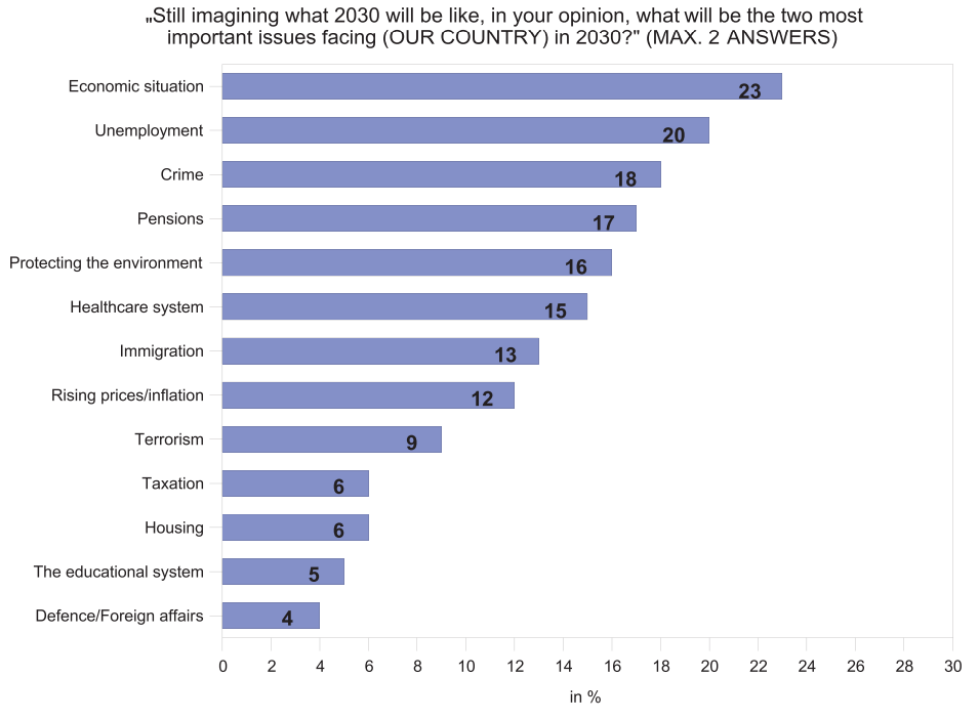
-Shortage of natural resources (as an external matter to the Framework, since natural resources are necessary for obtaining renewable energy).

According to the Project Europe 2030 Challenges and Opportunities approach (2010: 32), the societal and commercial benefits of a new industrial revolution are: *"The industrial and behavioral change needed to bring this about will not be easy. But the rationale is clear. The annual cost of reducing greenhouse gas emissions is estimated at about 2 per cent of world GDP while failure to act is estimated to cost at least 5 per cent of the GDP each year. At the same time, the development of a sustainable green economy provides wide-ranging technological, business and commercial opportunities which need to be grasped."*

Eventually to meet this energy plan, the EU can meet other benefits not strictly of environmental nature. Examples for that are a genuine single market and a liberalization in the energy sector. Furthermore, a European policy resolute investment in new technologies and large common energy infrastructures, a common external position, and fiscal common approach to contribute to the funding of this policy investments. This would end the practice of defending large business national, paving the way for the emergence of large European companies and the separation of transmission networks of distributors or generators electricity and gas ("functional segmentation").

Therefore, the correct harmonization of these policies will enable the European Union position as a leader in this field worldwide by 2030 achieving also to benefit the end consumer, the market and mainly to environment and combating climate change. For expansion information regarding the opinion of the people in order to prioritize and important will, the environment in 2030 suggested see the figure 6 Issues important to be addressed in 2030 as General Secretariat of the Council. 2010.

FIGURE 6: IMPORTANT ISSUES FACING IN 2030 (EUROBAROMETER, 2009)



3.3 The PESTLE analysis of the Framework for Climate & Energy policies 2030

The PESTLE analysis is a tool that is used to identify and analyse the key drivers of change in the strategic or business environment. The abbreviation stands for Political, Economic, Social, Technological, Legal, and Environmental factors. The tool allows assessing the current environment and potential changes. In the following, each factor will be explained and further analysed.

Political factors illustrate how the government is able to influence the economy or another particular industry. Furthermore, economic factors take into consideration the performance of the economy that has a direct impact on an organization. On the one hand, social determinants examine the social environment of the market and include features such as demographics or cultural trends. On the other hand, technological factors include innovations that may have an impact on the industry and the market in a positive or negative way. The legal analysis takes into consideration internal and external factors that is affecting the business environment. Lastly, environmental determinants contain all factors that influenced or surrounded by the environment. This aspect is crucial for studies related to geographical and climate relations.

In the context of this dissertation, the PESTLE criteria is focused on issues which policy makers and developers should address in order to ensure solutions in an effective way to achieve the development goals of the 2030 Climate and Energy Policy Framework.

"As the European Union continues its policy pathways towards a low-carbon energy economy up to 2030/50, the 2030 Climate and Energy Policy Framework will need to ensure much more robust carbon pricing, the better control of the overall cost of the energy transition, including greater cost-effectiveness of technology subsidies and an EU energy market design which provides stability for investors to commit to the necessary substantial long term engagement in Europe. At the same time, greater co-ordination should be ensured by the new governance framework that will take into account not only national but also the regional dimension of renewables promotion, energy efficiency and security of supply".[28]

Next, each letter of the PESTLE will be further explained:

The strategic targets of the Framework of climate and energy 2030 are the following:

a) 40% cut in greenhouse gas emissions compared to 1990 levels

b) At least a 27% share of renewable energy consumption

c) At least 27% energy savings compared with the business-as-usual scenario

Analysis of the impact of the variable Political:

The mission of this subchapter is to create recommendations on a political level from the above mentioned targets. Related to a) 40% cut in greenhouse gas emissions compared to 1990 levels, an implementation of the following measures is recommended: reduce high energy prices and diminish the economic vulnerability of the EU to future price increases for especially gas and oil; reduce dependence on energy imports of the EU from politically unstable countries; necessity to replace and improve energy infrastructure and lastly, provide a stable regulatory framework for potential investors. The EU should set out and stable and clear market based legal structures in order to deliver

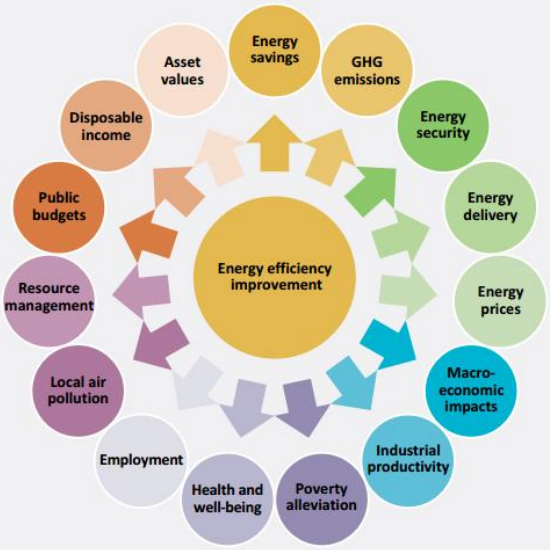
[28] Energy Policies of IEA Countries European Union 2014 Review. Available at http://www.iea.org/publications/freepublications/publication/EuropeanUnion_2014.pdf [Acceded 5 September 2016].

an integrate sustainable competitiveness and security. Furthermore, accelerate the implementation of market reforms in cooperation with the European Commission, mainly regarding to gas and electricity.

With regards to b) At least a 27% share of renewable energy consumption, the Member States need to be flexible to set national targets in order to keep on track with national action plans in renewable energy, since individual countries have different available resources to achieve their own energy markets. Furthermore, energy connectivity needs to be generated in the sense of regional cooperation mechanisms to meet their renewable energy targets. Moreover, statistical transfers of renewable energy through joint renewable energy projects and joint renewable energy support schemes have to be achieved. Establish and foster cooperation amongst EU countries and countries outside of the EU in order to achieve a better resource coordination. Develop a market framework that transforms to collect large capacity of renewable electricity. Further progress guidelines for renewable policies, which came up via ongoing data comparison. Additionally, it is essential to implement reporting standards. Also, elaborate an overall EU approach on bioenergy as well as further advance and implement sustainability criteria in all areas. Moreover, gauge the development and distribution of biofuels solutions, which are necessary for the decarbonization of the transport sector.

Lastly, regarding to c) At least 27% energy savings compared with the business-as-usual scenario, key indicators such as energy prices, diversification of supply, interconnections between member states and progress technology have to measure the progress in achieving a competitive, secure and sustainable energy system. Additionally, a new governance framework for reporting to Member States based on coordinated national plans and evaluations at EU level has to be created. This aspect is tightly connected with energy efficiency to achieve their objectives. Therefore, the efficiency energy is comprehensive of energy savings. Energy efficiency generates important benefits for economies such as access, development/growth, affordability, local pollution and climate change resilience. For the implementation of the above mentioned, it is necessary to implement methods for assessing the cost and benefits of non-market impacts. Energy efficiency is also a tool to reduce GHGs emissions as well as a tool for development in SE4ALL initiative.

FIGURE 7: THE MULTIPLE BENEFITS OF ENERGY EFFICIENCY IMPROVEMENTS (IEA, 2014)



Note: This list is not exhaustive, but represents some of the most prominent benefits of energy efficiency identified to date.
Source: Unless otherwise noted, all material in figures and tables in this chapter derives from IEA data and analysis.

Key point A multiple benefits approach to energy efficiency reveals a broad range of potential positive impacts.

Analysis of the impact of the variable Economic:

In this part of the analysis, the thesis will address firstly a Social Cost Benefit Analysis (SCBA), which is an integrated approach and often used by the government or organizations to evaluate the desirability of a given policy or project. It covers both financial (e.g. tangible costs) and non-financial effects (such as environmental effects). In a SCBA, the following costs and benefits are included (see Table 6). Costs include investment and technical measures (renewable energy technologies, energy efficiency investments). In addition, policy costs are a significant category (e.g. wage of government officials, permit application processes, etc.). Benefits of climate policies are GHG reduction, improved air quality, reduced import dependency and energy costs as well as more employment and innovation. (Bruyn et al., 2014)

TABLE 6: COST AND BENEFITS FROM CLIMATE POLICIES

Cost and benefits climate policies

Costs	Benefits
– Investment costs technical measures – Operation and maintenance costs – Technical measures – Policy costs	– GHG reduction – Improved air quality – Reduced import dependency – Energy savings – Employment – Innovation

In this SCBA approach, the compared indicators are outweighing cost and benefits. Nevertheless, quantification is not always possible. Moreover, a couple of effects are solely taking the year 2030 into consideration and not the entire timeframe of the policy. Hence, a complete SCBA cannot be executed. The GDP (Gross Domestic Product) measures all economic activities, which deliberate the impact of the cost of climate policies, energy saving benefits, innovation, employment and benefits of reduced import dependency.

