

**ISTANBUL TECHNICAL UNIVERSITY ★ GRADUATE SCHOOL OF ARTS AND
SOCIAL SCIENCES**

**UNDERSTANDING PLANETARY SECURITY:
A POST-HUMANIST PARADIGM IN APPROACHING ENERGY SECURITY
AND CLIMATE CRISIS**

M.A. THESIS

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Department of Political Studies

Political Studies M.A. Programme

JULY 2020

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İSTANBUL TEKNİK ÜNİVERSİTESİ ★ SOSYAL BİLİMLER ENSTİTÜSÜ

**GEZEĞEN GÜVENLİĞİNİ ANLAMAK:
ENERJİ GÜVENLİĞİ VE İKLİM KRİZİNE YAKLAŞIMDA İNSAN ÖTESİ BİR
PARADİGMA**

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FOREWORD

This thesis is based upon a critical analysis about the concept of energy security. This thesis aims to problematize the linkage between energy and security in the context of climate crisis. This thesis explains and critically examines the role of realist and liberal security paradigms on energy security policies. Then, it analyzes contemporary approaches to the energy security policies within the scope of the environmental security paradigm. This thesis argues to re-evaluate the positions of nation states and human beings as referent objects for energy security policies. This thesis proposes the concept of planetary security as an alternative referent paradigm to provide integrated and universal basis for the relationship between energy security and climate crisis.

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Özgenur AKTAN

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ABBREVIATIONS

AIOC	: Anglo-Iranian Oil Company
APOC	: Anglo-Persian Oil Company
EU	: European Union
GHG	: Greenhouse Gas
IEA	: International Energy Agency
IMF	: International Monetary Fund
IPCC	: Intergovernmental Panel on Climate Change
IR	: International Relations
MITEI	: Massachusetts Institute of Technology Energy Initiative
NGOs	: Non-governmental Organizations
OECD	: Organisation for Economic Co-operation and Development
OPEC	: Organization of the Petroleum Exporting Countries
RES	: Renewable Energy Sources
SDGs	: Sustainable Development Goals
TRNC	: Turkish Republic of Northern Cyprus
UK	: United Kingdom
UN	: United Nations
UNDP	: United Nations Development Programme
UNEP	: United Nations Environment Programme
UNFCCC	: United Nations Framework Convention on Climate Change
USA	: United States of America
WMO	: World Meteorological Organization

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UNDERSTANDING PLANETARY SECURITY: A POST-HUMANIST PARADIGM IN APPROACHING ENERGY SECURITY AND CLIMATE CRISIS

SUMMARY

This thesis aims to problematize the linkage between energy and security and to propose an alternative referent paradigm in the context of climate crisis. More precisely: this thesis aims to provide a brief history of energy alterations through a comparative analysis of pre-industrial and industrial times as a starting point and then, to critically interpret the relationship between mainstream security paradigms in International Relations (IR) and energy security policies. This thesis examines the explanations about traditional energy security paradigm in terms of national security, military security and economic growth within which the basic underpinnings and versions of realist and liberal security paradigms in IR have had a solid contribution. Then, this thesis focuses on the contemporary approaches to the energy security policies within the scope of the environmental security paradigm. This thesis asserts that neither traditional approaches in terms of national security, military security and economic growth nor contemporary approaches in terms of environmental security and human security can be effective in providing integrated and universal referent paradigm for the concept of energy security. For this reason, this thesis aims to emphasize the need to re-evaluate the positions of nation states and human beings as referent objects in the context of energy security. The main idea is that the concept of planetary security as an alternative referent paradigm can provide integrated and universal basis for energy security. Securitization of the planet can be effective in order to provide normative and conceptual clarifications for energy security policies. This kind of an alternative critical consideration can encourage a post-anthropocene thinking for the relationship between energy security and climate crisis.

This thesis is divided into five chapters. In the first chapter, the purpose of thesis, hypotheses and research question, methodology and outline will be explained. In the second chapter, the relationship between human beings and energy resources through a comparative analysis of pre-industrial and industrial times will be given. Then, realist and liberal mainstream security paradigms in IR will be analyzed. In the third chapter, traditional energy security paradigm will be explained and critically interpreted. The impacts of environmental security paradigm on energy security policies will be shared in order to be aware of the relations and tensions between traditional and contemporary approaches to energy security. Then, the need for a paradigm change and definition will be emphasized in the context of energy security and climate crisis. In the fourth chapter, the concept of planetary security as a key component of planet politics will be explained. A post-anthropocene perspective for the linkage between energy and security will be emphasized. Thus, a critical re-consideration for the referent positions of the nation states and human beings will be accentuated in the context of climate crisis. Within this framework, the concept of planetary

security as a referent paradigm will be addressed in order to provide an integrated and universal framework for energy security. The role of solar energy will be briefly mentioned in order to facilitate our understanding towards planetary security. Then, TRNC's solar energy potentiality will be emphasized in relation to the climatic, social and political aspects of energy security. In the final chapter, a general conclusion about the importance of the planetary account of energy security will be drawn in the context of climate crisis.

GEZEĞEN GÜVENLİĞİNİ ANLAMAK: ENERJİ GÜVENLİĞİ VE İKLİM KRİZİNE YAKLAŞIMDA İNSAN ÖTESİ BİR PARADİGMA

ÖZET

Bu çalışma, enerji ve güvenlik arasındaki bağlantıyı sorunsallaştırmayı ve iklim krizi bağlamında alternatif bir referans paradigma önerisinde bulunmayı amaçlamaktadır. Daha açık olarak; bu çalışma, sanayileşme öncesi ve sanayileşme dönemlerine dair karşılaştırmalı bir analiz aracılığıyla enerji değişimlerinin kısa bir tarihçesini bir başlangıç noktası olarak sunmayı ve akabinde, Uluslararası İlişkiler'deki anaakım güvenlik paradigmaları ile enerji güvenliği politikaları arasındaki ilişkiyi eleştirel bir şekilde yorumlamayı amaçlamaktadır. Bu çalışma, Uluslararası İlişkiler'deki realist ve liberal güvenlik paradigmalarının temel dayanaklarının ve örneklerinin; ulusal güvenlik, askeri güvenlik ve ekonomik büyüme yönleriyle önemli katkıda bulunduğu geleneksel enerji güvenliği paradigmasına ilişkin kavramsal açıklamaları incelemektedir. Akabinde bu çalışma, çevresel güvenlik paradigması kapsamında enerji güvenliği politikalarına ilişkin çağdaş yaklaşımlara odaklanmaktadır. Bu çalışma ne ulusal güvenlik, askeri güvenlik ve ekonomik büyüme dayanaklarındaki geleneksel yaklaşımların ne de çevresel güvenlik ve insani güvenlik dayanaklarındaki çağdaş yaklaşımların enerji güvenliği kavramı için entegre ve evrensel bir referans paradigma sağlamada etkili olabileceğini ileri sürmektedir. Bu nedenle, bu çalışma ulus devletlerin ve bireylerin enerji güvenliği bağlamında referans unsurlar olarak konumlandırılmalarının yeniden değerlendirilmesi gerektiğini vurgulamaya çalışmaktadır. Ana fikir, alternatif bir referans paradigma olarak gezegen güvenliği kavramının, enerji güvenliği için bütünsel ve evrensel bir temel sağlayabileceğidir. Gezegenin güvenlikleştirilmesi, enerji güvenliği politikaları için normatif ve kavramsal berraklaştırmalar sağlamak açısından etkili olabilir. Bu tür alternatif bir eleştirel değerlendirme, enerji güvenliği ve iklim krizi arasındaki ilişki için antroposen ötesi bir düşünceyi teşvik edebilir.

Bu çalışma beş bölüme ayrılmıştır. Birinci bölümde tezin amacı, hipotezler ve araştırma sorusu, metodoloji ve tezin ana çerçevesi izah edilecektir. İkinci bölümde, sanayileşme öncesi ve sanayileşme dönemlerinin karşılaştırmalı analizi aracılığıyla bireyler ve enerji kaynakları arasındaki ilişkiye değinilecektir. Sonrasında, Uluslararası İlişkiler'deki realist ve liberal anaakım güvenlik paradigmaları analiz edilecektir. Üçüncü bölümde, geleneksel enerji güvenliği paradigması açıklanacak ve eleştirel olarak yorumlanacaktır. Çevresel güvenlik paradigmasının enerji güvenliği politikaları üzerindeki etkileri, enerji güvenliğine yönelik geleneksel ve çağdaş yaklaşımlar arasındaki etkileşimlerin ve gerilimlerin farkında olabilmek amacıyla paylaşılanacaktır. Sonrasında, enerji güvenliği ve iklim krizi bağlamında bir paradigma değişikliğine ve tanımına duyulan ihtiyaç vurgulanacaktır. Dördüncü bölümde, gezegen siyasetinin kilit bir bileşeni olarak gezegen güvenliği kavramı açıklanacaktır. Enerji ve güvenlik arasındaki bağlantı için antroposen ötesi bir bakış açısı ve derinliğe vurgu yapılacaktır. Böylelikle, iklim krizi bağlamında ulus devletlerin ve bireylerin referans konumlarına dair eleştirel bir yeniden değerlendirme önerilecektir. Bu çerçevede, enerji güvenliği için entegre ve evrensel

bir çerçeve sağlamak amacıyla, referans bir paradigma olarak gezegen güvenliği kavramına değinilecektir. Gezegen güvenliği üzerine anlayışımızı kolaylaştırmak amacıyla güneş enerjisinin oynayabileceği rolden kısaca bahsedilecektir. Sonrasında, KKTC'nin güneş enerjisi potansiyeli, enerji güvenliği ile ilgili iklimsel, sosyal ve politik yönlerle bağlantılı olarak belirtilecektir. Son bölümde ise iklim krizi bağlamında, enerji güvenliğinin gezegensel tanımının önemine dair genel bir sonuç çıkarılacaktır.

1. INTRODUCTION

Energy is essential and indispensable element for our existence, survival, security and lives. The conversion of forms of energy has underpinned the history and evolution of human societies. The endeavors to control greater universal and planetary flows of energy have fundamentally determined the course of history. The dynamic relationship between human beings and energy has allowed for the construction of complex political, economic, social and technical arrangements and relationships (Smil, 1994, pp. 1-2). Energy as a network among animals, plants, microorganisms, human entities and non-human entities is crucial in order to appreciate the essence of nature, humanity and human societies. It can be expressed that a study of nature, humanity and human societies is thus a study of energy (Odum, 2007, p. 1). There is a supportive connection between the components of civilization process and human beings' increasing knowledge and control on energy resources.