There is a direct relation between decreasing energy costs and the cost reduction of goods and services which are used in implementing new end products. Both have a positive influence on the GDP as well as the increase of employment and innovation has a positive impact on the GDP. (Bruyn et al., 2014)

Related to the GHG emissions regulated by the 2030 framework, it is built on the target to reduce EU GHG emissions by 20% by 2020. *"At the same time* [1990 to 2014]*, the economy has grown by almost 50%, reflecting the continued decoupling of emissions from economic growth. Both the 2020 and 2030 emissions targets represent important milestones towards the EU's long term objective of cutting emissions by at least 80% by 2050".*[29]

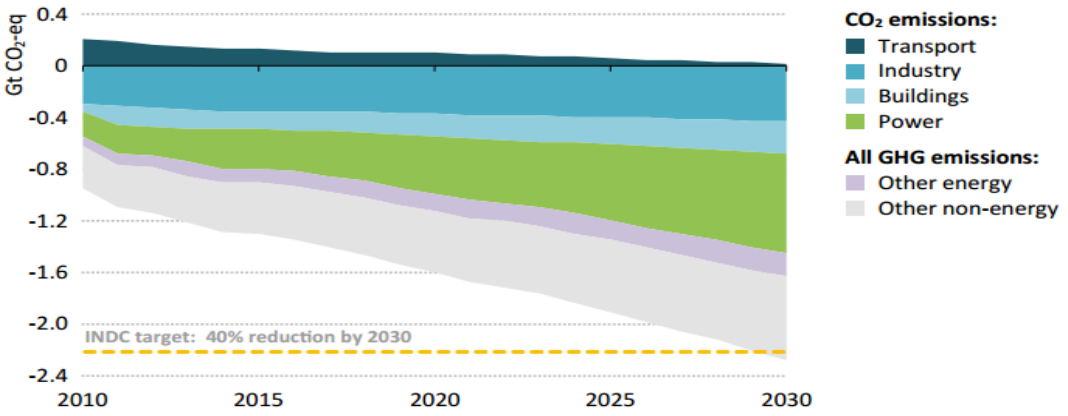
Therefore, the EU should continue with the emission target emerged from the 2030 framework. In this way, economic growth will increase. Consequently, EU should implement new measures that account for economic growth and at the same time contributes to emission reduction. For this purpose, the focus will be on the EU emission trading system (EU ETS) as a key tool for reducing

[29] Energy and climate change. World Energy Outlook. Special Report. IEA. Available at https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf [Accessed 6 September 2016].

industrial greenhouse gas emission cost-effectively. The EU ETS is the world´s first main carbon market and will stay the largest in the future [30].

However, the EU ETS is already operating in 31 countries (all 28 EU countries plus Iceland, Liechtenstein and Norway). The idea is generating a connectivity with more countries in order to extend the system to directly expand its benefits. With this new form of governance, it can attract inversion, increase economic growth, and fundamentally generate emission reduction.

FIGURE 8: EUROPEAN UNION GREENHOUSE GAS EMISSION REDUCTION RELATIVE TO 1990 IN THE INDC SCENARIO (IEA, 2015)



Notes: Emissions from land-use, land-use change and forestry (LULUCF) are excluded. Industry includes industrial CO_2 process emissions. Exceptionally, transport includes emissions from international aviation.

Likewise, regarding to c) At least 27% energy savings compared with the business-as-usual scenario, the EU should encourage the investment in energy efficiency, as this is part of a sustainable future. It contributes to reduce energy consumption and also drives economic growth by generating jobs and investment opportunities. Furthermore, it reduces GHGs emissions and air pollutants and enhances energy security.

[30] The EU Emission Trading System (EU ETS). European Commission. Climate Action. Available at http://ec.europa.eu/clima/policies/ets/index_en.htm [Accessed 6 September 2016].

Also, In The 2030 Climate and Energy Policy Framework there are objectives on how energy efficiency have an impact of the social and economic environment. The EU should clarify this and produce results through assessments.

Based on this analysis, improvement towards EU competitiveness, sustainability and security should be traced as well as to enhance people´s health to show all major immediate findings are accomplished and effective in meeting targets. [31]

Analysis of the impact of the variable Social:

This aspect is linked with the above mentioned variable and according to the European Commission: *"This model projects that compared to the Reference case, the scenario led by a 40% GHG reduction in 2030 would create on the aggregate level of around 0.7 million additional jobs (645,000) and the scenario based on 40% GHG reduction, ambitious explicit EE policies and a 30% RES target would generate 1.25 million additional jobs in a 2030 perspective, compared to the Reference scenario".*[32]

Due to the reorganization processes, changes in the economic sectors have occurred. In the second sector, the manufacturing branch, investments in renewable energy power are directly related to new possibilities in job creation. Specifically, technologies generate new working places for example in manufacturing, construction, utilities as well as their supply chains. Nevertheless, extraction industries are negatively impacted by the GHG 40% scenario.

The green jobs

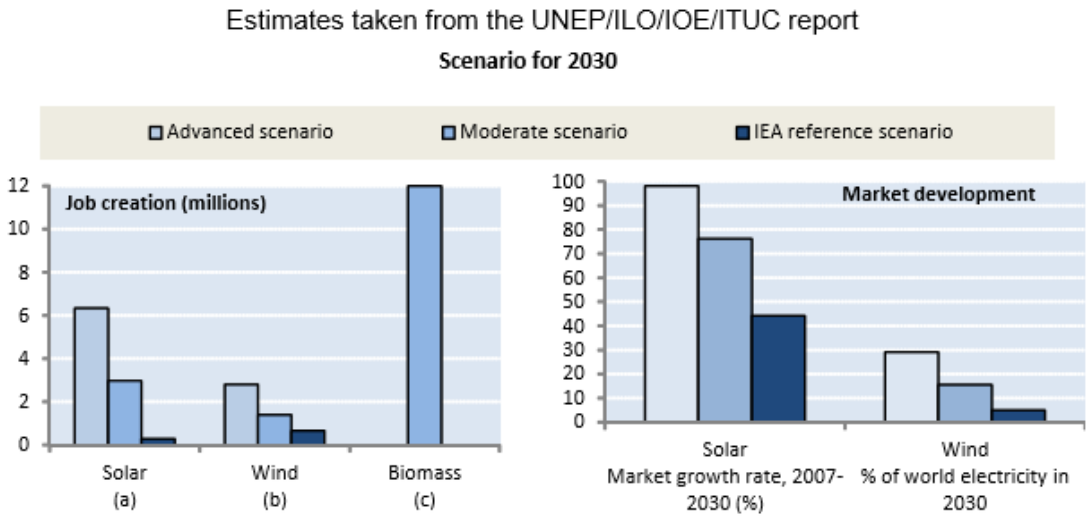
Despite all uncertainty, it can be predicted that the transition to low-carbon manufacturing and overall quality of life, is taking place. As a result, a resource efficient economy will require a

[31] Energy Policies of IEA Countries. The European Union 2014 Review. Available at http://www.iea.org/publications/freepublications/publication/EuropeanUnion_2014.pdf [Accessed 6 September 2016].

[32] Commission staff working document impact assessment. Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions. A policy framework for climate and energy in the period from 2020 up to 2030. EUR-Lex Access to EU law. Available at http://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A52014SC0015 [Accessed 7 September 2016].

significant expansion of employment, where green economics/businesses replace their polluting equivalents with cleaner activities (e.g. renewable energy displacing fossil fuels). In this context, the EU should create a diversification of green jobs to decrease unemployment.

FIGURE 9: PROJECTED EMPLOYMENT IN THE RENEWABLE ENERGY SECTOR BY 2030 (IEA, 2015)



But It must be noted that the expansion of employment in the renewable energy sector will lead to employment losses in the extraction of fossil fuels and their use in generating electricity. *"These employment losses may be reduced or even avoided if major changes in production technology can be introduced that reduce harmful environmental impacts (e.g. carbon capture and storage), but this would still be likely to imply that the industry's workforce will face structural adjustment pressures."*[33]

In this sense, the EU should create green jobs to accomplish this situation to substitute the fossil fuel industry.

Analysis of the impact of the variable Technological:

In order to develop this strategy, it is necessary to implement new technologies capable of reducing emissions, implementing renewable energy and working on energy efficiency. Therefore, the

[33] The jobs potential of a shift towards a low-carbon economy. Final report for the European Commission DG Employment. OECD Available at http://www.oecd.org/els/emp/50503551.pdf [Accessed 7 September 2016].

EU policy through research, development and demonstration (RD&D) , is aimed at strengthening the European Union's scientific and technological base, and play an important role in supporting its competitiveness with basis of Articles 173 and 179-190 of the Treaty on the Functioning of the European Union (TFEU).

The EU should guarantee reasonable energy RD&D founding to satisfy EU energy policy goals and to fasten the distribution of energy efficient and low carbon technologies for commercial use. Furthermore, estimations in technology and innovation forecast and adjust the roadmaps in line with the 2030 framework targets.

Further, improving the cooperation and coordination throughout energy, technology, R&D and innovation European Commission policies, the EU should actively establish global energy R&D collaboration and connect EU´s energy policy with international energy stakeholders, by including IEA, IAs and the IEA International Low-Carbon Energy Technology Platform.[34] Also, the EU should ensure long-term stability to stimulate investment in capital-intensive technologies, system flexibility and reward production depending on the value, time and location of the generation.

Analysis of the impact of the variable Legal:

Warnings about limits of reducing oil resources as well as the necessity to reduce GHG emissions and secure energy supplies have become prioritized issues on the EU agenda. It has been suggested to partially replace traditional fossil fuels with other sources of renewable energy for example with biofuels in the transport sector. This has been seen as a promising solution for complications connected with the extraction and supply of oil as well as for the reduction of GHG emissions.

The background for reducing greenhouse emissions, increase renewable energy and energy savings most recently from the EU is the 2030 framework for climate and policy.

In this framework, the EU states a new Governance model:

- The European Council agreed that a reliable and transparent governance system without any unnecessary administrative burden will be developed to help ensure that the EU meets its energy

[34] Energy Policies of IEA Countries. The European Union 2014 Review. Available at http://www.iea.org/publications/freepublications/publication/EuropeanUnion_2014.pdf [Accessed 7 September 2016].

policy goals, with the necessary flexibility for Member States and fully respecting their freedom to determine their energy mix.

This governance system will:

Build on the existing building blocks, such as national climate programs, national plans for renewable energy and energy efficiency. Separate planning and reporting strands will be streamlined and brought together;

Increase the role and rights of consumers, transparency and predictability for investors, inter alia by systematic monitoring of key indicators for an affordable, safe, competitive, secure and sustainable energy system;

Facilitate coordination of national energy policies and foster regional cooperation between Member States.[35]

The European Council recalls its goal to build an Energy Union aiming at affordable, secure and sustainable energy, as stated in its Strategic Agenda, and will keep the implementation of this goal under regular review.

This model, since the environment is a shared competence, Member States may adopt more stringent protective measures provided they are compatible with Community law. This involves the application of the principle of subsidiary as the Union sets minimum levels of environmental protection. "*Member countries are imposed, which may, in the exercise of its own powers, exceed those levels, but in no case reduce*". Pollution knows no borders so its control cannot be addressed from strictly national policies. European environmental policy is an example of the virtues that has the development of common standards for environmental friendliness.

The European primary law structures this legislation as a common policy, although it is a matter whose competence is shared with member states. The two most important improvements consist in linking economic growth to environmental protection, determining sustainable development as a fundamental objective of the Union and integration into the definition and implementation of other policies and actions of the Union of that objective. A positive factor is the introduction of co-decision

[35] European Council. 23 and 24 October conclusions EUCO/169/14. Available at http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/145397.pdf [Accessed 7 September 2016].

procedure as a general way of legislation in this area, although the need to vote unanimously to adopt tax rules is an obstacle for further development of EU policy in favor of the environment.

The adopted Lisbon Treaty follows the line, considering the fact that 72% of European citizens are in favor of more environmental protection standards at Union level are adopted (Eurobarometer, 2006).

Analysis of the impact of the variable Environmental:

The 2030 Climate & Energy Framework is by definition environmentally related. Cutting greenhouse gases will eventually lead to fewer CO2 gases in the atmosphere, which will allow for its cooling and a reduction of extreme weather events. Furthermore, long-term influences such as the rising sea levels, which is also a threat to some European countries (e.g. Netherlands), can under certain conditions be mitigated. By focusing more and more on renewable energies such as wind, solar, tide energy, the natural forces are used efficiently in order to supply energy. The European Union should specifically support small- and medium-sized businesses, which are unable to invest great monetary resources in the establishment of a more greenhouse-gas-reduced production. After this support strong regulations towards the emission of greenhouse gases for all businesses need to be put in place to reassure a steady reduction and meet internationally set goals (Paris Climate Agreement, 2015). With respect to climate change as a global phenomenon, international regulation for globally acting businesses needs to be introduced and strictly reviewed. This process ensures that businesses do not “outsource” their greenhouse gas emission towards other countries that have lesser regulations.

Another important part of the 2030 framework implementation can be the fact that people´s perception of the environment can be positively changed. Seeing that politics on an EU and national level are advocating for more sustainable energy resources, may sharpen their sense for environmental problems and extreme energy consumption, which make them in return, support that framework and the necessary changes in daily life habits. This is an important part not only for individuals but also for the working process of businesses. By implementing this framework, businesses become sensitive towards their energy resources and may invest more in the renewable energy sector because they see monetary or production advantages.

Increasing the amount of renewable energy is closely related to creating incentives for companies to invest in this sector. Therefore, the European Union has to ensure that the individual member-countries create those incentives. Furthermore, large investments in infrastructure guaranteeing the efficient distribution of renewable energy have to be undertaken by the EU in order to meet the set target. Only if an adequate infrastructure is created, it will also be able to support smaller businesses so that a fundamental change can happen (socio-technical transition). By doing this, engineer-expertise and know-how can be built, which can then be used to support projects worldwide and increase the European overall GDP. By counting on renewable energy such as wind, solar or tide energy natural processes are used to gather energy, rather than focusing on highly complex and technical processes such as nuclear energy or gas.

Reducing the energy consumption is amongst the most important goals in order to perpetuate a sustainable and live-able environment. Here, the EU has to create regulation and incentives as well to reassure that more energy-efficient ways of production are being found and implemented. Framework such as the degrowth-paradigm can help to change people´s perception on energy consumption.

The European Union should furthermore engage into educational work to ensure that a public understanding for energy saving is created. By using examples of rising extreme weather conditions caused by climate change can for example increase this awareness. Hereby, the public realizes that those changes can affect their daily habits as well as the success of any business.

IV. CONCLUSIONS AND RECOMMENDATIONS

This concluding chapter provides an overview of the main findings of the research that contribute to a broader discussion of environmental and climate policy integration as well as to discuss the future of climate and energy policy in the EU in the context of global environmental governance.

Throughout this research, the state of the art of EU leadership in climate change has been studied more specifically with regards to environmental issues. Hence, there has been a deep study of the origins and historical development of all legislation policies in this matter from the Single European Act until their consolidation as an integrated strategy. From this point, the research addresses the 2030 Framework of climate and energy strategy including their forecast scenarios.

Alongside the study of this research, the interconnection and continuous evolution among the concepts of Policy Integration, Environmental Policy Integration and Climate Policy Integration can be seen. Lastly, as a concept, Global Environmental Governance as a synonym of international environmental cooperation was studied (Vogler, 2005).

Furthermore, the dissertation also addressed the background of leadership in climate policy in the case of the EU from the SEA to the Paris Agreement. In addition, an overview of the structure of European Commission and European Parliament role in Climate Change affairs was given to further understand how the leadership internally works.

Moreover, the climate policy integration model, which was implemented by the EU, is a paradigm that could be potentially useful as a key in implementing climate change to other regions in the world. If the EU fulfills its goals, it will have influence on policy change and innovation at a domestic and international level, through the power in areas of energy efficiency improvements, renewable energy development, and carbon emission trading, energy taxes and joint implementation. Thus, in the context of global environmental governance, the EU will make a strong case of international cooperation, addressing serious threats of the planet.

In light of this research, one of the main conclusions that can be drawn is that the EU would have been able to define and effectively implement an integrated, comprehensive and long-term energy and climate deal to face climate and energy challenges. The strategy would seek to address the problem of climate change through the reduction of GHG emissions in the EU, while promoting the progressive transformation of the European economy towards a sustainable, competitive and secure model in which the energy supply refers.

Now the research question of the dissertation needs to be addressed, which it sought to clarify: can the climate and energy policies integration in the EU be a pathway to global environmental governance.

To answer this question, it is necessary to analyse the results that are elaborated in chapter III, going through detail of the most essential points of PESTLE analysis. In terms of the economic impact, the set targets of the climate and energy 2030 framework have so far been fulfilled. Regarding a 40% cut in greenhouse gas emissions compared to the 1990 levels, emissions decreased by 19% between 1990 and 2014 according to the IEA. Therefore, it can be affirmed that the strategy will comply with its 2030 objectives. With regards to the 27% share in renewable energy consumption, up until 2014, 16% of energy was provided by renewable sources (Eurostat, 2014). Hence, if the EU keeps on track with its development in renewable energy, the 2030 goal can be clearly achieved.

Lastly, related to the 27% energy savings compared with the business-as-usual scenario, the EU reports exceptional developments. After an increase of primary energy consumption in the first years after the agreement, latest statistics show an energy efficiency of 12% less consumption in primary energy in 2014 compared to 2005. Therefore, it seems that the 2030 target can be achieved as well.

Moreover, the climate and energy policies integration in the EU could be a pathway to global environmental governance, because it is a suitable model of international cooperation in addressing the serious threat of the planet related to climate change. As a result, this model could be adopted to other regions as well, for example in South America in MERCOSUR.

From this Case Study, specifically through the SWOT analysis, the Framework for Climate and Energy 2030, and its effective compliance, should consider enhancing the external variables of weaknesses that are essentially lacking cohesion at the failure, lack of technology, lack of investment and the threats, specifically in the measurements and sectors where there is an increase in temperature. Furthermore, the improvement of weaknesses and threats is a strategy to better develop the Framework with is compliance in the future. Once these difficulties are improved, the case study would be ideal for achieving its goals to 2030.

Nevertheless, the most relevant message from this research relies on the fact to find out if the climate and energy model of the European Union can be a pathway of Global Environmental Governance.

To answer that, it was necessary to go through all past and present EU policies and international agreements to understand that it is a long integration process. For creating a global environmental governance paradigm, it is essential to construct a regional block like the EU that is concerned about the environmental policy and specifically in the light of climate policy integration. In this aspect, the analysis of the impact of political and legal variables from the PESTLE analysis in this case study show a wide range of recommendations, which can be followed to apply this model for other regions.

Now, one of the main headlines of the political recommendations is to keep track of the flexibility in the national action plans of the member states, especially its renewable energy targets, which is of vital importance. Eventualities like the BREXIT case are externalities that cannot be predicted or accounted for in the initial plan of the regional block. It is necessary to contemplate the necessities of each country to adjust the level of commitment depending on their possibilities.

Nevertheless, the impact of the environmental variable in the PESTLE analysis is the main characteristic to be considered from the whole analysis. As mentioned earlier, One of the main conclusions is that the European Union should support especially small- and medium-sized businesses that are unable to invest great monetary resources in the establishment of an increasing greenhouse-gas-reduced production.

With this in mind, the hypothesis of this research can be confirmed to create a network of regional blocks around the world that commits in Global Environmental Governance. However, if we consider the results of the case study, there are many facts that have to be fixed and taken into consideration. Emerging from the SWOT and PESTLE analysis, a real pathway of a Global Environmental Governance is still a long way to go.

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APPENDICES

Appendix A: Climate Change Scepticism: A Conceptual Re-Evaluation

Article

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Climate Change Scepticism: A Conceptual Re-Evaluation

Willem Van Rensburg[1]

Abstract

"Climate change scepticism" is a familiar concept in popular and scholarly discourse and generally refers to a family of arguments and individuals that reject, dispute, or question the orthodox view of the climate issue. At close range though, it is evident that the concept is often used casually, without consideration of the complexity of the category it represents. Scholars have varied interpretations of the concept and sometimes actively dispute its meaning and reach. The article proposes that the sceptic phenomenon can be variegated according to the types of sceptic critiques and, additionally, according to sceptics' attitudinal characteristics. Taxonomies are proposed for each. The types of sceptic arguments are organised in a conceptual hierarchy consisting of two classes of critiques ("core" and "concomitant"), three centers of scepticism ("evidence," "process," and "response"), and seven specific objects of scepticism. For the attitudinal characteristics of sceptics, the article takes stock of the different motives, modes, and certainties of belief among sceptics. It proposes some relabeling of the category and subcategories to more accurately describe nuances in sceptic positions, as well as to dispose of unproductive labels. The article suggests how the refined conceptualisation might help observers and policy practitioners to manage the sceptic challenge in a more discerning and constructive fashion.

Keywords

climate change, global warming, scepticism, skepticism, denial, science communication, climate policy, climate mitigation, IPCC

Introduction

The concepts *climate change scepticism* and *climate change sceptic*[1] are in wide use and refer to a fairly consistent family of arguments and pool of individuals that reject, dispute, or question the mainstream/orthodox thesis that the global climate is changing primarily due to human activities and that these changes will affect severely both ecosystems and human populations if left unarrested. The concept has a strong negative connotation because nonacceptance of the mainstream thesis is generally considered indefensible given the established nature of the science and the gravity of the problem. The concept is often used as a means to isolate and delegitimise arguments and individuals assigned to the category. Mainstream exponents have little difficulty labeling critics of the orthodoxy as "sceptics" or "deniers." For many mainstream adherents, it does not matter if one positively rejects, disputes, or is merely unconvinced, ambivalent, or agnostic about the core climate claims. The net effect is the same: nonacceptance of a thesis about which no doubt should exist.

This article critically reexamines the conceptual constitution of the category. It is noted that sceptics from different walks of life and with different levels of expertise deliver a wide array of critiques at the mainstream thesis and display a wide range of intensities of belief (or nonbelief). Some act as vocal public champions of the sceptic cause while others reservedly express unease about the reliability of the science. Some evidently exploit the issue for personal gain and others are seen to raise their critiques as concerned and responsible citizens. These shades of the phenomenon are largely lost in both the public and scholarly discourse where the blanket labels *climate change scepticism/denial* and *climate change sceptic/denier* still dominate. And on occasions where the concept is being disentangled, some contestation of the concept and its labels remains evident (Capstick & Pidgeon, 2014; O'Neill & Boykoff, 2010).

Following Capstick and Pidgeon's (2014) identification of "two broad treatments" of the concept, namely, in relation to its epistemic and behavioural senses, this article sets out a scheme for its further delineation (p. 390). It proposes the isolation of "process scepticism" as a distinct center of scepticism alongside the familiar "evidence" and "response" critiques of sceptics. It is argued that these three conceptual

[1]The University of Queensland, Brisbane, Australia

Corresponding Author:
Willem Van Rensburg, The University of Queensland, St Lucia, Brisbane, Queensland 4072, Australia.
Email: w.jansevanrensburg@uq.edu.au

stations allow observers to draw important qualitative distinctions between sceptics based on where their scepticism is anchored. It also helps to show the various ways in which sceptic logic "flows," for instance, from the evidence center to the process and response centers, or from the process center to the evidence and response centers. It is an important proposition in this analysis that the process center is underrated as a primary source of scepticism from which sceptics might derive their evidence and response misgivings. The article also reflects on the attitudinal variety among sceptics, that is, their different qualities of belief, as well as the labels to describe these. Effort is made to dispose of inaccurate and counterproductive labeling practices.

Improved conceptualisation of climate change scepticism has both academic and practical benefit. The following areas stand out where advances could be made in reducing misinterpretation of the phenomenon and mismanagement of the sceptic challenge.