Energy as both natural and social phenomenon is essential to critically examine the development of human societies. The discovery of non-renewable energy resources has influenced the development of human societies, agricultural and industrial activities with the cost of the "severe environmental and climate problems to the world" (Du, 2015, p. 115). Human beings' activities through the production and consumption of non-renewable energy resources have produced universal and planetary outcomes. The concentrations of the "greenhouse gases (e.g. carbon dioxide, methane, chlorofluorocarbons)" in the atmosphere have increased due to the fossil fuel-based production and consumption activities, especially since the industrial times (Hoffmann, 2013, p. 4). While energy has been essential for the development and functioning of human societies and civilization, it has also been one of the primary reasons for the serious alterations in our planet's climate due to the increased use of fossil fuels (Brown and Sovacool, 2011, p. 14; Maltini, 2015, pp. 3-4).

In this regard, civilization has transformed into a self-defeating form (Buzan et al, 1998, p. 76) in the context of climate crisis.¹ Apart from the adverse climatic outcomes, there are also socio-economic problems that cannot be eliminated within the current energy security paradigm. The current energy policies and systems are not adequate and convenient to eliminate energy inequality and “to meet the needs of the world’s poor” (The Secretary-General’s Advisory Group on Energy and Climate Change, 2010, p. 7). It can be expressed that the role of energy in the development, functioning and well-being of human societies has disseminated in an unequal global context (Karlsson-Vinkhuyzen and Jollands, 2013, p. 510; Podobnik, 2002, p. 252). It has generally been expressed that energy is a critical commodity for the well-functioning of human societies, economic development and improved standard of living. But some countries, societies and individuals have been ignored and neglected in accessing energy resources and services (McCauley, 2018, p. 2).

In addition, human beings’ exploitation and utilization of energy resources have contributed to the global environmental problems, climate crisis (Johansson, 2013, p. 1; State Grid Energy Research Institute, 2019, p. 1), poverty and inequality as the energy unavailability, insufficiency, inaccessibility and unreliability, especially in low-income countries. The problem of energy poverty and inequality as the inability to access or afford basic energy provisions and services, including electricity or heating cannot be eliminated within the current global energy system (The Secretary-General’s Advisory Group on Energy and Climate Change, 2010, p. 8; Sovacool, 2013, p. 1; McCauley, 2018, p. 2). Therefore, it is important to propose alternative paradigms that can tackle planetary and social issues about energy security.

The consumption patterns of energy resources contribute to the climatic alterations. The lack and insufficiency of energy resources contribute to the poverty and inequality among human beings. This contradiction and paradox cannot be eliminated within the current energy relations and policies. As an example to

¹ The term climate crisis has been preferred to use for the multiple impacts of climatic alterations. See, Sobczyk, N. (2019). How climate change got labeled a 'crisis'. *E&E News*. Retrieved August 7, 2019 from <https://www.eenews.net/stories/1060718493>

energy inequality, it has been expressed that low-income groups are generally less healthy compared to the high-income groups and lack of energy access is one of the reasons for this inequality (Wilkinson et al, 2007, pp. 965, 970). Traditional energy security policies have not paid necessary and sufficient attention to the climatic outcomes, energy poverty and inequality (Podobnik, 2002, p. 252). The planetary, social and moral problems require a paradigm shift in the current energy security policies and relations.

The foundation of the concept of traditional energy security has been based upon the exploration of fossil fuels for the interest of national security and consumer welfare (United States House of Representatives, 1961, pp. 107, 143). It has been widely accepted that energy is vital for national security, human security, economic interests and military advancements. But energy is also connected with the critical insecurities for both human beings and states (Karlsson-Vinkhuyzen and Jollands, 2013, pp. 508-512), which is a contradictory that cannot be eliminated within the scope of the current energy security policies. "Energy, like many other processes and technological systems in society, can be used for good or evil" (Sovacool, 2013, p. 1). The dual nature of energy security (Szulecki, 2020, p. 1), in this respect, seems unresolved and thus, subject to be manipulated.

The dilemma between the increasing need and demand for energy resources and well-being and well-functioning of our planet has accelerated due to the human beings' deliberate dependency on fossil fuels (Bradshaw, 2010, p. 275; Bradshaw, 2013, p. 2). In the light of all of this; "(...), we need new ways of thinking about, and approaching, the world's energy dilemmas" (Sovacool et al, 2017, p. 677). Therefore, a critical perspective about the development and functioning of human societies through the production and consumption patterns of energy resources and energy security policies is necessary and meaningful to understand the causes of climate crisis and to propose alternative paradigms, including planetary security.

1.1 Purpose of Thesis

The multiple, intertwined direct and indirect energy behaviors / choices of human beings, nation states, private and public companies and international organizations affect and shape the composition and health of Earth and nature. There

are climatic, political, economic, social, philosophical and technological aspects about the concept of energy. The diversity of aspects, areas, responsible actors, resources, forms and types regarding energy necessitates multi-dimensional and multi-disciplinary analytical framework. The increasing impacts of climate crisis also acknowledge the need for a comprehensive analysis. But the problem is that energy security policies have been conceptualized and analyzed within the narrow assumptions and arguments of realist and liberal security paradigms (e.g. Stoddard, 2013, pp. 437-438; Dudau and Nedelcu, 2016, pp. 545-546; Constantin, 2005, pp. 3-5; Rutledge, 2005).

Climate crisis as an existential threat (Proedrou, 2018, p. 1) and as a risk to human civilization (Spratt and Dunlop, 2018, p. 5) necessitates “to build a shared understanding of the relationship between energy, security and climate” (United Nations Security Council, 2007) and reminds the universal underpinnings of the concept of energy. Therefore, the purpose of this thesis is to propose the concept of planetary security as a nexus between energy security and climate crisis. The idea is that the concept of energy and its relationship with the concept of security can be properly framed within the scope of the planetary security paradigm.

The self / other and inside / outside dichotomies have been employed in the context of national security. But it can be expressed that these dichotomies are meaningless now, since the other and outside -which have been conceptualized as a threat that needs to be deterred- have already and always been inside. Thus, it has been expressed that the survival of human beings is depended upon the acknowledgment of the intertwined, universal and cosmopolitan nature of our planet. “Security comes from being more connected, not less”. But International Relations (IR) academic discipline could not provide integrated, multi-dimensional and multi-disciplinary analytical framework and a planetary calculation (Burke et al, 2016, pp. 501-502) in the context of climate crisis.

IR could not appreciate the realities of our planet. State and capital-centric structures of world politics in IR have influenced the course of the energy security policies as well. There has been a mismatch between energy security policies and planetary security due to the dominance of the core assumptions, arguments and/or developed versions of realist and liberal security paradigms in IR. In this spirit, energy security “(...) remains both essentially divided in dichotomous blocks of exporters and importers, and absorbed with traditional energy security problems” (Proedrou, 2018, p. 20).

“This is not a world of power politics, or of liberal benevolence. International relations is a real that is increasingly unreal; a world that is not of this earth” (Burke et al, 2016, p. 504). In this spirit, this study proposes the emergence of the concept of planetary security in order to develop a proper understanding and linkage between energy security and climate crisis.

The universal underpinnings of energy have been overlooked and manipulated with the impacts of realist and liberal security paradigms on energy security relations and policies. The main problem is that energy policies have not been actualized within an integrated framework due to the national security and economic expansion oriented reductionist approaches through the underpinnings of realist and liberal security paradigms in IR. Therefore, the purpose of this study is to problematize the developed linkage between energy and security in the reality of climate crisis.

Responses against the increasing impacts of climate crisis are connected with the way energy security policies are conceptualized and actualized. Therefore, developing a deeper understanding about the impacts of energy security policies is necessary in challenging the causes of climate crisis. It is observable that energy production and consumption behaviors / choices affect and shape our planet that we all are a part of. But still, global ecological impacts of energy production and consumption behaviors / choices have not been taken into consideration within the scope of traditional energy security paradigm. What is briefly meant with the ‘traditional energy security paradigm’ is the dominance of fossil fuels and prioritization of national security and economic expansion interests in energy policies.

It can be expressed that human beings’ deliberate preference for fossil fuels has been firmly established within the development and control of nation states. The prioritization of national security and economic expansion as focal points of nation states has been influential in actualizing traditional energy security paradigm with no respect and concern for global ecological impacts. It is recognizable that the needs and demands of nation states might not indicate the needs and demands of our planet in the context of energy security. Because “(...), preservation of the global commons (air, water, resources, space, polar regions) is marginal to the traditional concerns and operations of the states system” (Falk, 1993, p. 194).

A critical review towards the impacts of traditional energy security paradigm indicates the unsoundness of this entrenched, conventional and traditional approach in the reality of planetary crisis.

Therefore, this study proposes the emergence of the concept of planetary security as a component of planet politics² (e.g. Burke et al, 2016; Fishel et al, 2017) in order to resolve the dilemma between the well-being and well-functioning of our planet and increasing need and demand for energy resources through the actualization of global energy transition process towards renewable energy resources (RES). Within this framework, the concept of planetary security briefly emphasizes an alignment between the needs of our planet and energy policies. In relation to this proposition, this study seeks to increase individualistic and collectivistic awareness, political responsibility and involvement through the concept planetary security.

The main idea in this study is that positioning energy security relations and policies within the concept of planetary security paradigm is necessary to eliminate the adverse impacts of traditional energy security paradigm, to provide an integrated framework about energy security policies, to contribute to the continuing global energy transition process (oriented towards the acceleration and spread of RES) and to increase individualistic and collectivistic awareness, political responsibility and involvement, which have essential value and significance in the planetary reality.

1.2 Hypotheses and Research Question

Energy security policies have predominantly been conceptualized in terms of national security and economic expansion. Energy's role in military security and in the process of industrialization has acknowledged the authority of nation states with concern to power, control, material and economic interests in international area. Simply put: the referent object of energy security relations and policies has been nation states, particularly oil importing states (Cherp and Jewell, 2014, p. 417; Nyman, 2018, pp. 59-62; Månsson et al, 2014, p. 4).

² For the emergence of the concept of planet politics in IR discipline see, Burke, A., Fishel, S., Mitchell, A., Dalby, S., and Levine, D. J. (2016). Planet Politics: A Manifesto from the End of IR. *Millennium: Journal of International Studies*, Vol. 44, No. 3, pp. 499–523.

The outcomes and impacts of energy policies on climatic, political, economic, social, technological aspects require a comprehensive perspective about the concept of security. But traditional energy security paradigm within the dominant role, authority and control of nation states has led to unnatural and contradictory hierarchical selections, arrangements and exclusions in the above mentioned aspects. The outcomes and impacts of energy policies on climatic and social systems / aspects have been overlooked and neglected due to the prioritization of national security and economic expansion in the international area. However, the impacts of climate crisis emphasize the urgent need for a new way of thinking and for the emergence of alternative paradigms in the context of energy security. Because it has become more apparent that fossil fuel-oriented traditional energy security paradigm, which has become deeply embedded and entrenched within the political, economic and social culture, is irrational and unsustainable (Tomain, 2011, p. 90).