- Climate change scepticism among elites and intellectuals is often constructed as rooted in and motivated by extraepistemic concerns. The scholarly narrative of the scepticism of elites is that it is primarily an artifact of material, political, and ideological forces and that the evidence dispute is a mere smoke screen for these forces to play out (see Gelbspan, 2004; Hamilton, 2006; Hoggan, 2009; Leggett, 2001; McCright & Dunlap, 2010; Oreskes & Conway, 2010; Pooley, 2010). The story of climate change scepticism is one of self-interest and manipulation, of how a scientific controversy was fabricated to confuse the public and decision makers, and delay decisive action against climate change. The logic in this story line is that sceptics are actually defending, knowingly and unknowingly, vested economic interests (those with a stake in the continuation of a fossil fuel–based energy economy) and the prevailing neoliberal free market paradigm (which includes the notions of individual freedom, small government, and economic growth). Although such observations about climate change scepticism and sceptics are well founded, they have come at a cost. Sceptic elites of various persuasions and motivations have come to be understood as disingenuous. Engagement of sceptics has become clichéd—married to the idea that there simply must be extraneous reasons for someone to doubt the mainstream climate view.
- Another area of potential misjudgment emanates from the tendency of exponents on both sides to draw stark battle lines between "credible experts" and "fraudsters," between "sound" science and "junk" science, and between respectable scientific establishments and pseudoscientific lobbies. These debates are important in helping to clear the scientific air, but when they are sweepingly cast as a battle between right and wrong, competent and incompetent, and reputable and disreputable, the opposing side is reduced to a one-dimensional stereotype. In the process, opportunities are lost for the constructive engagement of amenable sceptics.
- Potential miscalculation might also occur through misinterpretation of sceptics' "extended" critiques. Sceptics very rarely confine their critiques to the physical evidence of climate change. They often, and expectedly so, extend their arguments to climate relevant topics, such as debates about the integrity of the scientific processes behind the evidence for dangerous human-caused climate change or debates about society's response to the climate issue. The dilemma is that although their extended arguments are commensurate with their readings of the science, sceptics are not the only proprietors of these arguments. Many nonsceptics, particularly among right-wing partisans but not exclusively so, are, just like the sceptics, concerned about perceived deficiencies in the processes behind climate science and/or climate policy responses. It is important, therefore, to place the respective types of sceptic critiques into proper perspective.
- Most mainstream adherents view the sceptic challenge as a grave threat to the credibility of climate science because it is perceived to undermine the science, rather than enhance it. Cook states that climate change scepticism is "the complete opposite" of genuine scientific scepticism: "It's coming to a preconceived conclusion and cherry picking the information that backs up your opinion. Global warming scepticism isn't scepticism at all" (Mulvaney, 2010). The problem with this kind of generalised dismissal of climate scepticism is that sceptics invert such dismissals as proof of their initial concern that scientific processes are not transparent and open to scrutiny. There is a need, therefore, to consider if and how sceptics' critiques might be used constructively to demonstrate rigour and due process in climate science.

The rest of the article is organised into two main sections, the first to investigate the types of sceptic critiques, that is, the objects of scepticism, and the second to investigate the attitudinal variety among sceptics, that is, their motives, modus operandi, and the certainties of belief that they bring to the debate. Each section ends with a proposal for a taxonomy. The conclusion of the article raises some practical applications of a refined conceptualisation of the phenomenon.

Objects of Scepticism

Evidence Scepticism (Trend, Cause, and Impact Scepticism)

Rahmstorf (2005) pioneered the trend–attribution–impact typology of climate change scepticism, which disentangles

sceptics' challenge of the scientific evidence of anthropogenic climate change. This approach assumes that sceptics follow a "stepped" pattern of scepticism with trend scepticism, that is, denying a significant warming trend or proclaiming a cooling trend, at the pinnacle. Attribution scepticism would be one step down on the scepticism ladder because it might accept the trend claim but not that humans are primarily responsible. Impact scepticism would be another step down because it might accept that humans are altering the climate but downplays the scale of potential negative effects from climate change. The trend–attribution–impact typology enjoys wide currency. Wikipedia (2014) defines climate change denial as a set of organised attempts to downplay, deny, or dismiss the scientific consensus on the extent of global warming (trend claim), its significance (impact claim), and its connection to human behavior (attribution claim). The typology has also been expressed as "stages" of denialism, where a sceptic might start off as a trend sceptic but, as the evidence of global warming mounts, migrate to attribution scepticism and, again, as the evidence of human influence on the climate mounts, migrate to impact scepticism (Hamilton, 2007; Nuccitelli, 2013).

Rahmstorf's typology is realistic and useful because it mirrors the evidence claims made in Intergovernmental Panel on Climate Change (IPCC) assessment reports, the most authoritative account of the mainstream thesis. The first three chapters of the last complete IPCC Assessment Report, AR4 published in 2007,[2] respectively deal with the trend of climate change, its causes, and its impacts (see Pachauri, Reisinger, & Core Writing Team, 2007). AR4 states that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level" (p. 30). This is the so-called trend claim. It also finds that "Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic GHG concentrations" (p. 39). This is the so-called attribution claim. Regarding the impacts of climate change, the report describes different scenarios for different warming stabilisation levels. At a 2 °C above 20th-century average temperature stabilisation level (the lowest modeled by AR4), it foresees "hundreds of millions of people exposed to increased water stress," "increased damage from floods and storms," "changed distribution of some disease vectors," and "increased morbidity and mortality from heat waves, floods and droughts." These, and many more region specific predictions, are the so-called impact claims.

These claims are fairly unequivocal, and mainstream exponents generally accept them as the core claims of the mainstream climate thesis about which no doubt should exist. Sometimes, sceptics respond to the core claims in equally unequivocal terms, such as in the following examples:

> Earth's temperature is currently cooling slightly, ocean heat is declining, global sea-level rise has not accelerated (although the climate models predict that it should) and tropical storm energy is at a thirty-year low. (Carter, 2011, p. 39)

> The warmists are correct that CO2 is a greenhouse gas and it causes warming, that CO2 levels have been rising, and that it has been warming. Serious sceptics agree with all that, but point out that it does not prove that something else isn't causing most of the warming. (Evans, 2012)

> There is no evidence that man's production of carbon dioxide is causing more extreme weather events. Any change caused by man will be gradual and there will be plenty of time to adapt, as humans have always done. Most people will hardly notice it. (Forbes, 2013b)

More typically, however, sceptic responses are convoluted, which can make it difficult to pinpoint their specific objects of scepticism, as seen in the following statement from the Australian sceptic group, The Carbon Sense Coalition (Forbes, 2013a). The author's comments appear in square brackets.

> The so called greenhouse gases (mainly water vapour and carbon dioxide) have the ability to absorb radiant energy and transmit it to their surroundings [accepting the potential contribution of CO2 to global warming] . . . carbon dioxide occurs in tiny trace amounts in the atmosphere, and any surface heating it could do is already being done by water vapour [not rejecting but downplaying the attribution claim], which is more abundant and affects far more energy wavelengths. . . . It probably makes the nights slightly warmer, especially in higher latitudes during winter; and it probably has little effect on daytime temperatures [limited acceptance of the trend claim]. But additional carbon dioxide in the biosphere gives a major boost to all plants which feed all animals [downplaying negative impacts]. It is not a pollutant, anywhere [rhetorically indemnifying CO2]. (http://carbon-sense.com/, The Carbon Sense Coalition, The Global Warming Gas, or The Bread and Butter of Life? June 17, 2013, http://carbon-sense.com/wp-content/uploads/2013/06/gas-of-global-warming.pdf)

It is proposed here that the trend, attribution, and impact objects constitute the core of the concept "climate change scepticism" because they correlate directly, one-to-one, with the core assertions of the mainstream climate thesis. If the concept is to be preserved in its commonsense meaning as the antithetical climate view, that is, not just any problematic climate view, then the primacy of its grounding in the evidence dispute should be accepted. That the evidence dispute should serve as the definitional heart of the concept is implicitly recognised in studies that present frameworks that place the evidence dimension at the "top" or categorically preceding other dimensions (cf. Capstick & Pidgeon, 2014, pp. 391, 397). Akter, Bennett, and Ward (2012) are somewhat more explicit in this regard when they find that attribution scepticism was "a common source of impact, mitigation and global co-operation scepticism" (p. 25).

The importance of specifying the evidence dispute as the definitional heart of the concept will become clearer in the subsequent sections that discuss sceptics' "extended" arguments, that is, aspects of the climate debate that are natively commensurate with evidence scepticism but not dependent on it (collectively referred to as "concomitant" objects of scepticism).

Process Scepticism

Sceptics make various critiques of the scientific, bureaucratic, and political *processes* behind mainstream climate science. Their arguments about the scientific processes include that the massive funding of climate research has become a biasing factor in climate research, that important "new" and contradictory research is habitually overlooked in mainstream climate research, that there are serious lapses in peer review and oversight of published research (in particular, IPCC reports are seen as consensus documents, rather than scientific "truth"), and that overreliance on and manipulation of computer modeling is distorting climate research. The political decision-making processes relating to the climate issue are also directly and indirectly questioned by sceptics when they claim that the climate issue might be a hoax or conspiracy and that prominent mainstream exponents and the media exaggerate the climate threat (see Smith & Leiserowitz, 2012; Whitmarsh, 2011). The context of these suspicions is that the public is being misled and that public decision-making processes are distorted.

Although sceptics' process critiques are well recognised as an integral part of sceptic arguments, these have hitherto not been presented as a separate center of scepticism. Capstick and Pidgeon (2014) place doubts about the conduct of science, the reliability of mainstream climate expertise, and the portrayal and communication of climate science in the same category as the disputation of the physical evidence, which they collectively call "epistemic scepticism" (pp. 390-391, 397). These objects of scepticism have a similar functional purpose, namely, to cast doubt on "the status and generation of knowledge around climate change."

It is argued here that sceptics' process critiques require a distinct conceptual status. The concept *process scepticism* sets apart a group of sceptic arguments that are not dependent on either evidence or response scepticism but enables and strengthens them. It is proposed that "process scepticism" is a strong center of scepticism and that many sceptics are indeed anchored in this center, rather than the detailed technical contests around the evidence or how society should respond. The process critiques (e.g., there is a lucrative climate industry, scientists pursue funding and shut out dissenting voices, the media exaggerates the threat, environmentalists and socialists drive the climate agenda) appeal intuitively to sceptics, who are strongly oriented in the climate issue by cognitive, cultural, and ideological predispositions (Kahan, 2012; Kahan &Braman, 2006). Scholars have found that process critiques are conspicuously present in the affective imagery cognitive processes responsible for climate change scepticism (Smith & Leiserowitz, 2012).

"Process scepticism," therefore, offers a conceptual option that allows observers to draw distinctions between three centers of scepticism, the other two being evidence and response scepticism. It helps to differentiate sceptics of the physical evidence who extend their sceptic assault to process issues (and ultimately the response question) from those who have no clear knowledge of, or judgment about, the evidence and ground their apprehensions in perceived process irregularities and response deficiencies.

Process critiques also differ from evidence critiques in that they can be held by nonsceptics. Mike Hulme, a former lead author at the IPCC and patently nonsceptical of the mainstream thesis, has been publicly critical of the IPCC's emphasis on "consensus building" (Hulme & Mahony, 2010, pp. 10-11), its reluctance to allow scrutiny (Hulme & Mahony, 2013), as well as the apparent closing of ranks by the climate scientists at the center of the so-called Climategate revelations (Hulme, 2013b). Process scepticism is therefore open to sceptics and nonsceptics alike, whereas evidence scepticism, by definition, excludes the nonsceptics.

Response Scepticism

Several observers recognise that scepticism of the public and private responses to the climate issue is an important center of scepticism. Hamilton (2013) argues that response scepticism is one of the common themes in the family of sceptic arguments:

> First, they deny that climate change is occurring. Then they say that if it is occurring it's not due to humans. Then they claim that if it is due to humans, the effects are trivial. If the effects are shown to be non-trivial, they opine that the benefits will exceed the damage. If the damage is shown to predominate, they say the cost of avoiding the damage is too high.

Painter is more emphatic and includes "policy sceptics" as a fourth type in his typology (Painter, 2012, p. 196). Capstick and Pidgeon (2014) offer a two-pronged typology with "response scepticism" as the second type next to "epistemic scepticism". In their conceptualisation, "response scepticism" concerns "(D)oubts about the efficacy of action on climate change; doubts about the personal and societal relevance of climate change" (p. 397). Akter et al. (2012) propose five dimensions of scepticism, the first three of which relate to the evidential base of climate science, and the last two, which they call "mitigation scepticism" and "global co-operation scepticism," relating to society's response to the climate issue (p. 3). For some, response scepticism represents the epitome of climate change scepticism. SourceWatch defines a "global warming sceptic" as

> any position within the umbrella group, "opponents of effective global warming action," where "effective action" entails putting a price on fossil fuel emissions, such that their true cost becomes clear and the economic "invisible hand" can wreak its market magic. (SourceWatch, 2014)

It could be argued that sceptics would be impelled, on the basis of their contrary reading of climate science, to oppose climate mitigation responses. The majority of sceptics do, in fact, follow the logic of their evidence scepticism through in this way. Yet, some scholars caution that there is no straight line between scientific evidence and one's choice of response; that a certain reading of the science does not necessarily imply a certain policy preference. Research has shown that people's support for climate mitigation depends significantly on factors other than their assessment of the probability and severity of future climate risks. Lee and Cameron (2008) found that willingness to pay for climate mitigation varies according to the domestic instrument of choice, as well as the international level of cooperation. The point is also argued philosophically, for instance, Hulme (2013a), who calls for a "repoliticise(ation of) climate change, to challenge the scientism which suggests that science should trump politics" (p. 295). Anderegg (2010b) makes a similar point:

> . . . science has little or no special role in determining should we act to curtail climate change and how we should act. This path must be picked up by economists, social scientists, ethicists, humanists, and the general public. (p. 336)

The ambiguity between science and policy is nowhere clearer than in the case of the impact sceptics. Impact scepticism is commensurate with a wide range of possible policy responses. Some impact sceptics dismiss mitigation because for them it is addressing a nonexistent problem. Others have a pragmatic view, believing that even if they do not expect severe negative climate impacts, climate mitigation measures might deliver positive spin-offs in terms of greater energy efficiency and the promotion of cleaner technologies (Van Rensburg, 2012). In addition, impact sceptics find themselves aligned with nonsceptics who oppose mitigation because they doubt the cost-effectiveness of such measures, not because they doubt the negative impacts of climate change. The controversial Danish economist Bjørn Lomborg, who advocates an alternative response path purely based on cost–benefit considerations, is an example (Lomborg, 2009). The differences between impact scepticism and response scepticism blur when sceptics appropriate the arguments of nonsceptics like Lomborg to open another line of attack against the climate change orthodoxy and its supposed economic imperatives.

The ambiguity of opposition to climate policies is also demonstrated by left-wing critiques of carbon pricing mechanisms. A few examples from the Australian context are quoted here. The *Green Left Weekly* (Butler, 2012), the mouthpiece of a socialist environmentalist activist group, describes the climate change debate as a "fake" debate because the outcomes of the two big national parties' (the center–right Liberal–National Party [L-NP] Coalition and the center–left Australian Labor Party [ALP]) climate policies would be very similar. Calling the L-NP Coalition "climate deniers" and the ALP climate "pretenders," it argues that even though the ALP is more ambitious than the L-NP Coalition, its policies too would be too little too late. "To act slowly or to act not at all matters little. Both will bring the exact same result—an unspeakable future of climate catastrophe." The group is convinced that the reigning economic model cannot solve the climate problem: ". . . the biggest (problem) is that it assumes we can solve the climate crisis with the same kind of thinking that got us into it." Carbon pricing, as an "indirect lever to bring emissions down" is dismissed in favor of "direct measures" such as the outright prohibition of fossil fuel extraction, closing fossil fuel infrastructure and deploying renewable sources of energy. The *Green Left Weekly* argument is echoed by the leftist blog En Passant (Passant, 2013), which describes the "discourse between the Government and Opposition" as "irrelevant." "Labor doesn't have a commitment to the environment. It has a commitment to capitalism and getting elected." Just like the *Green Left Weekly*, it argues that carbon pricing will not solve the problem—"capitalism cannot address climate change." En Passant calls for "system change" before there could be any hope of addressing climate change.

These sentiments are not confined to Australian environmentalists. Naomi Klein, Canadian anticorporatism, antiglobalisation, and environmentalist writer and activist, believes that the environmental movement is in "deep denial" about the failure of carbon pricing to deliver big emission cuts (Mark, 2013). She argues that climate initiatives like the Kyoto Protocol, the UN Clean Development Mechanism, and the EU Emissions Trading Scheme have "disastrous" track records. They have not reduced emissions, are characterised by "no end of scams," and have resulted in a massive "corporate giveaway." Caught up in the "neoliberal economic orthodoxy" many environmentalists have bought into the notion that corporations are part of the solution. She argues that environmentalists should have "fought back," "defend(ed) the values it stood for," and "resist(ed) the steamroller that was neoliberalism." She argues that environmental victories in the past have come through "command-and-control" pieces of legislation; a "top-down regulatory approach."

Response scepticism is the most distant from evidence scepticism, which is the definitional heart of climate change scepticism. Because it speaks to matters of governance that have relevance quite independent from the climate issue, like the desired level of government regulation, the timing and efficacy of tax/pricing mechanisms, and strategic considerations of a nation's global responsibilities and capabilities, response scepticism is accessible to a much wider general audience. Reserving a unique conceptual space for response

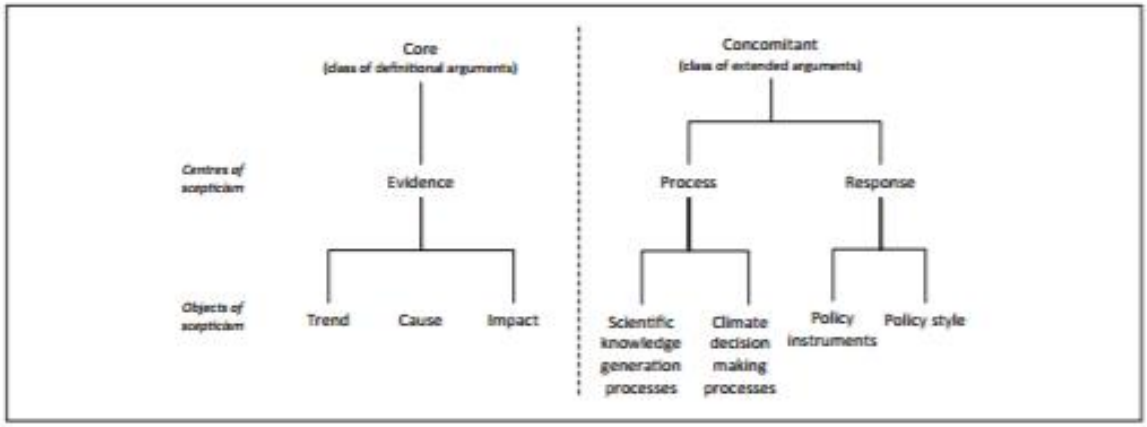

Figure 1. Conceptual hierarchy of sceptic critiques.

scepticism allows discrimination between sceptics who are grounded in evidence critiques and those who are more concerned about the broader governance issues associated with climate responses.

Proposal for a Taxonomy

Figure 1 shows how the aforementioned types of sceptic arguments can be conceptually organised. At the lowest level of classification, sceptic critiques belong to one of seven specific "objects" or targets of scepticism. Considering the nature of each of these specific sceptic targets, three "centres" of scepticism emerge. The three centers—evidence, process, and response—provide a neat categorisation that provides a home for the technical evidence dispute, a home for arguments about the processes through which the evidence pass beyond the laboratory, and finally a home for arguments about how society should respond to the evidence (or perceived lack of evidence). At the top level of categorisation, the centers of scepticism divide into two broad classes of sceptic arguments. The evidence critiques are labeled *core* and *definitional*—"core" because of their antecedent nature and "definitional" to preserve the integrity of "climate change scepticism" as the antithetical climate view. The process and response critiques are labeled *concomitant*[3] because they are commensurate with but not dependent on evidence scepticism. The core class of critiques defines a sceptic as a sceptic and attracts the concomitant class of critiques that are highly congruent with and supportive of evidence scepticism. In many cases, the concomitant arguments dominate sceptics' argumentative rationales. They are widely acknowledged as integrally part of the sceptic identity.

The distinction between core and concomitant types of critiques remain important though. An individual's scepticism might primarily reside in the concomitant objects, from where evidence deficiencies are inferred, without the person making (or able to make) an informed assessment of the physical science. Individuals who are rooted in the concomitant objects of scepticism might be expected to be less rigorous and less intense when they profess their views because they have not committed to one or more of the core evidence objects, like the more virulent and outspoken sceptics. Observers and policy practitioners dealing with the sceptic challenge need to approach the concomitant critiques with caution because they can be, and are, held by nonsceptics as well.

Table 1 provides some examples of typical sceptical claims associated with each object of scepticism.

This taxonomy makes clear the bases for drawing distinctions among sceptics and their arguments, and might be used as a practical tool to classify sceptics, bearing in mind, though, that sceptics can be rhetorically skillful and that they often couch or hedge their claims. Also, most sceptics critique a casual mix of variously the evidence, processes, and responses associated with the mainstream view, which can make it difficult to determine their *essential* dispute or concern. The challenge, from an analytical point of view, is to establish where the weight of an individual's sceptic claims rests, or which object(s) are instrumental in their arguments. Such analysis would allow meaningful and purposeful discrimination within the sceptic category, the implications of which are highlighted in the "Conclusion" section.

The article now proceeds to deal with additional bases for variegating the sceptic phenomenon. These are collectively called "attitudinal" characteristics because they speak to the character or quality of sceptics' beliefs, which might be evident through their presumed motives, the way they conduct themselves, and the degree of certainty with which they express their views (boldness of language).

Table 1. The Objects of Climate Change Scepticism With Accompanying Sceptic Claims.

Core objects of scepticism (arguments that define scepticism)			Concomitant objects of scepticism (arguments that strengthen scepticism)			
Evidence			Processes		Response	
Trend	Cause	Impact	Scientific knowledge generation processes	Climate decision-making processes	Policy instruments	Policy style
No postindustrial warming Data inconclusive Unexceptional warming Warming stopped	No CO2 causal mechanism Entirely "natural" causes Predominantly "natural" causes Too early to tell	Negative impacts speculative Extreme weather events unexceptional Insignificant negative impacts Significant positive impacts Negative impacts only in distant future	Climate change is a hoax A lucrative climate industry now exists Climate activists seek fame and money Scientists manipulate/hide the evidence Computer modeling overrated and unreliable Peer review by "buddies"	Political interference in IPCC Socialists and Greens drive the climate agenda Wealth redistribution, world government agendas Media sensationalism distort public opinion	No problem—no response needed Need to prepare for hot or cold scenarios Better to invest in climate adaptation Carbon pricing will not cut emissions enough The costs of mitigation outweighs the benefits	Economy and jobs should not be harmed Wait for global agreement—no unilateral response A pragmatic and measured response is best

Note. IPCC = Intergovernmental Panel on Climate Change.

Attitudinal Characteristics of Sceptics

Different Motivations and Modes

Some observers have tried to distinguish between sceptics on the basis of their motivations and, consequently, the modes they have chosen for airing their views. Most of these attempts are premised on the argument that some sceptics are merely using their climate views to advance their material and/or ideological interests, and because of this deception, they should be considered qualitatively different to those who are truly mistaken or misguided about the climate issue.