Realist and liberal security paradigms have affected energy security relations and policies (Karakasis, 2017, p. 7; Klare, 2004; Goldthau and Witte, 2009, p. 373). Realist security paradigm in IR has emphasized nation states as the most responsible and predominant actor (Nawaz, 2016, p. 43) for the conceptualization and actualization of energy policies (Dudau and Nedelcu, 2016, p. 544). Liberal security paradigm in IR has narrowed and underestimated the responsibility and role of individuals. Liberal security paradigm has mainly treated individuals as consumers (Gabriel and Lang, 2006, pp. 8-9; see also, Bauman, 2007, p. 26) in the context of energy market. Energy security policies and relations have been connected with these two orientations or storylines (Correljé and van der Linde, 2006, p. 533) in IR.

But after the end of the Cold War, it has become more observable that positioning energy policies within the restrictive and reductionist traditional, mainstream security paradigms is not sound anymore as new challenges arise. The increasing impacts of climate crisis have undermined the notions of state-centrism and consumerism in the context of energy security.

The contradictions, pitfalls and dilemmas of traditional security approaches have become more observable as new threats and dangers arise. Thus, it has been expressed that security “(...), now encompasses much more than the contest for political supremacy in the processes of superpower rivalry” (Dalby, 1997, pp. 3-4).

After the end of the Cold War, there have been efforts to broaden the scope of security studies in IR academic discipline. Security, as an "underdeveloped concept", needed to be re-constructed and re-formulated in order to cope with the causes and impacts of new threats and dangers, including environmental challenges (Buzan, 1983, pp. 3-4; Dalby, 1997, p. 4).

Critical security paradigms in general and environmental security paradigm in particular have had a supportive role in re-defining the theoretical and practical (or observable) aspects of energy security. Environmental impacts and considerations in the formulation of energy policies have been addressed as a necessity for the well-being of our planet. Global energy transition process -as one of the prominent responses and endeavors regarding the re-construction, re-formulation and re-definition of energy security- has been conceptualized and formulated with the impacts of environmental security paradigm. But the relationship between energy security and environmental security could not be effectively conceptualized to challenge the causes and impacts of climate crisis through the elimination of traditional energy security paradigm and actualization of global energy transition process. It can be expressed that traditional, mainstream security paradigms in IR cannot be valid and sound for the conceptualization of energy security policies. But contemporary security paradigms are not sufficient for the integration and re-definition of energy security policies as well. For this dissonance, energy has been evaluated as outlier concept and framing it in IR and global governance has been evaluated as a challenge (Dannreuther, 2015, pp. 466-467; Baumann, 2008, p. 4; Dubash and Florini, 2011, p. 6).

“Energy security fits uneasily into contemporary International Relations debates. Although it is primarily seen as a non-military, transnational issue, it does not fit neatly into the post-Cold War agenda of non-traditional security threats, such as climate change or infectious disease” (Dannreuther, 2015, p. 466). Therefore, the main research question within the scope of this study is stated as follows: What is the position of energy security in the interacting and/or competing IR paradigms? Addressing the differences between mainstream and contemporary paradigms in the structure of IR may be treated as suspicious in improving planetary and human welfare. But according to James Fearon and Alexander Wendt, being aware of the differences, tensions and struggles among the analytical paradigms in IR

can be effective to “encourage scholars to be method-driven rather than problem-driven in their research”, and to focus on the ignored / neglected questions or answers within the structure of the dominant / preferred mainstream paradigms (Fearon and Wendt, 2002, p. 52). Therefore, the idea is that choosing and emphasizing planetary security as an alternative critical paradigm can be effective in order to eliminate the adverse impacts, weaknesses and narrow perspectives of traditional energy security policies and to provide a planetary account of energy security in the context of climate crisis.

A critical interpretive review towards the explanations about energy security indicates state-centric perspectives in formulating and actualizing energy policies with no concern for global ecological impacts which is problematic, unsustainable and intolerable. It can be argued that both the theoretical and practical (or observable) aspects of energy security have failed to provide universal and cosmopolitan paradigm within IR which has resulted in dissonance, asymmetry and mismatch between politics and planet. Thus, the problem is that traditional energy security paradigm has resulted in planetary insecurity. The increasing impacts of climate crisis have marked the relationship between traditional energy security policies -which lack of universal and cosmopolitan considerations- and planetary insecurity. Therefore, it has become vital to address and resolve the tension between traditional energy security paradigm and planetary insecurity in the context of climate crisis.

Securitization and utilization of energy in terms of national security and economic expansion have been preferred in order to justify state-centric approaches and material interests. But climate crisis necessarily weakens the dominance of state and capital-centric approaches in energy security relations and policies. Restrictive security approaches through the control of nation states have resulted in lack of universal and cosmopolitan considerations in the context of energy security. The emergence of environmental security paradigm, in this respect, has been effective to emphasize the need to re-define and re-construct the analytical and normative paradigm of energy security in the context of climate crisis.

But environmental security paradigm could not provide a well-defined and sufficient structure in order to resolve the dilemma between energy needs, demands and well-being of our planet. A dilemma, regarding the energy needs, demands and well-being

of our planet, and/or trilemma, regarding energy security, economic development and well-being of the environment or energy security, social improvement and environmental protection (Gunningham, 2010, pp. 1-3) have been emphasized with the notions of global energy transition process and sustainability in the context of environmental security. It has been expressed that energy has a vital role for the sustainability of economy and society (Horúcková and Baudassé, 2019). Thus, it can be argued that energy security considerations and policies have continued to remain in between dilemmas and/or trilemmas with concern to the instrumental perspectives, including economic growth.

The theoretical (environmental security paradigm) and practical (global energy transition process) aspects of sustainable development have been emphasized to undermine traditional energy security paradigm in the context of climate crisis. Thus, sustainability, competitiveness and security of supply have been evaluated as the core aspects for energy security policies (Baumann, 2008, p. 4). But the argument is that environmental security cannot be regarded as the ultimate and integrative paradigm to eliminate traditional energy security paradigm and to actualize global energy transition process oriented towards RES. Rather, environmental security paradigm can be read as a turning point from traditional and contemporary security paradigms to the planetary security paradigm in the context of energy security. The idea is that construction of universal and cosmopolitan energy security framework within the role and responsibility of IR is possible through the emergence of planetary security paradigm as a key component of planet politics. A planetary account of energy security can be effective to actualize global energy transition process towards RES.

Global energy transition process has been one of the key strategies to address and resolve the dilemma between traditional energy security paradigm and planetary insecurity. Global energy transition process implies fair, equal and sustainable movement oriented towards a post-carbon society³ with the prioritization of RES and decarbonization policies (McCauley and Heffron, 2018, pp. 1-2).

³ The term just transition has been addressed in order to actualize global energy transition process through the unification of climate, energy and environmental justice scholarships. It has been argued that the togetherness of climate, energy and environmental justice scholarships -within the scope of just transition movement- can promote equity, sustainability, post-carbon economy and thus, can reshape our global ecosystem. The methodology of just transition can be effective in order to actualize carbon reduction policies and strategies through an interdisciplinary approach regarding climate, energy and environmental justice scholarships on a global analysis. See, McCauley, D., and Heffron, R. (2018). Just Transition: Integrating Climate, Energy and Environmental Justice. *Energy Policy*, Elsevier, Vol. 119, Issue C, pp. 1-7.

Global energy transition process has been positioned as an urgent need and purpose with the impacts of environmental security paradigm in international area. The focal point of global energy transition process and environmental security has been the concept of sustainable development. “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (The World Commission on Environment and Development, 1987, p. 43).⁴

The theoretical (environmental security paradigm) and practical (global energy transition process) aspects of sustainable development could not provide integrated, universal and cosmopolitan energy security framework. Moreover, the adverse impacts of realist and liberal security paradigm on energy policies could not be eliminated within the scope of environmental security paradigm. Thus, the argument is that environmental security paradigm cannot be read as the ultimate strategy in order to provide a planetary and “worldly approach”, in Audra Mitchell's words (Mitchell, 2014, p. 6) for the energy security relations and policies.⁵ Planetary security paradigm, on the other hand, is capable of providing a worldly approach for energy security. Planetary security can be effective for the emergence and consolidation of integrated, universal and cosmopolitan energy security paradigm. Thus, it can eliminate traditional energy security paradigm. It can also clarify and replace the divergent and diverse combinations in between traditional and contemporary approaches. Planetary security paradigm needs to be taken into consideration to provide integrated, universal and cosmopolitan framework for the relationship between energy security and climate crisis.

⁴ Meeting the needs of the present and future generations necessities to prioritize “the needs of the world’s poor”. An equilibrium between present and future generations implies a progressive transformation in the socio-economic production and consumption patterns. Thus, sustainable development -as an interdisciplinary objective- prioritizes the notions of social equity and justice through a progressive change in economics and society. See, The World Commission on Environment and Development (1987). *Our Common Future*. United Nations General Assembly, Oxford: Oxford University Press.

⁵ Existing security approaches and theories -both mainstream and critics- cannot provide a worldly, planetary and cosmopolitan account of security. Because they still focus on human beings as the prior subject and “the only conceivable locus of harm”. See, Mitchell, A. (2014). Only Human? A Worldly Approach to Security. *Security Dialogue*, Vol. 45, Issue. 1, pp. 5-21.; See also, Burke, A. (2015). Security Cosmopolitanism: The Next Phase. *Critical Studies on Security*, Vol. 3, Issue. 2, pp. 190–212.

It should be noted that the promising and hopeful reflections of global energy transition process have been carried out through international institutions, meetings, conferences, negotiations and conventions with the impacts of environmental security paradigm. But still, it has been stated that elimination of fossil fuel dependency and preference is yet to be achieved (Watson et al, 2019).⁶

To achieve the Paris Agreement's most ambitious goal of keeping global warming below 1.5°C (2.7°F) above pre-industrial levels requires reducing global greenhouse gas (GHG) emissions by 50 percent by 2030. An analysis of current commitments to reduce emissions between 2020 and 2030 shows that almost 75 percent of the climate pledges are partially or totally insufficient to contribute to reducing GHG emissions by 50 percent by 2030, and some of these pledges are unlikely to be achieved (Ibid, 2019, p. i).⁷

Therefore, what is suggested in this study is that elimination of fossil fuel dependency and preference, the acceleration and spread of RES -which is a key component for the continuing global energy transition process- can be grasped with planetary security paradigm. The cruciality of the elimination of political, economic, social and cultural dependency on fossil fuels has naturally and scientifically been justified. But political justification and consolidation oriented towards the elimination of fossil fuels remain to be a problem in the context of energy security. Conceptualizing global energy transition process within the scope of planetary security paradigm, in this respect, can be meaningful in order to eliminate traditional energy security paradigm and to challenge the impacts of climate crisis.