Painter thinks it is useful to distinguish between "organised scepticism linked to well-funded bodies" and "individual sceptic(s) with no such links" (Painter, 2012, p. 198). Powell (cited in Walker, 2014) distinguishes between "professional science deniers" who do it for money or ideological reasons and scientists who are "contrarian by nature," who revel in being different and provocative and seriously believe they are advancing the science by questioning the orthodoxies. This typology is closely replicated by Diethelm and McKee's (2009) distinction between those driven by "greed," "ideology," or "faith" and those driven by "eccentricity and idiosyncrasy" (p. 3). Rahmstorf (2005) proposes three sceptic "archetypes": paid lobbyists (those in the pay of fossil fuel interests), Don Quixotists (those who are "emotionally committed"), and eccentrics (scholars from other scientific disciplines) (p. 79). Hamilton (2014) offers three categories of sceptics based on their inner motives: first, the manufacturers of doubt, who deceive the public with their lies; second, the repeaters of the lies, who amplify the views of the manufacturers for political and personal reasons; and third, the consumers of the lies (the public), who are seduced by the manufacturers and repeaters and resort to "casual denial" for any number of psychological reasons.

What these different typologies have in common is that they make a basic distinction between those who have ulterior motives with their climate scepticism and those who are simply mistaken and/or misguided. For many observers, this is an important distinction because it adds a moral dimension to their analysis. It is a distinction fraught with danger though. It would be extremely difficult (impossible indeed) to factually show or in some other way objectively assess someone's inner motivations, especially when the person in question is suspected of being disingenuous. And by assigning some inner extraepistemic motivation to participants in the debate, by claiming some corruption of the mind by money, ideology, or politics, resentment and polarisation in the climate debate is merely perpetuated and exacerbated.

A distinction cast, though, between original thinkers (the originators of sceptic critique) and the propagators or reproducers of their thinking, might circumvent the problem of inner motivation and moral character, without blunting the accountability of the most egregious sceptics for their actions. Pendergraft (1998) conceives of "scientists" and

"prophets" in the climate change debate, where the scientists are supposed to make the "sober" claims and the prophets amplify and moralise such claims (p. 645). The underlying assumption of such a distinction is that the originators actually scrutinised the science and that the reproducers are accepting what they say on trust and intuition. A greater onus, therefore, rests on the originators to get their science right, particularly if they arrive at antithetical conclusions. They can and should be judged to a higher standard because they speak from some position of authority and command the trust of others.

Different Certainties of Belief

There are qualitative differences between someone who emphatically rejects the mainstream climate thesis, someone who disputes aspects of it, someone who feels doubtful, and someone who feels undecided (agnostic). Most common in the literature is a twofold distinction between "rejectionists" (those who dismiss the mainstream climate thesis or key aspects of it outright) and those who are uncertain or harbor reservations about the veracity of the scientific claims. In a study of public opinion in the United States, Leiserowitz, Maibach, and Roser-Renouf (2009) found a range of seven climate change opinion categories,[4] two of which correspond to climate change scepticism, namely, "doubtful" and "dismissive." The "dismissive" category differs from the doubtful category in terms of the strength of their belief and their active engagement of the issue (Leiserowitz et al., 2009, p. 4). Cook et al. (2013) distinguish between those "uncertain" of the mainstream thesis and those "rejecting" it (p. 3). Painter's (2012) typology talks of those holding a "falsely balanced view" (not knowing what to believe) and those holding a "dismissive view" (believing that the climate is not changing or that humans are not responsible for changes) (p. 193). Hoffman (2011) distinguishes between a more passive "sceptical" group that is doubtful about climate change and a much more active and organised "denier" group that is working to discredit climate change science (p. 5). The distinction between rejectionists/dismissers and doubters provides a good measure of the intensity of their beliefs, for the rejectionists are unlikely to embark on the level of activism and categorical denial characteristic of their group if they did not hold such beliefs deeply. Studies have, in fact, found that certainty of belief is an important distinguishing quality between groups of sceptics, with the rejectionists feeling very certain about their views, whereas those who are uncertain/reserved feel less certain about their views (Leiserowitz et al., 2009; Whitmarsh, 2011).

The reject/dismiss category is stable and does not reduce to subcategories. The doubtful category, however, subdivides in multiple ways, depending on the analyst's preferences. Leiserowitz et al.'s (2009) "doubtful" category is subdivided into three: those believing in the trend of climate change but not its human cause and seriousness, those not believing in the trend, and those who don't know (p. 4). Brin (2010a, 2010b) identifies three sceptic groups that are distinct from the extreme category, namely, climate agnostics, climate denial followers (the gullible, "koolaid-drinking" tools of a propaganda machine), and rational, open-minded, proscience people who are motivated by curiosity to ask legitimate questions of the mainstream thesis.

There is no easy way to describe and identify the finer distinctions among the doubtful sceptics. Several problems are apparent. First, how do we "spot" or "prove" a sceptic if the individual is very circumspect in his or her views and adept at expressing them in sophisticated ways. And even if someone's scepticism is quite apparent from his or her public expressions, how do we know to what degree he or she has tailored the tone and explicitness of his or her expressions to the audience? Second, what amount of criticism and what tone would place one sceptic in a more extreme category than another? How do we distinguish between the incessant, vocal, and brazen sceptic on one hand and the occasional sceptic voice on the other if they share exactly the same criticisms? And finally, people can be inconsistent when they express their views. Their arguments might be convoluted, or they might modify their views over time—the so-called "water sloshing in a shallow pan" effect described by Revkin (2010). When individuals are ambiguous in their views, which expression at which point in time would mark the person as a particular type of sceptic?

These problems should not preclude us from trying to disentangle the sceptic phenomenon in terms of the different qualities and intensities of belief of sceptics. Before attempting to capture these differences in a taxonomy, the next section first highlights the complexity of settling on a label that unites the sceptic category and that does not foreclose options for further subclassification.

Labeling Complexities

Although there might be general agreement about who qualifies as "climate change sceptics," the label *sceptic* is contested. Climate sceptics claim the label because they believe they are simply fulfilling the inclination and duty of any true scientist, that they are in fact serving science with their scepticism, and that the mainstream scientists are the ones stuck in a rut of groupthink, captive to the vested interests that have accumulated around a supposed climate change "industry" (Carter, 2008). In contrast, various scholars argue that the "scepticism" practiced by climate change sceptics is not scepticism in the true sense of the word, and that the label is a misnomer (Anderegg, 2010a, p. 30; Antilla, 2005, p. 339 fn. 5; Brin, 2010b; Cook & Washington, 2011, pp. 1-2; Dunlap & McCright, 2011, p. 156 n. 1; Hamilton, 2010, p. 117; O'Neill & Boykoff, 2010, p. E151).

As a consequence, scholars have been looking for alternative labels for the sceptic phenomenon. A popular alternative is climate change or global warming "denial," which

scholars have tried to ground theoretically (see Cook & Washington, 2011; Diethelm & McKee, 2009; Dunlap, 2013; Hoofnagle, 2007; McCright & Dunlap, 2010; Nuccitelli, 2013; Specter, 2009; Walker, 2014). Yet, its unfortunate connotation with Holocaust denial, indiscriminate use, and commonsense meaning have all caused serious trouble in the climate debate. Sceptics find the label extremely divisive, to the degree that responses to the label foreclose any meaningful debate. When asked what it would take for him to accept the orthodox position on climate change, Anthony Watts, the creator of one of the most visited sceptic blogs on the Internet, Watts Up With That, responded that a "starting point for the process" would not begin with more facts but instead with a public apology from the high profile scientists who have labeled him and his colleagues "deniers" (Merchant, 2011). Politicians who have had to navigate the climate issue also reflect on the counterproductive effect of the label, like former Australian Prime Minister John Howard (2013):

> Increasingly offensive language is used. The most egregious example has been the term "denier." We are all aware of the particular meaning that word has acquired in contemporary parlance. It has been employed in this debate with some malice aforethought.

The denial label is, strictly speaking, misrepresenting the sceptic view. The majority of climate sceptics accept that the climate is changing; many of them agree that human activities are playing a part in the phenomenon, and a select few would even concede that humans might be the dominant cause of current climate trends (the so-called impact sceptics). The trend–attribution–impact typology, in fact, implies that sceptics are disagreeing with *parts* (rarely all) of the mainstream climate thesis. Furthermore, critique of perceived exaggerations of climate claims, rather than outright denial, is a central feature of sceptic discourse. Whitmarsh (2011) found that the perception that media communication of climate change is alarmist is the single most common characteristic among sceptics. It is, therefore, not surprising that sceptics would rhetorically exploit the semblant misrepresentation behind the denier label. By emphatically arguing their acceptance of climate change and a human contribution to it, they are ostensibly positioning themselves closer to the mainstream science, portraying their own views as critical improvements of the science, and discrediting their detractors for misrepresenting them by calling them climate change deniers.

Another alternative label in limited use is "contrarian" (see Boykoff & Olson, 2013; Brisman, 2012, p. 42; Dunlap & McCright, 2011; Henson, 2011, p. 269; Nuccitelli, 2013). It carries two commonsense meanings, namely, a position of fact, such as in the Oxford Dictionaries (2013): "opposing or rejecting popular opinion or current practice," or an attitude, such as in the Collins English Dictionary (2013): a "contrary or obstinate person." It is not an ideal term because of its low currency (Painter, 2012) and of its connotation with flippancy and obstinacy, which applies to a good number of sceptics but certainly not to all. Finally, Jones (2011) proposes "confusionists" as an appropriate label because it best describes the main goal of climate change scepticism, namely, to promote confusion among the public.

In most cases, an observer's choice of label is probably fairly arbitrary. It is likely that many observers simply persist with the commonly used "sceptic" for purely pragmatic reasons while acknowledging its messy relationship with labels like "denier" and "contrarian" (Antilla, 2005, p. 339 fn. 5; McCright & Dunlap, 2003; Painter, 2012, p. 196).

The article now turns to the task of selecting and justifying categories and labels to describe different qualities of scepticism and organising these in a taxonomy.

Proposal for a Taxonomy

For the overall category, preference is given to Anderegg, Schneider, Harold, and Prall's (2010) label, "unconvinced of the evidence (UE)" (p. 12107)[5] It accurately reflects the epistemic position of the *full* range of sceptics, from the agnostic/undecided and doubtful to those who actively dispute or reject some or all of the core mainstream claims. The label *unconvinced* avoids contestation over the badge *scepticism*, the positive scientific norm to which both sides in the debate are laying claim to. Avoiding the "scepticism/sceptic" badge altogether would help to limit tangential arguments about who are truly following the scientific tradition, and would deny the semblance of credibility enjoyed by sceptics, many of whom in actual fact practice a very low standard of scientific scepticism.

Subcategorisations are shown in Table 2. At the first level of subcategorisation, the scheme accommodates the wide agreement among scholars and observers that there is a significant qualitative difference between the most extreme sceptics and the rest, hence the uncertain–reject dichotomy. It is appropriate to use the label *uncertain* to separate the milder forms of scepticism from the rejectionists. The rejectionists represent the most vociferous and blatant sceptic persuasions. They are also far from uncertain in their views. Studies have shown that those at the most extreme end of the scepticism scale feel very confident in their dismissal of climate change evidence (Leiserowitz et al., 2009; Whitmarsh, 2011). The taxonomy steers clear of the labels *denier* and *contrarian* due to their semantic connotations to Holocaust denial and personal pettiness.

The third and final level of subcategorisation subdivides the "uncertain" group into agnostics, doubters, and disputers to reflect varying degrees and intensities of scepticism in this group. Including the agnostic/undecided here alongside the doubters and disputers is justified because the net effect of their position is the same as that of the other sceptics, namely, nonacceptance of core climate change claims that should be

Table 2. Certainty of Sceptic Belief: Categories and Labels.

Unconvinced(instead of sceptical)			
	Uncertain		Reject/Dismiss (instead of denier or contrarian)
Agnostic/Undecided	Doubt	Dispute	
MILD SCEPTICISM	←	→	EXTREME SCEPTICISM

beyond doubt, given the established and advanced nature of the science, the exceptionally high degree of scientific consensus prevailing, and the severity of the problem. The distinctions drawn in the taxonomy are, admittedly, subjective, but they are necessary to capture finer nuances in the sceptic phenomenon.

The proposed taxonomy reflects different intensities of climate change scepticism. For instance, a person emphatically rejecting the entire mainstream climate thesis is more likely to hold such views strongly and to actively challenge mainstream science than someone who is merely doubtful of some key claims. A degree of mobility between these categories can be assumed. For instance, it is conceivable that extraneous events like a particularly hot summer may shift someone from "doubtful" to "undecided" and vice versa. The most extreme end of the spectrum can be expected to be stable because the individuals at this position are likely to have rationalised their views at length and may find themselves heavily invested in this position in terms of professional prestige and opportunities for public exposure. Unavoidably, the labels are open to some degree of interpretation and are not entirely mutually exclusive. They do draw recognisable distinctions though, and dispose of the two most problematic ones, namely, "sceptic" and "denier."

Conclusion

This article proposes a conceptual design of climate change scepticism that might help an observer to draw both gross and subtle distinctions in the phenomenon. The evidence challenge is placed at the core of what it means to be a climate sceptic, with concomitant objects of scepticism moved to more neutral conceptual ground. The different certainties of sceptic belief are also relabeled for greater semantic accuracy and to dispose of toxic labels. These design elements might help to counter the potential pitfalls in prevailing assessments of climate scepticism, noted at the beginning of the article, and might provide important pointers for those concerned with meeting the sceptic challenge.

First, renewed recognition of the nuances in the sceptic phenomenon might help to counter the unintended but unfortunate ideologising of the debate that had occurred due to the intense interest in the extraepistemic drivers of scepticism. Much of the mainstream response to climate change scepticism fail to convince sceptics precisely because the science is skirted for the sake of a grand theory that casts sceptics as ill-intentioned rather than ill-informed. And once the motivations of a participant are questioned, there could hardly be any chance of constructive dialogue and critique that might improve the quality of the science, the articulation of the science, or the debate in general. The right–wrong, serious–disingenuous dichotomies that dominate so much of the debate has made it difficult to engage sceptics in a discerning fashion, to direct chagrin at the egregious sceptic arguments, and give leeway and credit to those sceptic arguments made in good faith. Pigeonholing sceptics who are sincerely concerned about aspects of the science with those who are egregious and entrenched in their scepticism has an unnecessarily polarising and politicising effect on the participants in the debate and their followers.

Second, greater awareness of the distinction between core and concomitant objects of scepticism might encourage observers and policy practitioners to target their responses. Climate change scepticism hinges on the evidential challenge. Without a credible (in the eyes of the broader public) evidential challenge, either through direct contestation of the physical evidence or doubts about the evidence inferred from perceived process or response deficiencies, climate change scepticism unravels. By focusing on the core (and presumably refutable) sceptic challenges, observers and policy practitioners might avoid getting drawn into the ultimately political and moral debates typical of sceptics' extended critiques. Sceptics have in the past benefited from the resonance that their policy critiques have enjoyed among nonsceptic or apathetic partisans who oppose incisive climate mitigation measures, for various reasons. Without negating the potential value of addressing sceptics' extended arguments (i.e., against incisive climate mitigation) in creative ways, the value of a focused, resolute, and sustained response to sceptics' evidence claims should not be underestimated. It could be argued that the evidence debate provides a neutral and stable access point to sceptics and that successful engagement of sceptics on purely evidence-related matters would flow on to affect the credibility of sceptics' extended arguments.

Third, systematising and formalising the task of classifying and labeling sceptics (by use of the two taxonomies) might make it easier to distinguish between those sceptics who stand closer to the mainstream view, and might be amenable to

argumentation methods and communication strategies, and those who are too extreme and entrenched in their views.

Finally, relocating sceptics' critiques of the scientific and bureaucratic processes behind mainstream climate science and the implied response imperatives of the mainstream thesis to more neutral conceptual ground "unmerges" the sceptic identity and reclaims these issues as legitimate concerns for everyone, not just sceptics. By lowering the defenses on these issues, it might be possible to dislodge the perception that sceptics are the drivers of public reticence and political indecision in climate matters. By treating the process and response issues as areas of legitimate disputation rather than an elaborate complex of sceptic provocation, observers and policy practitioners might demonstrate their commitment to a careful and thorough test of ideas, which might be all that is needed to convince those sceptics who are uncertain rather than dismissive of mainstream climate science.

Future Research

Capstick and Pidgeon's (2014) recent investigation of the climate change scepticism concept detected a latent construct in the general population's view about climate change, which they call "folk psychology." This construct includes intuitive lay assumptions about human nature, such as "people are too selfish to do anything about climate change" and "it is not in human nature to respond to problems that won't happen for many years" (Capstick & Pidgeon, 2014, p. 396). Van Rensburg (2013) identified a host of myths of human nature that are particularly recurrent in sceptic discourse, like humans are intelligent, resourceful, resilient, and able to adapt to changing environments, yet are also limited in their true ability to understand, let alone influence or control, the complex and powerful global climatic system. It is not surprising that these notions are present in the context of climate sceptical thought for they serve an integrative purpose and provide continuity between received information and innate information. However, it could be argued that folk psychology constructs are independently important, that is, that they immediately orient people when they are confronted with the climate issue and that they powerfully colour received information about the evidence, processes, and responses to do with climate change. If that were the case, folk psychology might be identified as a key center of climate scepticism (fourth center?), with implications for our conceptual understanding of the phenomenon.

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Notes

1. A note on terminology: "Climate change" is used as shorthand for human-caused or anthropogenic climate change. Because the element of human causation is so central to the climate issue, its specification in the label is generally regarded unnecessary. The term is equivalent to the mostly U.S. use of "global warming." In regard to the labels "scepticism" and "sceptics," this article argues for more nuanced terminology; however, in the interests of familiarity to the reader, they are used from the outset. These terms enjoy wide currency in scholarly, media, and popular discourse, and several prominent writers belonging to the category self-describe as "sceptics" (Painter, 2012, p. 196).
2. The first installment of AR5, its Working Group 1 report, was published in September 2013. In terms of core claims, this report corresponds very closely with AR4. It is not used as reference in this article because the examples of sceptic claims analysed here were made in the context of the AR4 report.
3. The label *concomitant* is preferred as its dictionary meaning suggests that it accompanies a preceding object and often in a "lesser," "subordinate," or "incidental" way (2014a, 2014b).
4. The so-called seven climate change "audiences" are labeled *alarmed*, *concerned*, *cautious*, *disengaged*, *doubtful*, and *dismissive*.
5. Although I propose that the label *unconvinced* should replace the label *sceptic* for the overall category, I have no illusions about the semantic appeal of the compound "climate change sceptic(ism)" or its entrenchment in popular and scholarly use. I would hope, though, that in time the label *unconvinced* would bring more clarity to the discussion.

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Author Biography

Willem Van Rensburg is an advanced stage PhD student at the University of Queensland, Brisbane, with an interest in fringe discourses and quantitative semantic analysis. He previously worked as political and security analyst in national civil service settings.

Appendix B: BLOG: European Parliamentary research service blog: climate: High Priority for Low Carbon

Published, March 10 2016 https://epthinktank.eu/2016/03/10/climate-high-priority-for-low-carbon/

Climate change is one of the greatest challenges facing the world. The European Union has been in the vanguard of those pushing to tackle climate change and worked towards an ambitious agreement at the Paris Summit. Indeed, The Paris Agreement of 12 December 2015 by the 21st Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC) was a significant step forward.

The main objectives of the global agreement are:

'holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels',

'increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development', and

'making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development'.

Although decarbonisation is not explicitly mentioned as an objective, 'all Parties should strive to formulate and communicate long-term low greenhouse gas emission development strategies'.

Post-2020 reform of the EU Emissions Trading System

One of the ways the EU is tackling climate change is via the EU Emissions Trading System which is a key element of EU climate policy. In line with the internationally agreed objective of keeping global warming below 2 degrees Celsius, the EU has set targets for reducing its greenhouse gas (GHG) emissions and decarbonising the economy. The long-term objective for 2050, agreed by the European Council in 2009, is an 80-95% reduction in GHG emissions compared to 1990. In the medium term, the EU aims to reduce GHG emissions by 20% by 2020, and by 40% by 2030. The new proposal aims to introduce a new limit on greenhouse gas (GHG) emissions in the ETS sector to achieve the EU climate targets for 2030, new rules for addressing carbon leakage, and provisions for funding innovation and

modernization in the energy sector. It encourages Member States to compensate for indirect carbon costs. In combination with the Market Stability Reserve agreed in May 2015, the proposed reform sets out the EU ETS rules for the period up to 2030, giving greater certainty to industry and to investors.

Energy mix and climate change

In a European Parliament resolution of December 2015, MEPs point out that development of renewable energy sources is essential to the Energy Union, taking into consideration energy costs. Members underline the crucial role of renewables in the EU in attaining energy security and political and economic independence by reducing the need for energy imports. Parliament underlines the crucial role of renewables in improving air quality and creating jobs and growth and MEPs believe that renewables deliver secure, sustainable, competitive and affordable energy and play an important role in pursuing Europe's leadership in a green economy and in developing new industries and technologies.

Members say that the current power market design should be more dynamic and flexible in order to integrate variable energy sources into the market and draw attention to the fact that the production costs of renewables have considerably dropped in recent years. The European Parliament stresses the importance of developing cross-border infrastructure and of enhancing research and innovation in developing smarter energy grids and new energy storage solutions as well as flexible generation technologies for the integration of renewables.

Societal implications of decarbonisation

EYE2016 with text The European Parliament also stresses that the transition to a competitive and sustainable low-carbon economy offers significant opportunities in terms of new jobs, innovation, growth, and lower commercial and domestic energy bills. MEPs note that properly managed decarbonisation should not result in increased energy costs, energy poverty, deindustrialization of the European economy or rises in unemployment.

MEPs underline the importance of actively involving social partners in addressing the social impact of the transition towards a sustainable Energy Union and stresses that the EU requires EU-wide and, at the same time, market-based and technology-neutral policies that take into account all relevant legislation and the relevant EU targets, and deliver on them at the lowest cost to society.

Negative greenhouse gas emissions and new technologies?

Most of the climate stabilization scenarios of the Intergovernmental Panel on Climate Change assume the use of negative emission technologies. There are many potential technologies already in use or being developed ranging from forestation to bio-energy with carbon capture and storage to enhanced weathering and mineral carbonation to name just a few. However, announcements of revolutionary breakthroughs should be taken with a grain of salt, keeping in mind that the new technologies might not scale up from laboratory experiments to industrial scale deployment, and that costs may be high and hard to reduce.

Have you say at the European Youth Event 2016

Tackling climate change is complex but most would agree necessary. At the European Youth Event 2016 in Strasbourg on 20 and 21 May there will be an opportunity to have you say on which approaches could and should be embraced to ensure our planet is passed in healthy condition to the next generations.

Appendix C: LSE: 2030 framework for climate and energy policies (strategic document)

Published 2014 http://www.lse.ac.uk/GranthamInstitute/law/2030-framework-for-climate-and-energy-policies-strategic-document/

To ensure that the EU is on the cost-effective track towards meeting its objective of cutting emissions by at least 80% by 2050, the Commission proposed the '2030 framework for climate change and energy policies'. It was adopted by the European Council in October 2014 as a strategic document, although binding legislation is yet to be drafted. It includes the binding 2030 EU domestic GHG reduction target of at least 40% compared to 1990, as well as a target of at least 27% for final renewable energy, and a at least 27% for energy savings by 2030 (target to be reviewed upwards to 30% in 2020).