Traditional energy security paradigm has corrupted and manipulated the universal and collectivistic nature of energy for national security, economic expansion and material interests. Climate crisis as globally natural, social and ontological threat weakens the predominance of realist and liberal security paradigms on energy policies and

⁶ See, Watson, R., McCarthy, J. J., Canziani, P., Nakicenovic, N., and Hisas, L. (2019). *The Truth behind the Climate Pledges*. New York: Universal Ecological Fund (FEU-US), pp. 1-25. Retrieved January 1, 2020 from <https://drive.google.com/file/d/1nFx8UKTyjEteYO87-x06mVEkTs6RSPBi/view> and see also, United Nations Environment Programme (2019). *Emissions Gap Report 2019*. UNEP, Nairobi, pp. 3-7. Retrieved December 12, 2019 from <https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf?sequence=1&isAllowed=y>

⁷ For the objectives and decisions of the Paris Agreement (as cited in the Universal Ecological Fund, 2019) see, UNFCCC (2015). *The Paris Agreement. Conference of the Parties Twenty-first Session*. UN, Paris, 30 November to 13 December 2015. Retrieved December 01, 2019 from <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>

strengthens the need for universal and cosmopolitan paradigm shift within which individualistic responsibility, involvement and critical awareness play an important role.

Climate crisis necessitates the need to re-conceptualize energy security relations and policies. The supportive research question within the scope of this study is that may the failure of international society be eliminated through universal and cosmopolitan underpinnings of the concept of planetary security within which energy security relations and policies are positioned? The idea is that planetary security paradigm can be effective in providing integrated, universal and cosmopolitan policy framework regarding renewable and sustainable energy security. What is proposed in this study is that global energy transition process needs to be evaluated as an opportunity rather than as a problem or challenge for states and positioning energy security relations and policies within the scope of planetary security is necessary in order to actualize this perception.

1.3 Methodology and Outline

Human beings' preference for fossil fuels has produced harmful and apocalyptic outcomes. A comparative analysis between pre-industrial and industrial times indicates an unnatural alteration (or departure) from renewable energy resources to non-renewable energy resources. A brief understanding in natural, political, economic and social underpinnings of pre-industrial and industrial times is meaningful in order to conduct a critical and comparative analysis towards the causes and impacts of climate crisis.

Human beings' deliberate dependency on fossil fuels has been entrenched within the scope of traditional energy security paradigm through state and capital-centric energy policies. The development and authority of nation states have strengthened traditional energy security paradigm within the prioritization of military and economic interests. Therefore, a critical and comparative analysis between pre-industrial and industrial times is meaningful in order to appreciate the relationship between traditional energy security paradigm and planetary insecurity.

Thereafter, a paradigm change in energy security relations and policies through the concept of planetary security will be emphasized in order to challenge climate crisis. The role of solar energy, in this respect, is important in order to address the connection between theoretical (alternative critical approaches regarding planet politics and planetary security) and practical (the multilayered benefits of renewable energy resources) political mitigation and adaptation mechanisms. Thus, a brief statement about the role of solar energy can be effective in order to emphasize the harmonic relationship between planetary security and solar energy and to undermine traditional energy security paradigm.

Traditional energy security paradigm is not adequate to address the potentiality and actuality of solar energy in struggling with the impacts of climate crisis. Traditional energy security paradigm is depended upon the notions of national security and economic expansion through the production, distribution and consumption of fossil fuels. Thus, planetary security paradigm as the ultimate and all-inclusive strategy is ideal and necessary methodological choice in order to address the role of solar energy in the context of climate and energy. Conceptualization of planetary security paradigm is valid and sound in order to appreciate the needs and demands of our planet and to eliminate traditional energy security paradigm through the prioritization of RES.

The all-inclusive, universal and cosmopolitan characteristic of solar energy is capable of reducing pollution, poverty and competition. Solar energy is appropriate and compatible with the requirements of global ecosystem and overall strategy of sustainable development. Solar energy can be helpful in order to improve political, economic and administrative independency of states and to ensure the sustainability of supply security. Moreover: solar energy can contribute to the technological incentives, innovation and modernization of energy sector (Yim, 1978, p. 13; Lawand and d'Ombraïn, 1978, p. 40; Schäfer, 2008, p. 89). Therefore, it is important to be aware of the potential benefits of solar energy for the relationship between energy security and climate crisis.

The Turkish Republic of Northern Cyprus (TRNC) has a huge solar energy potential and yet, its energy policies are depended upon non-renewable energy resources (İşçioğlu and İlkan, 2016, p. 50). Therefore, concentrating on the political, economic, social and technical improvement of solar energy power is proposed for the

acceleration and actualization of renewable and sustainable energy security paradigm in TRNC. This kind of a proposal can facilitate our understanding towards planetary security, while encouraging further studies oriented at RES in TRNC.

The present study consists of five chapters as follow: Introduction, theoretical framework of energy and security, the concept of energy security, the emergence of planet politics and planetary security, conclusions and recommendations. In the theoretical framework of energy and security chapter, a brief history of energy will be given to make a comparison between pre-industrial and industrial times. Historical and comparative analysis towards human beings' relationship with energy resources will be conducted to address the emergence of traditional energy security paradigm. Afterwards, realist and liberal security paradigms in IR will be analyzed to focus on the problematic linkage between energy and security from descriptive, comparative and critical perspectives.

In the third chapter, traditional energy security paradigm will be examined and analyzed. A critical review towards the definitions and explanations about traditional energy security paradigm will be conducted within the scope of the methodological distinction of Peter Munz (1977) between explanation and interpretation. Munz's methodological distinction between explanation and interpretation will be adopted in order to critically interpret the definitions and explanations regarding nation states and economic interests-centric approaches and policies in the context of energy security.⁸

The concept of energy security will be examined from a critical interpretive point of view. A critical review towards the definitions and explanations about traditional energy security paradigm indicates state and capital-centric approaches and policies. Therefore, Munz's methodological distinction between explanation and interpretation will be used in order to criticize and challenge the traditional (or conventional) energy security paradigm. A critical interpretation towards the dimensions about traditional energy security paradigm can contribute to the construction and emergence of planetary security paradigm.

⁸ For the distinction between explanation and interpretation methodology, as followed in this Thesis, see, Munz, P. (1977). *The Shapes of Time: A New Look at the Philosophy of History*. Middletown, Conn.: Wesleyan University Press, pp. 62-113.

Explanation indicates the operation of a general law. In this context, there are narrow sense and interpretation-oriented explanations with no absolute and rigid distinction. A general law can be an explanation or an interpretation depending on the time and position of the observer. It is emphasized that choosing a critical interpretive methodology is rightful when we are not satisfied with explanations within the scope of social sciences. The shift from strict explanation to interpretation can be quite enriching (Munz, 1977, pp. 70-75). Munz has argued that a critical interpretive methodology is capable of providing an opportunity in order to criticize and challenge the explanation. An explanation based on a general, traditional or conventional law, framework or paradigm, which is now evaluated and observed to be false, inefficient and unsound would provide justificatory and necessary reasons in defending a critical interpretive methodology (Ibid, 1977, pp.79-83), which can contribute to the revolutionary construction and emergence of new paradigms (Kuhn, 1996) in IR.⁹

Modern human beings think that they are “in possession of a body of general laws” and explanations which can help and guide them to understand not only themselves but also the social and natural world that they interact. But the distinction between objectivity and subjectivity might not be that rigid and absolute. Munz has argued that what is required at the end of an inquiry is critical interpretive methodology. A critical interpretation is capable of revealing the hidden problematic and unsound elements within an explanation. Moreover: a critical interpretation can increase skeptic self-awareness about human beings’ conscience, ideas, customs and practices as well. A critical interpretation as both individualistic and social methodology is capable of providing more truer, effective and sound notions and principles, which is valuable especially in times of crisis. Therefore, we need a critical interpretive methodology in order to form more truer, effective and sound understanding (Munz, 1977, pp. 80, 96- 99) towards the impacts of energy production / consumption patterns and traditional (or conventional) energy security paradigm in order to challenge the impacts of climate crisis. A critical interpretive methodology can be conceptualized as the first step in order to propose alternative critical paradigms including planetary security.

Philosophically speaking, I am convinced that ‘surface’ and ‘core’, ‘appearance’ and ‘reality’, ‘interpretation’ and ‘truth’ are relative terms and that when some people peel away what they think is a surface to reach the core, other people may try to peel away that core to reach the

⁹ For the construction and emergence of new paradigms, see: Kuhn, T. (1962). *The Structure of Scientific Revolutions*. The University of Chicago Press, 1996, pp. 66-76.

surface. The one hides the other. But there is no absolute way of telling which is truth and which is mask (Munz, 1977, p. 93).

Therefore, the argument is that a critical interpretation is necessary in order to detect and undermine the unnatural and problematic aspects about traditional energy security paradigm in struggling with the causes and impacts of climate crisis. Critical interpretive perspective may be effective in questioning the illusionary reality above us regarding nation states' behaviors and decisions on energy security policies. Munz (1977) has stated that "we must therefore accept the possibility that some interpretations, though subjective, are really more objective than objective explanations. If we did not accept this possibility, we would make nonsense of the notion of delusion" (p. 102).

Following the explanations and critical interpretations about the concept of traditional energy security paradigm, the role of environmental security paradigm on energy security relations and policies will be shared. The impacts of environmental security paradigm in addressing a paradigm shift from traditional and contemporary security approaches to planetary security approach will be analyzed in the context of energy security. It has been expressed that IR academic discipline needs to re-construct and re-organize its very core foundations in the planetary reality (Burke et al, 2016, p. 520; Harrington, 2016, p. 2). Thus, the problematic linkage between energy and security will be analyzed within realist, liberal and environmental security paradigms in order to assert the concept of planetary security as ideal methodological paradigm in the end.

The impacts of crises can be evaluated as both "destructive" (regarding the elimination of traditional energy security paradigm) and "constructive" (regarding the emergence of planetary security paradigm) in relation to paradigm shifts marked by destruction and construction (Kuhn, 1996, p. 66) in the context of energy security. Climate crisis provides justificatory and necessary reasons in addressing a critical interpretive methodology towards the explanations about traditional energy security paradigm. A critical interpretive methodology will be effective in order to contribute to the revolutionary construction and emergence of new paradigms in energy security relations and policies. Munz (1977) has argued that "it is obvious that we can replace an explanation by an interpretation" (p. 100). Therefore, a critical interpretive methodology is important and meaningful in order to challenge traditional energy security paradigm and to replace it with

alternative approaches, including planetary security paradigm in the context of energy security and climate crisis.

It can be expressed that the connection between energy security and climate crisis can be addressed within the scope of Peter Munz's methodological distinction between explanation and interpretation and Thomas Kuhn's paradigm shift thesis concerning crises.¹⁰ Planetary security paradigm, compare to the traditional and contemporary paradigms and approaches, can be methodologically constructed for the relationship between energy security and climate crisis. The idea in this study is that the urgent need for a paradigm change and definition in energy security relations and policies needs to be addressed through the concept of planetary security which can provide integrated, sustainable, renewable and universal energy security framework.

The emergence of environmental security paradigm and global energy transition process (which is oriented towards the acceleration and spread of renewable energy resources and elimination of non-renewable energy resources) can be evaluated as primary alternative and contemporary responses in order to challenge traditional energy security paradigm in the context of climate crisis. But it has been expressed that "the local, national, and global no longer define our only spaces of action" (Burke et al, 2016, p. 500). Therefore, the argument is that the weaknesses in conceptualizing and formulating policies within the local, national, regional, international and global levels of analyzes (Ibid, 2016, p. 500) should be eliminated in the reality of climate crisis. It is imposed upon human beings that focusing on the causes and impacts of climate crisis through a planetary perspective is crucial. Thus, it has been implied that planet politics, planetary security and Earth system encompass and transcend the previous studies including environment or ecosystem (Hamilton, 2017, p. 8).

In the emergence of planet politics and planetary security chapter, planet politics and planetary security in the Anthropocene will be analyzed. The potential, conceptual and normative benefits of planetary security paradigm will be shared in the context of

¹⁰ Munz, P. (1977). *The Shapes of Time: A New Look at the Philosophy of History*. Middletown, Conn.: Wesleyan University Press, pp. 62-113.; Kuhn, T. (1962). *The Structure of Scientific Revolutions*. The University of Chicago Press, 1996, pp. 66-77.

energy security and climate crisis. Then, the role of solar energy will be briefly addressed in order to facilitate our understanding towards the underpinnings of planetary security. Because increasing political and social awareness about the role of solar energy for a renewable and sustainable energy security paradigm / regime is important in the context of planetary security.

TRNC's energy security difficulty will be briefly expressed from a critical point of view. To conclude this chapter: TRNC's potential for solar energy will be emphasized to contribute to the paradigm shift towards the emergence and acceleration of sustainable and renewable energy security regime through the concept of planetary security. In the final chapter, a conclusion will be drawn upon the potentiality of planetary security paradigm in developing a post-humanist understanding for the relationship between energy security and climate crisis.

In the light of all of these, the theoretical conclusion in this study is that the concept of planetary security paradigm can be read as a methodological choice in order to develop integrated, universal and unified political response and consolidation towards climate crisis in the context of energy security. The supportive proposition in this study is that actuality and potentiality of solar energy can be taken into consideration in order to develop a deeper understanding towards the concept of planetary security and the adverse impacts of political, economic and social dependency on fossil fuels.

2. THEORETICAL FRAMEWORK OF ENERGY AND SECURITY

It is important to problematize the developed linkage between energy and security in the reality of climate crisis. The idea is that a brief history of energy through a comparative analysis of pre-industrial and industrial times is meaningful in order to address the problematic linkage between energy and security and to propose the emergence of planetary security paradigm. Human beings' historical relationship with energy resources has been gradually embodied and entrenched within the increasing role, responsibility and control of nation states (Simpson, 2007, p. 539; Simpson, 2013, p. 248).

The main concerns of nation states have been military security and economic expansion in connection with energy security. Environmental challenges have undermined the validity and soundness of traditional energy security paradigm within which realist and liberal security paradigms have had a key role through state-centrism and consumerism. But before addressing the supportive and critical role of realist, liberal and environmental security paradigms on energy security policies, it is important to be aware of the brief history of energy through a comparative analysis of pre-industrial and industrial times.

The focal point of this study is to emphasize planetary security as the ultimate and all-inclusive strategy in order to eliminate the causes and impacts of traditional energy security paradigm, to actualize global energy transition process and to increase individualistic and collectivistic awareness, political responsibility and involvement in the context of climate crisis. In doing so, a brief history of energy is valuable in order to appreciate the relationship between human beings, energy and nature.

In the pre-industrial times, primary energy resources that human beings were depended upon have been the sun, water, wind, annual cycle of plant photosynthesis, biomass, muscle of human beings and animals. These non-traded and renewable sources of energy have been gradually replaced by fossil fuels. The discovery and control of fire have been evaluated as one of the critical defining moments in changing the course of

the human history in terms of the emergence and acceleration of fossil fuels (Wrigley, 2010, pp. 92-94; Allen, 2013, p. 11; Keay, 2007, pp. 3-8). Human beings have learned to use and control fire for warming, lighting, hunting, cooking, tool making, engineering, protection and security (Smil, 2017, pp. 26-27; Brown et al, 2009, p. 859). The use and control of fire have underpinned the roots of agricultural and industrial activities (Goudsblom, 1987, p. 457).

The growth of population, increasing needs and demands have triggered the endeavors to diversify energy resources. As population and economic demands increase, human beings' use of resources moves away from the state of equilibrium as exemplified by the increasing pollution and extinction of species (Holling, 1973, p. 2). The increasing need and demand for surplus production, labor, power and time have triggered the ways and means to extract more energy. But human beings have chosen the easiest way instead of trying to combine the powerful energy of the sun "with other readily available energy sources like wind, moving water and and heat from within the Earth (geothermal heat)" (McLamb, 2007). Human beings' choice for the easiest way has marked a transition or shift towards the acceleration of fossil fuels.

It is important to note that the energy transition towards fossil fuels has been actualized in relation to the human beings' choices and preferences. The current, on-going transition process towards the acceleration of RES, on the other hand, is imposed upon human beings (Rojey, 2009, p. 35) in the context of climate crisis. Thus, a brief history of energy through a comparative analysis of pre-industrial and industrial times is important in order to indicate the causes, impacts and boundaries of human beings' choices and decisions in the context of planetary security.

The conversion of unprecedented amounts of non-renewable energy recourses has underpinned the process of industrialization. There has been a connection between industrialization process and the use of coal. Therefore, industrialization process has been conceptualized in terms of fossil fuel-based industrialization and human civilization (Wrigley, 2013, p. 7; Smil, 2017, p. 295; Bradford, 2006, p. 4). It should be noted that a mechanic, capitalistic and commercial form of urbanization process has been carried out with the impacts of fossil fuels (Smil, 2008, pp. 241-242).

Agricultural activities, as connected with the discovery, control and domestication of fire, have had a triggering role for the mechanical and technical advancements (Goudsblom, 1987, p. 457), which have gradually led to the industrialization process. It can be expressed that non-renewable energy resources have supported the complementary relationship between urbanization and industrialization.

The extraction and transformation of fossil fuels have resulted in the agricultural surplus, urbanization, economic and population growth. Urbanization has accelerated industrial and technical inventiveness. The intertwined connection between urbanization and industrialization has been activated and intensified through the production and consumption of fossil fuels. But what has been neglected is that the use of unprecedented amounts of non-renewable energy resources has produced adverse and worrisome outcomes for the entire planet. Human being's illusory control and knowledge on fossil fuels have produced destructive outcomes, which is also, in many ways, a sample of self-destructive behavior of human beings (Smil, 2017, pp. 295-296).

"The self-destructive dangers in international relations, lastly, results from the growth of forces of production that can be used destructively" (Habermas, 1988, p. 41). In response to such dangers, the brief history of energy alterations can be helpful in order to critically examine the relationship between mainstream security paradigms in IR and fossil fuel-based energy production and consumption policies. A critical perspective about the impacts of mainstream security paradigms on the formulation of traditional energy security is encouraged to propose alternative critical approaches and paradigms in the context of climate crisis.

2.1 The Relationship Between Human Beings and Energy: A Comparative Analysis of Pre-industrial and Industrial Times

Throughout the history, human beings have inquired the commencement, history, evolution and future of the universe. The continuing cosmopolitan inquiry is related to the human beings' existence, involvement, role and identity within the universe and nature. It can be expressed that human beings have tried to understand and appreciate the underpinnings of the universe and nature in order to become meaningful. In this regard, climate crisis has been conceptualized as an existential crises (Blok, 2019, pp. 65-66; Irwin, 2010, p. 16; Proedrou, 2018, p. 1; Koranyi, 2016, p. iii).

In the pre-industrial times, human beings have begun to wonder about the causes and impacts of obvious daily challenges, “(...), then advanced little by little and stated difficulties about the greater matters, e.g. about the phenomena of the moon and those of the sun and of the stars, and about the genesis of the universe” (Aristotle and McKeon, 2001, Book A. (I), Chapter 2, para. 3). Energy, in this respect, has been one of the core referent concepts in emphasizing the connection between universe, nature and human beings and in examining the commencement and functioning of the universe, human societies and civilization.

Energy is the only universal currency: It must be transformed to get anything done. Manifestations of these transformations in the physical universe range from rotating galaxies to the erosive forces of tiny raindrops. Life on Earth, the only known life in the universe, would be impossible without the photosynthetic conversion of solar energy into plant biomass. Humans depend on this transformation for their survival and on many more energy flows for their civilized existence (Smil, 1994, p. 1).¹¹

Defining the concept of energy is a challenging task due to its diverse, comprehensive, interdisciplinary and dynamic characteristic. In *An Enquiry Concerning Human Understanding*, the ambiguity of energy has been expressed by David Hume (1999) as follows: “There are no ideas, which occur in metaphysics, more obscure and uncertain, than those of power, force, energy, or necessary connexion, of which it is every moment necessary for us to treat in all our disquisition” (p. 135). Aristotle has argued that the most universal things are the hardest ones to know and understand (Aristotle and McKeon, 2001, Book A. (I), Chapter 2, para. 2).

Therefore, a clear and satisfactory definition about the concept of energy is a challenge due to its universal and obscure characteristics. But still, it is important to try to reduce “the ambiguities and inconsistencies” of the definitions, explanations and usages about the concept of energy. According to Hempel, a critical interpretation or re-interpretation can “enhance the clarity and precision” of definitions, explanations and meanings (Hempel, 1964, p. 12).

The word of ‘energy’ has evolved from the word of ‘energeia’, which is developed by Aristotle in his *Metaphysics*. The word of ‘energeia’ is associated with

¹¹ See also, Smil, V. (2017). *Energy and Civilization: A History*. London, England: The MIT Press.

actuality, movement, change and work. Aristotle has connected the word of ‘energeia’ with the word of ‘entelechia’ which implies “complete reality”. Eventually, the underpinnings of the word of ‘energeia’ have been formulated in terms of power, force and work. Thus, the modern or industrial meaning of energy has been derived from the word of ‘energeia’ (Smil, 2006, p. 1; Cleveland and Morris, 2014, pp. 435, 455).¹² It can be expressed that the word of ‘energeia’ has multiple meanings and associations. ‘Energeia’ has been adopted in relation to the notions of actuality, actualization, pure activity, movement, of being perfect and in the definition of the good (Chen, 1956, pp. 56-63). The diverse characteristic of energeia has been decisive for the theoretical development of energy within the scope of both natural and social sciences. “The word ‘energy’ stems from the Ancient Greek: ἐνέργεια that translates to ‘activity’ or ‘operation.’ As opposed to today’s narrower usage of the term, ἐνέργεια was more of a philosophical concept that included ideas such as happiness and pleasure” (Koranyi, 2016, p. 37).