In addition, the EU ETS is to be reformed and strengthened. To achieve the 2030 binding 40% reduction target, the sectors covered by the EU ETS would have to reduce their emissions by 43% compared to 2005. In parallel, emissions from non-EU ETS sectors would need to be cut by 30% below the 2005 level, through national measures. To address the surplus of emission allowances in the EU ETS and to improve the system's resilience, a market stability reserve is to be established and the annual factor to reduce the cap on the maximum permitted emissions is to be changed from the current 1.74% to 2.2% from 2021. The volume of free allowances is to be reduced progressively; Member States with a GDP per capita below 60% of the EU average may opt to continue to give free allowances to the energy sector up to 2030, but the maximum amount handed out for free after 2020 should be no more than 40% of the allowances allocated to eligible Member States.

The 2030 Framework stresses the importance of a fully functioning and connected EU energy market, as foreseen in the European Energy Security Strategy (2014). The Commission is to be supported by Member States to take measures to ensure achievement of a minimum target of 10% of electricity interconnections no later than 2020.

The 2030 framework also launches the preparation of the Energy Union aiming at affordable, secure and sustainable energy, by "pooling resources, connecting networks and uniting member states' power when negotiating with non EU countries". Specific legislative proposals are expected in 2015.

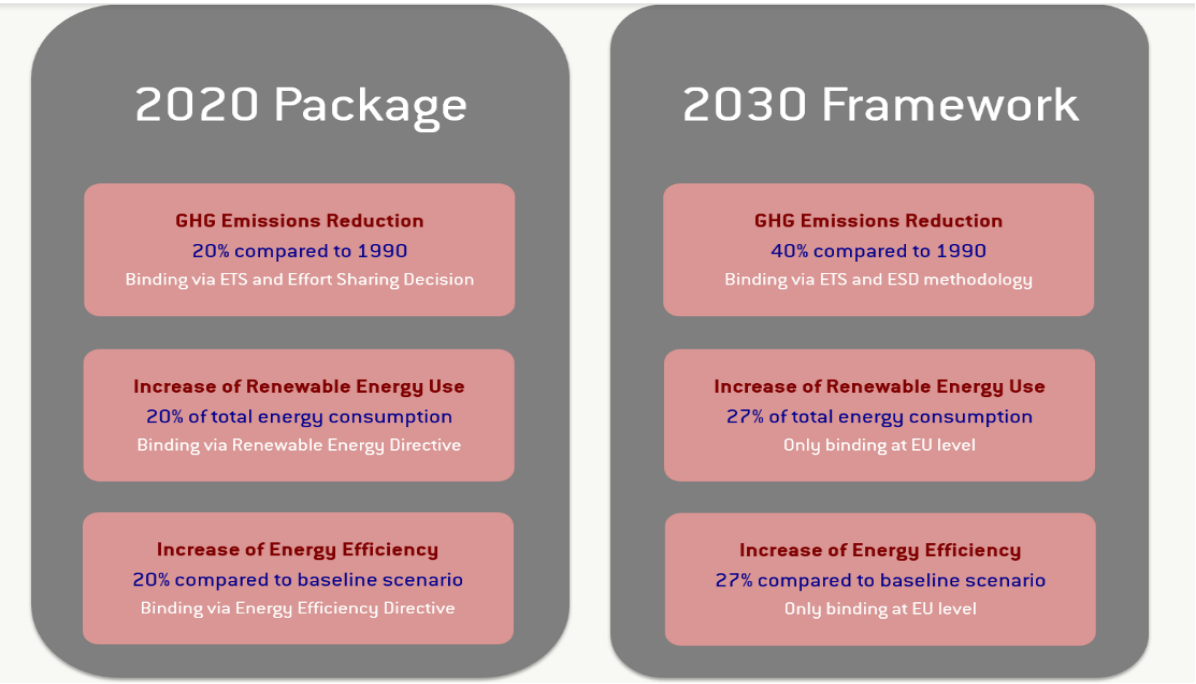
Appendix D: BLOG Bruegel: The EU 2030 Climate and Energy Framework: Keeping up the pressure on governance structures. The Transport, Telecommunications and Energy Council on 26 November should indicate a clear way forward.

Published September 17, 2015 http://bruegel.org/2015/09/the-eu-2030-climate-and-energy-framework-keeping-up-pressure-on-governance-structures/

In 2009 the EU adopted three targets (see chart) to meet its energy policy objectives of developing a sustainable, secure and competitive energy system. The targets were translated into nationally binding legislation in 2009 (A revised ETS, Effort Sharing Decision, Renewable Energy Directive) and in 2012 (Energy Efficiency Directive).

These measures have had a substantial impact on the EU energy system; the share of renewable energy in EU gross energy consumption reached 15.3% in 2014, and the majority of member states are expected to meet their 2020 renewable energy targets.

In the run-up to the Paris climate conference, and in order to provide guidance to the industry, in 2014 the European Commission proposed a new 2030 Climate and Energy Policy Framework, which was endorsed -with slight adjustments – by the European Council of October 2014 (see chart).



The most controversial aspect of this new 2030 Framework is that, unlike in the previous 2020 Package, the new EU targets will not be translated into national binding targets through EU legislation.

Following the approval of the European Council, the European Commission (EC) initially proposed to implement the 2030 Framework at the end of February 2015. The proposals, set out in the Energy Union Package, aim to provide a coherent approach to climate change, energy security and competitiveness, and to achieve the goals agreed under the 2030 Framework.

Officially this is due to the willingness to leave "greater flexibility for member states" in line with the provisions set out in Article 194(2) of the Treaty on the Functioning of the European Union (TFEU) on the issue of national control over the energy mix.

However in reality member states do not share a common vision on how the EU energy market should be organized. Therefore, they seek maximum flexibility in order to conduct their national energy policies. For instance, the United Kingdom and the Czech Republic suggest that the new Framework "should only be sufficient to enable an assessment of collective progress, and should be significantly less prescriptive than is currently the case under the 2020 climate and energy package".

This situation raises questions on how the new 2030 Framework will be implemented, and consequently brings the issue of governance into the spotlight.

A lack of strong EU policies is allowing member states to pursue policies that fragment the internal energy market. The lack of binding national targets carries the risk that national efforts will not add up to the EU aggregate commitments.

In the absence of binding obligations for member states, only a solid governance structure can guarantee that the 2030 targets will be achieved. In particular, investors' confidence could be undermined without a strong and reliable governance system.

Anticipating this problem, the EC has proposed a potential governance scheme based on national plans for competitive, secure and sustainable energy in the 2030 framework communication. It structured the scheme on three key steps: i) "Detailed guidelines to be prepared by the EC on the content of national plans"; ii) "Preparation of Member State plans through iterative process"; iii) "Assessment of the Member States' plans and commitments" (if insufficient, "a deeper iterative process would take place between the EC and the Member State to reinforce the plan's content").

The October 2014 European Council meeting took a much more vague stance on the issue, and calling for the establishment of a "reliable and transparent governance system without any

unnecessary administrative burden", to be built on "existing building blocks" such as national climate, renewable energy and energy efficiency plans.

The issue of the governance of the 2030 Climate and Energy Policy Framework thus continues to remain largely unresolved. On September 1, 2015 the General Secretariat of the Council of the EU sent a note to the delegations with the Draft Council Conclusions on the Governance System of the Energy Union prepared for the forthcoming Transport, Telecommunication and Energy (TTE) Council that will be held in Luxembourg on November 26, 2015.

In line with the concepts already developed by the EC, the document outlines a governance system based on national energy and climate plans followed by progress reports on the implementation of the same plans, with "aspirational and iterative Dialogue and Monitoring based inter alia on key performance indicators". According to the document, the "governance cycle will also serve as an 'early warning system' by enabling early identification of possible risks and shortfalls as regards all EU energy policy objectives and agreed climate and energy targets."

Notwithstanding the document's numerous (and highly bureaucratic) statements, it is still not clear how the proposed governance system would work and in particular how the EC could intervene if a member state didn't comply with its National Energy and Climate Plan. Unless these crucial issues are clarified before the TTE Council of November, another opportunity to provide real substance to the theoretical 2030 Climate and Energy Policy Framework will be lost.

The authors would like to thank Mark Johnston for helpful comments. They assume responsibility for all errors.

Appendix E: BLOG WEF: How will the EU meet its energy targets?

Published 22 September 2015 https://www.weforum.org/agenda/2015/09/how-will-the-eu-meet-its-energy-targets/

In 2009 the EU adopted three targets (see chart) to meet its energy policy objectives of developing a sustainable, secure and competitive energy system. The targets were translated into nationally binding legislation in 2009 (A revised ETS, Effort Sharing Decision, Renewable Energy Directive) and in 2012 (Energy Efficiency Directive).

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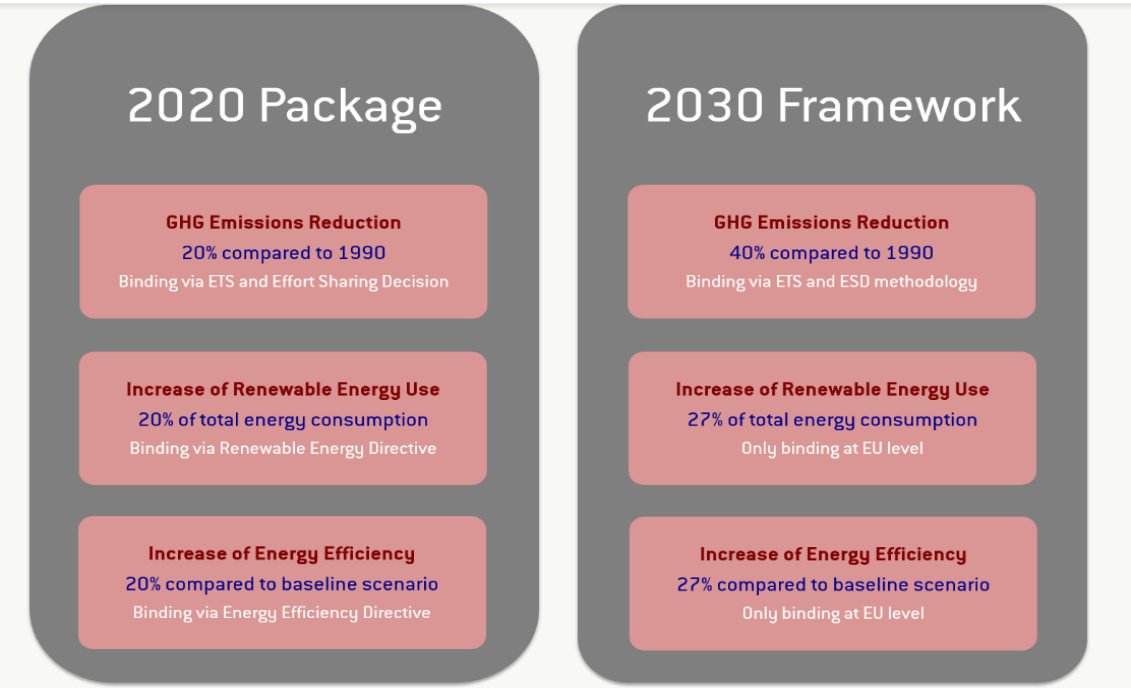

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Author: Simone Tagliapietra is Senior Researcher at the Fondazione Eni Enrico Mattei in Milan and Visiting Researcher (Non-residential) at the Istanbul Policy Centre at Sabanci University in Istanbul.

Image: A wind turbine is seen near the village of Piansano. REUTERS/Max Rossi.