Semantic, conceptual and social transformation of the word of ‘energeia’ on the basis of materialized, mechanized and rationalized power, force and work does not match with the Aristotelian constitution and use of the word of ‘energeia.’ The argument is that re-definition and re-conceptualization of the word of ‘energeia’ and its practical re-invention in the society have been carried out with the impacts of industrialization process. Energeia implies “the accomplishment of action” and the leap towards actuality, the end and entelechia, which implies complete reality within the scope of Aristotelian constitution and use. But there has been a departure from this vision with the emergence and acceleration of industrialization. The word of ‘energeia’ has been used in reference to the materialized, mechanized and rationalized power, force and work. Energeia has been used in reference to its pre-condition regarding the concept of ‘potentiality’ in addressing the transformation of raw materials and technics in industries. Following that, it has even been argued that human beings have been deprived from their energeia and individual identity through industrialization, the acceleration of machines and proletarianization process, which

¹² For Aristotle’s *Metaphysics* (as cited in Smil, 2006) see, Aristotle. (1941). *Metaphysica* (Metaphysics) In R. McKeon (Ed.), C. D. C. Reeve (Int.), W. D. Ross (Trans.), *The Basic Works of Aristotle*, New York: The Modern Library, 2001, EPUB file.

has been one of the differences between pre-industrial and industrial times. It can be expressed that the bipolarity of actuality and potentiality within the scope of *energeia* has been annulled and manipulated due to the industrial developments (Stiegler, 2017, pp. 180-182, 191-198).

Philosophical perspective about energy, on the other hand, has been connected with the increasing wonder towards the functioning of the universe and nature. Human beings have gradually developed a deeper and further wonder towards the universe and nature that has triggered the acceleration of philosophical and scientific activities. Human beings have chosen to philosophize while struggling with the impacts of obvious daily challenges and greater matters which they are a part of as well (Aristotle and McKeon, 2001, Book A. (I), Chapter 2, para. 3). Human beings' existence in the particular (primary being) and universal (unity) has been conceptualized as 'metaphysics', which is explanatory knowledge and the science of beings. Aristotle has formulated metaphysics as an investigation of being (Politis, 2004, pp. 10, 12, 23; Aristotle and McKeon, 2001). Thus, it can be argued that the inquiries about energy are connected with the inquiries about being and existence.

The basic question of 'What is being?' is connected with the inquiries about the first principles and causes (Irwin, 1988, p. 3; Aristotle and McKeon, 2001, Book A. (I), Chapter 2, para. 2; Book A. (I), Chapter 3, para. 1-2). Aristotle has explained that some philosophers have prioritized one element or more as "the only principles of all things" in the nature. Aristotle has shared that while Thales has chosen "water" as the first principle, some philosophers (Anaximenes and Diogenes) have chosen "air" prior to water. Heraclitus of Ephesus, on the other hand, has chosen "fire" and Empedocles has emphasized the interactions between the four elements (by including the "earth" as the fourth element to those which have been mentioned) in order to give an account for the first, original, principles and causes in the constitution and functioning of nature (Aristotle and McKeon, 2001, Book A. (I), Chapter 3, para. 2-5). The inductive methodology to the first principles has been connected with the appreciation of accessible particulars, which has eventually resulted in the analyzation of the universal essences, definitions and laws (Reeve and McKeon, 2001, Introduction: Theoretical Science, para. 5).

These inquiries have provided commitments to both metaphysical and methodological considerations. As metaphysical, these inquiries can be connected with the question of “What sorts of entities the universe did and did not contain” and the concept of motion has been emphasized in relation to the shape of the matter. As methodological, these inquiries can be connected with the question of “What ultimate laws and fundamental explanations must be like” and laws about motion, interaction and explanations about the actions of natural phenomena within the scope of these laws have been emphasized (Kuhn, 1996, p. 41). It can be expressed that the concept of energy has been subject to both metaphysical and methodological considerations in the pre-industrial times.

Human beings have developed ideas about the original or fundamental principles and causes related to the nature in four senses. But Aristotle has not prioritized the material entities and elements. Rather, he has emphasized the diversity, change and movement with concern to the meaning and purpose in the functioning of nature (van der Schyff, 2010, p. 101). Thus, it can be expressed that the theoretical underpinnings and associations of energy have had a vital role in addressing the interactions and changes -for a purpose- in relation to the functioning of nature.

Philosophical and scientific activities towards the universe and nature have been positioned as an avenue of escape from ignorance and bondage. Discoveries, investigations and constructions towards the universe, global environment, nature, reality, knowledge and self-identity have been actualized with the pursuit of the nature of science. The pursuit of nature of science, in this respect, has been the pursuit of individualistic freedom and awareness for human beings. Eventually, human beings have developed theories about the original causes and principles of the nature in four senses (Aristotle and McKeon, 2001, Book A. (I), Chapter 2, para. 3-6, Chapter 3, para. 1). Aristotle has summarized the basic patterns about these theories as follow: The first one is the substance or the essence, the second one is the matter or substratum, the third one is the source of the change -which has been one of the milestones in leading to the conceptualization of energy- and the fourth one is “the cause opposed to this, the purpose and the good (for this is the end of all generation and change)” (Ibid, 2001, Book A. (I), Chapter 3, para. 1). Energy, in this respect, has been positioned as one of the key concepts in relation to these four ideas and senses. It can be expressed that philosophical and scientific efforts in analyzing the relationship between human being and nature and in explaining the origin of the nature have been connective with the theoretical conceptualization of energy.

Metaphysic has been formulated as “the science of the ultimate explanations of all things” (Politis, 2004, p. 39) and has been connected with the question of ‘What is being?’. The ontological question of ‘What is being?’ also implies the question of ‘What is existence?’ (Barnes, 1995, p. 78). Aristotle has argued that the question of ‘What is being?’ implies the question of ‘What is substance?’ (Aristotle and McKeon, 2001, Book Z (VII), Chapter 1, para. 3). In investigating all of these questions, the terms of ‘being’ and ‘non-being’ have also been employed in reference to the categories of actuality and potentiality (Ibid, 2001, Book Θ. (IX), Chapter 10, para. 1). Aristotle has emphasized the connection between “actuality” -which is identical with the movement- and “complete reality” in his *Metaphysics* (see, Ibid, 2001, Book Θ. (IX), Chapter 3, para. 4; Ibid, 2001, Book Δ. (V), Chapter 4, para. 2, Book Δ. (V), Chapter 7, (4)). Actuality has been characterized as “prior both in formula and in substantiality” to potentiality (Ibid, 2001, Book Θ. (IX), Chapter 8, para. 1).

Nature as the source of the movement and change is in either potentiality or in complete reality. It can be expressed that Aristotle has evaluated both potentiality and actuality as the source of the movement and change in the nature (Aristotle and McKeon, 2001, Book Δ. (V), Chapter 4, para. 2). He has argued that each primary being is a unity and “(...) the potential and the actual are somehow one” (Ibid, 2001, Book H. (VIII), Chapter 6, para. 3). He has also argued that potentiality has capability to become actual (Ibid, 2001, Book Θ. (IX), Chapter 8, (1)). But “(...), it is not necessary for everything potential to be actual” (Ibid, 2001, Book B. (III), Chapter 6, (13)).

Movement from potentiality to actuality is crucial for the *energeia*, which is connected with change. Thus, it can be expressed that the concept of *energeia* has two aspects: potentiality and actuality. Potentiality is the starting, originative reference for change. It implies an incomplete process. Actuality, which is the realization of potentiality, on the other hand, implies a reference to the end (see, Aristotle and McKeon, 2001, Book Θ. (IX), Chapter 1, para. 2, Chapter 2, para. 1; Ibid, 2001, Book K. (XI), Chapter 9, para. 1-2; Ibid, 2001, Book Θ. (IX), Chapter 8, (3)). Energy as dynamic and multilayered concept has an indispensable importance for the universe, nature, all living and non-living organisms. The investigations about the origins of the nature, movement and change have been decisive in shaping the philosophical and historical roots of the concept of energy. Thus, energy has had a core role in examining the relationship between universe, nature and human beings and in explaining the development of human societies and civilization.

In the pre-industrial times, human beings have adopted universal and cosmopolitan perspective towards the functioning of the universe and nature. Most of the first philosophers evaluated the principles and characteristics of the nature of matter or substratum as the only principles in which all things rest on (Aristotle and McKeon, 2001, Book A. (I), Chapter 3, para. 1-2).

The first linkage among these principles and characteristics has implied the source or beginning from which everything arise and the last linkage has implied a resolution within which changes or transformations occur but the substance remains. The relationship between the first linkage and last linkage “is the element and this the principle of things, and therefore they think nothing is either generated or destroyed, since this sort of entity is always conserved (...)” (Aristotle and McKeon, 2001, Book A. (I), Chapter 3, para. 2). This explanation leads to the formulation of the energy conservation.¹³ Thus, it can be expressed that the philosophical and scientific efforts in analyzing the relationship between human being and nature and in detecting the origin of the movements in the nature are connective with the conceptualizations of the principles and laws about energy.

Energy has had a crucial role in appreciating the primary fundamentals of the universe and nature. It can be seen that there has been a nature-centric philosophical and scientific perspective towards the universe through the concept of energy. But the universal, comprehensive and collectivistic characteristics of energy has been manipulated with the emergence and development of industrialization. Some even have argued that the discovery of fire can be evaluated as one of the crucial initial steps towards the intensive industrial anthropogenic era.¹⁴

¹³The law (or principle) of conservation of energy implies that total energy within an universe or a system cannot be created or destroyed, only altered. See, Cleveland, C. J., and Morris, C. G. (2014). *Handbook of Energy Volume II: Chronologies, Top Ten Lists, and Word Clouds*. Elsevier Science, p. 342.

¹⁴ The term anthropogenic emphasizes the impacts of human beings’ activities on the nature and climate. The adverse impacts of human beings’ activities in geology and ecology have been conceptualized as Anthropocene. Thus, it has been stated that the changing structure of Earth’s ecosystem cannot be understood with no concern and critique for the dominant influence and impact of human beings. See, Glikson, A. (2012). The Discovery of Fire: Initial Steps Toward Anthropogenic Climate Change. *The Conversation*, Retrieved September 12, 2019 from <http://theconversation.com/the-discovery-of-fire-initial-steps-toward-anthropogenic-climate-change-6266> ; see, Vitousek, P. M., Mooney, H. A., Lubchenco, J., and Melillo, J. M. (1997). Human Domination of Earth’s Ecosystems. *Science*, Vol. 277, Issue. 5325, pp. 494-499.; See also, Gutzen, P. J. and Stoermer, E. F. (2000). The ‘Anthropocene’. In Will Steffen (Ed.). *The International Geosphere–Biosphere Programme (IGBP): A Study of Global*

Simply put: human beings' wonder and astonishment towards the universe and nature have resulted in the acceleration of philosophical and scientific activities. The philosophical and scientific considerations in the pre-industrial times have adopted a biocentric¹⁵ methodological perspective within which the roots of energy have been discussed in terms of the source of the movement, change, force, potentiality and actuality.

Human beings have always wondered the source and power of the sun. They have tried to understand the functioning of the sun and its connection with the geological structures and resources. Human beings have learned to connect the causes of climatic and seasonal changes in the nature with the position of the sun in the sky. Developing a deeper understanding towards the sun has been triggered in order to meet the daily needs including heating, warming, melting and lighting. Furthermore, most human societies have had some sort of a belief and mythology about the sun as “a super-natural force that had to be respected” (NASA, n.d.).¹⁶ It can be interpreted that the relationship between human beings and sun reflects the impacts of both obvious and greater inquiries, matters and challenges in human societies (Aristotle and McKeon, 2001, Book A. (I), Chapter 2, para. 3). The discovery of fire, in this respect, has been evaluated as a significant phase due to its functioning and also little resemblance with the sun (Pyne, 2016, p. 2), especially for the early humans (McLamb, 2007).

According to the ancient Greek myth, civilization began when Prometheus stole Zeus' precious fire from heaven and gave it to mortals, teaching them how to use it to warm, cook, make tools and create the rudiments of social life. For this, he was severely punished, for the fire and skills

Change of the International Council for Science (ICSU) (pp. 17-18). No. 41. Retrieved October 9, 2019 from <http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf>

¹⁵ The concept of biocentrism implies that human beings are in relation to the global ecosystem among with many other species and entities. Within this framework, it has been expressed that human beings are equally together with other species in the planet, not set apart from them. Thus, all living things (both human entities and non-human entities) have an intrinsic worth, role and value as being members of the Earth's Community of Life. Biocentrism recognizes the moral standing of all living creatures and supports the preservation of this biodiversity in the global ecosystem. See, Taylor, P. W. (1986). *Respect for Nature: A Theory of Environmental Ethics*. New Jersey: Princeton University Press, 2009.; See also, Attfield, R. (1999). *The Ethics of the Global Environment*. Purdue University Press, pp. 25-30, 130-139.

¹⁶ See, National Aeronautics and Space Administration (NASA, n.d.). *Historical Aspects of Our Sun*. NASA, Retrieved August 10, 2019 from https://www.nasa.gov/vision/universe/solarsystem/sun_history.html

which were his gift to humankind were a mixed blessing, since they were also the source of work and war (Kimmins, 2001, p. iii).

Fire's role for heating, lighting and protection has been crucial for the survival of human beings. Natural fires -mainly as a result of the streak of lightning, volcanic eruptions or falling rocks- have made human beings to wonder whether they could start and control fires or not. Human beings have gradually learned to control the natural phenomenon of fire. This intervention has been decisive in changing the course of the history between human beings and energy. Human beings have no longer had to wait for a streak of lightning or accidental incidents that can start fire. Discovering the power of the fire and learning how to control it have decreased the dependency upon the sunlight. The discovery and control of fire have been effective in accelerating human beings' adaptation in the nature (Brown et al, 2009, p. 859; Penna, 2020, p. 4; Pyne, 2001, p. 4; Rossi et al, 2009, p. 249). It can be expressed that there is a dynamic connection between the use / control of fire and earlier roots of the human civilization¹⁷. Charles Darwin, for instance, has evaluated "the art of making fire" as the greatest discovery of human kind, except language (Darwin, 2009, p. 137).

The discovery of fire and exploitation of animals have marked enormous changes in the history of human societies, civilization and modern technologies (Malanima, 2011, p. 73; Gowlett, 2016, p. 1). The sun, uncooked foods, trees, plants, the labour of humans and animals have been primary energy resources for the earlier humans. The discovery and control of fire, in this respect, have been critical for the survival and evolution of human beings through the conversion of energy. The use of fire for heating, warming, melting, lighting, cooking and protection has intensified the practices regarding the conversion or transformation of one form of energy in to another and manipulation of the physical properties of raw materials in the nature. It can be expressed that the discovery and control of fire have been decisive

¹⁷ For the relationship between the discovery, control and domestication of fire and development of civilization see, Glikson, A., and Groves, C. (2016). *Climate, Fire and Human Evolution: The Deep Time Dimensions of the Anthropocene (Modern Approaches in Solid Earth Sciences)*. Springer. pp. 88-111.; Goudsblom, J. (1987). The Domestication of Fire as a Civilizing Process. *Theory, Culture & Society*, Vol. 4, Issue. 2-3, pp. 457-476.; Burton, F. D. (2009). *Fire: The Spark that Ignited Human Evolution*. Albuquerque: University of New Mexico Press.; Goudsblom, J. (1995). *Fire and Civilization*. London: Penguin.; See also, Gowlett, J. A. J. (2016). The Discovery of Fire by Humans: A Long and Convoluted Process. *Philosophical Transactions of the Royal Society*, Vol. 371, Issue. 1696, pp. 1-12.

in triggering methods for energy extraction and diversification. The collectively increasing control on energy conversions and relations has evolved and changed in time (Smil, 2006, p. 54; Smil, 2008, p. 120; Brown et al, 2009, pp. 859-560; Zou et al, 2016, p. 2) with no concern for ecological impacts, which is a contradictory with the original constitution of the concept of energy.

The use and control of fire have produced important outcomes for human beings' daily activities, behaviors, production and consumption patterns. An anthropogenic system of energy (Smil, 2010, p. 1) has emerged with the use of fire. Human beings have performed their daily works, activities and habits without spending too much time, effort, labor and energy. Actually, efforts to tame animals, to create and use tools, devices and objects can be read as an illustration of energy transfer of human beings apart from the discovery and control fire. But the transfer of human beings' ability, power and effort into the tools, devices, objects and even animals as an illustration of energy transfer has been intensified and diversified with the discovery and control of fire (Brown et al, 2009, pp. 859-862). It has been argued that the control of fire, increased domestication of animals and intensified production / creation of new materials can be evaluated as "the first great energy transition" (Smil, 2004, p. 550) in the history of human societies. The role of fire in the history of human societies has been summarized as a "transformation of savage Paleolithic hunting man to domesticated Neolithic farming man" (Kennedy, 1987, p. 145).

Biomass fuels, human and animal muscles have been primary energy supplies (Smil, 2010, p. 2). In the pre-industrial times, all efforts and creations to control greater flows of energy have been in relation to "the limited power of human metabolism and by the inefficient use of fire" (Smil, 2004, pp. 549-550). There have been slow, but radical alterations in the primary energy resources. The control of fire has been evaluated as the first step for the emergence of fossil fuel based energy alterations. It has been expressed that the second energy transition has been carried out with the waterwheels and windmills. The third energy transition has been carried out with the engines and biomass energies by fossil fuels. And the latest energy transition has been carried out with the control and authority of industrialized nation states during the twentieth century. Thus, all modernizing economies have been depended upon the consumption of fossil fuels (Ibid, 2004, pp. 550, 554), which

has been one of the differences between the pre-industrial and industrial times.¹⁸

Pre-industrial times have witnessed an organic economic framework within which the “vegetable or animal raw materials” and “the annual cycle of plant growth” have been decisive for the production and consumption activities (Wrigley, 2010, p. 9). But this organic economic framework or paradigm has been undermined with the Industrial Revolution (Ibid, 2010, p. 9; Malm, 2013, p. 20). During the mid-sixteenth century, coal has emerged as the primary source of heat energy for the functioning of engines and machines rather than the muscle power and firewood (Wrigley, 2010, p. 38).

Industrial times have witnessed the emergence of the replacement of human and animal power with machines and engines (Malanima, 2012, p. 92).¹⁹ Different forms of machines and engines have been used for production activities. The growing need and demand for energy resources to ensure the functionality of machines and engines have intensified with the use of coal (Höök, 2010, p. 17). Coal has been decisive for industrialization and hegemonic activities of states. The uneven pattern of Industrial Revolution has “(...)naturally favored some of the Great Powers more than other” (Kennedy, 1987, pp. 144-145). Britain, for instance, benefited from the industrial developments in the post-1815 era and “became a different type of Power” from the other states (Ibid, 1987, p. 145). Britain’s hegemony in the nineteenth century was connected with the use of coal in industrial and military activities. Generally, commercialization of agricultural activities and industrial developments have allowed for imperial expansions and transnational trading. Therefore, they have been evaluated as key reasons for the development of modern capitalism as well (Ibid, 1987, pp. 130, 146-147; Buzan and Lawson, 2015, pp. 150-152).

¹⁸ For the climatic impacts of fossil fuel based industrial activities and capital accumulation see, Malm, A. (2016). *Fossil Capital: The Rise of Steam Power and the Roots of Global Warming*. London: Verso.; for the evolution of human energy systems see, Universitat Politècnica de Catalunya (2017). *Keys For a New Energy Paradigm: Analysis of the Situation and Trends - Future Areas of Work of the UPC for the Transition to a New Energy Model (TEM)*, UPC, pp. 15-16. Retrieved February 03, 2020 from <https://www.upc.edu/en/press-room/pdfs/keys-for-a-new-energy-paradigm.pdf>

¹⁹ See, Kennedy, P. (1987). Strategy & Economics in the Industrial Era. In J. Epstein (Ed.), *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000* (pp. 143-343). New York: Random House.

The following energy transition has been carried out with the discovery of oil and later natural gas. All of these energy transitions -generally from biofuels to fossil fuels- have intensified the growth of population, military and naval capabilities, world trade and globalization of human affairs (Smil, 2004, p. 550; Kennedy, 1987, p. 144; Venn, 1986, p. 2; Smil, 2010, p. 28). Environmental costs of fossil fuels, on the other hand, were externalized and ignored (Goldblatt, 2005, p. 4) with the impacts of traditional energy security paradigm.

Ernest Gellner has explained that there are three fundamental phases in the history of human beings as follow: The pre-agrarian, the agrarian and the industrial. Gellner has argued that the agrarian and industrial periods have been effective in constituting the granted idea of the existence of nation states. The agrarian and industrial phases of human societies, in this respect, have emphasized that the existence of nation states is inescapable and inevitable for human beings (Gellner, 1983, pp. 4-5). The increases in the use of fossil fuels and in the mobility of goods and services have been parallel to the Industrial Revolution and consolidation of the formation of nation states (Barnett et al, 2010, p. 3). In engaging with the “material processes of state formation” (Bartelson, 2006, p. 38), it can be interpreted that such material processes are connected with the history of energy alterations in the pre-industrial and industrial times. It can also be interpreted that the formation of nation states (both ideally and practically) through the role of agricultural and industrial activities -within which energy has had key role- emphasizes the constitutional connection between mainstream security paradigms in IR and traditional energy security policies.²⁰ Therefore, the idea is that discerning the differences between pre-industrial and industrial times is important to understand the material constitution of the nation states in connection with energy security.

It has been stated before that it is difficult to propose a precise and clear definition about energy. “Everything has a component of energy” (H. T. Odum and E. C. Odum, 1981, p. 17). But still, the classical textbook definition of energy has been given as the ability to do work or potential ability to produce a change (Cleveland and Morris, 2014, p. 455).

²⁰ For another explanation about the connection between industrial developments, accumulation of capital and formation of nation states see, Anderson, B. (1983). *The Origins of National Consciousness*. In *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (pp. 37-46). Verso Edition, 1991.

There have, however, been criticisms about the validity and sufficiency of this definition. Robert Lehrman, for instance, has argued that defining energy “as the ability or capacity to do work” is incorrect and misleading (Lehrman, 1973, p. 15). According to Lehrman,

(...) the definition of energy as the ability or capacity to do work suffers from three chief defects:

- (1) It is so barren of content that it seems to be designed for ease of memorization rather than promotion of understanding.
- (2) It grossly distorts the nature of the important social problem of availability of sources of energy.
- (3) It is not true (Ibid, 1973, p. 15).

Lehrman has explained that defining energy “as the ability or capacity to do work” cannot facilitate our understanding and appreciation towards the concept of energy. Besides, this classical statement does not focus on the social aspects and experiences of energy (Ibid, 1973, p. 15). The transfer and transformation of energy as unifying phenomena can be evaluated as one of the most important and crucial aspects of human experience (Lindsay, 1971, pp. 383-384). It is incontestable to state that energy is crucial for the individuals and societies. We cannot develop a strategic response to climate crisis with no reference to the social history of energy. In *the Social Construction of Energy*, Ivan Illich (2010) has argued that “energy now, as work formerly, has become something that individuals and societies need. It is a symbol that fits our age, the symbol of that which is both abundant and scarce” (p. 13).

It has been challenging to give a proper meaning to the concept of energy within the scope of both natural and social sciences. The classical textbook definition of energy as “the ability to do work” refers to the concept of potential energy. When it has been stated that “energy has been used up”, what is meant is that the potential energy which is capable doing work “has been converted into a degraded form of energy, usually dispersed heat” (H. T. Odum & E. C. Odum, 1981, p. 20). Thus, it can be seen that the relationship between actuality and potentiality has not been properly appreciated. Because Industrial Revolution has been decisive in accelerating a materialistic and commercial view about energy. Materialistic perspective has indicated that energy, as a fluid, has an objective existence and travels through machines and engines (Warren, 1982, p. 295).

Understanding the differences between pre-industrial and industrial times is crucial in order to appreciate the causes and impacts of unnatural and materialistic alterations of energy within the scope of both natural and social sciences. The unnatural and materialistic alterations -which can be evaluated as a common point within the scope of natural and social sciences- have influenced the emergence and acceleration of traditional energy security paradigm. Therefore, a comparative analysis between pre-industrial and industrial times -as a starting point for critical interpretation- is meaningful in order to understand the relationship between traditional energy security paradigm and planetary insecurity. The necessity of a comparative and also “retrospective examination”, in Gene I. Rochlin’s words (Rochlin, 2014, pp. 1-2), regarding the pre-industrial and industrial times has been implied within the Article 2 of the Paris Agreement as follows:

This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: (a) Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; (...) (UNFCCC, 2015, p. 22).

The period of pre-industrial times has not, however, been properly defined within the scope of the Paris Agreement. Therefore, there have been different ideas and choices in defining the period of pre-industrial times as a reference point (Schurer et al, 2017, pp. 1-6). In the “Special Report on Renewable Energy Sources and Climate Change Mitigation”²¹ of the Intergovernmental Panel on Climate Change (IPCC),²² it has been

²¹ IPCC (2011). *Renewable Energy Sources and Climate Change Mitigation: Summary for Policymakers and Technical Summary. Special Report on Renewable Energy Sources and Climate Change Mitigation*. O. Edenhofer, R. Pichs-Madruga, Y. Sokona, K. Seyboth, P. Matschoss, S. Kadner, T. Zwickel, P. Eickemeier, G. Hansen, S. Schlömer, C. von Stechow (Eds.), pp. 1-230, Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. Retrieved November 04, 2019 from https://www.ipcc.ch/site/assets/uploads/2018/03/SRREN_FD_SPM_final-1.pdf

²² Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations Environment Programme (UNEP) and World Meteorological Organization (WMO) in 1988 to address economic and social impacts of climate change and to provide analyzes and recommendations in relation to the international conventions and agreements on climate. See, Intergovernmental Panel on Climate Change (IPCC, n.d.). *History of the IPCC*. IPCC. Retrieved September 12, 2019 from <https://www.ipcc.ch/about/history/>

stated that “since approximately 1850, global use of fossil fuels (coal, oil and gas) has increased to dominate energy supply, leading to a rapid growth in carbon dioxide (CO₂) emissions” (IPCC, 2011, p. 7). In the IPCC’s Fifth Assessment Report,²³ the periods of pre-industrial times have been given as 1750 (IPCC, 2014, pp. 3-4), 1850-1900 (Ibid, 2014, pp. 10, 20, 22, 40) or 1861-1880 (Ibid, 2014, pp. 10, 62-63).²⁴ But in the Annex II section of this report, it has been stated that “the terms pre-industrial and industrial refer, somewhat arbitrarily, to the periods before and after 1750, respectively” (Ibid, 2014, p. 124). In World Meteorological Organization (WMO)’s “Statement on the State of the Global Climate in 2019”, the year of 1750 has been given “as a representative baseline for pre-industrial conditions” (WMO, 2020, p. 7). In the “Risks Associated to Climate and Environmental Changes in the Mediterranean Region: A Preliminary Assessment by the MedECC Network Science-policy Interface – 2019” report, pre-industrial period has been defined as 1880-1899 (Mediterranean Experts on Climate and Environmental Change, 2019, pp. 5-6).

There have been different ideas about the period of pre-industrial era. It has been a matter of debate whether pre-1750 should be chosen as a baseline in order to define and identity pre-industrial times or not. In IPCC’s “The Special Report on the Impacts of Global Warming of 1.5°C”, it has been stated that the term of pre-industrial is “(...) the multi-century period prior to the onset of large-scale industrial activity around 1750. The reference period 1850–1900 is used to approximate pre-industrial GMST. {1.2.1.2}” (IPCC, 2018, p. 24).²⁵ But still, some scholars have disagreed with the

²³ IPCC (2014). *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Core Writing Team, R. K. Pachauri and L. Meyer (Eds.), pp. 1-151. IPCC, Geneva, Switzerland. Retrieved December 10, 2019 from https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf

²⁴ See also, Hawkins, E. (2017). Defining ‘pre-industrial’. *Climate Lab Book*. Retrieved November 04, 2019 from <https://www.climate-lab-book.ac.uk/2017/defining-pre-industrial/>; see also, Hawkins, E. (2016). *The Trouble with Baselines and Estimating Pre-industrial Global Temperature* [PowerPoint slides]. The National Centre for Atmospheric Science (NCAS). Retrieved November 05, 2019 from <https://www.climate-science.org.au/sites/default/files/Ed%20Hawkins%20%20estimate%20global%20temps.pdf>

²⁵ IPCC (2018). *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor and T. Waterfield (Eds.), pp. 1-616. In Press.

choice of 1850-1900 as a baseline for pre-industrial times. They have argued that there is no a perfect choice, but the period of 1720-1800 would be more suitable and convenient choice compared to the period of 1850–1900 in order to define and identify pre-industrial times (Hawkings et al, 2017, p. 1844). Within this framework, this study aims to emphasize the relationship between human beings and energy through a brief comparative analysis of pre-industrial and industrial times rather than to try to identify a specific period of time and area for pre-industrial conditions and experiences.

In the pre-industrial times, human beings have tried to understand the causes and impacts of the movements in the sky. It can be expressed that the study of movements, changes and transformations in the sky has also been the study of energy. The interactions between philosophy, nature of science and technology have been oriented towards the dynamic functioning of the solar system, the Earth, human beings' involvement and role within. Human beings' Aristotelian preference for the underpinnings of the universal has been decisive in the theoretical realm of energy. A harmonic relationship between politics and nature has been addressed. But in the industrial times, there has been an alteration from skies to the terrestrial pursuits and means. Human beings preference for the easiest way has marked an unnatural alteration which has affected commonly held perspectives, statements, definitions and ideas about the concept of energy (Schmitz, 2007, pp. 5-6; Smil, 2008, pp. 1-2). Therefore, the suggestion within the scope of this study is to focus on the relationship between human beings and energy through a comparative analysis of pre-industrial and industrial times rather than to detect a precise period as a starting point for the Anthropocentric era.

The problem is that human beings could not develop a planetary understanding towards their existence, involvement, role and responsibility within the universe and nature. The lack of universal and cosmopolitan understanding, in this respect, has resulted in lack of “a multi-species, multi-disciplinary action plan” (Burke et al, 2016, p. 502) in the context of energy and climate. Therefore, a comparative analysis between pre-industrial and industrial times is recommended to

appreciate the impacts of human beings' industrial activities on the entire planet.

In addition to this: defining energy as the ability to do work “dates back to the seventeenth century and was put into question when energy was defined quantitatively as a conserved quantity in the 1840's” (Lehrman, 1973, p. 18). As revealed, the natural law of energy conservation or conservation of forces has earlier and philosophical roots.²⁶ But the process of industrialization and growing role of steam engine -which was invented by James Watt in 1769- have been effective in providing a solid basis for the formulation and public acceptance of energy conservation law with the contributions of the works of multiple scientists including Joule, Michael Faraday, Helmholtz (Lehrman, 1973, p. 18; Choi, 2007, p. 303; Schmitz, 2007, pp. 5-6).

Between 1837 and 1844, C. F. Mohr, William Grove, Faraday, and Liebig, all described the world of phenomena as manifesting but a single “force,” one which could appear in electrical, thermal, dynamical, and many other forms, but which could never, in all its transformations, be created or destroyed. That so-called force is the one known to later scientists as energy. History of Science offers no more striking instance of the phenomenon known as simultaneous discovery (Kuhn, 1959, p. 321).

The word of ‘thermodynamics’ is “derived from the Greek words of *thermos* ('heat') and *dynamis* ('force')” and the development of thermodynamics which is the study of “the relationship among energy, heat, and work” is connected with the emergence of Industrial Revolution. Thus, it has been expressed that “the birth and development of thermodynamics were driven by economics - namely, the need to better understand the efficiency of steam engines” (Schmitz, 2007, p. 5). Steam engines have had a vital role for the process of industrialization. In the industrial times, mathematical and quantitative formulations about energy have accelerated. The theory of thermodynamics, in this respect, has been conceptualized in order to explain the functioning and behaviors of steam engines and machines (Schmitz, 2007, p. 5; Lehrman, 1973, p. 16) through the concept of energy. Thus, the development of industrialization and thermodynamics have been decisive in changing the meaning of the word of ‘energy’.

²⁶ See also, Helmholtz, H. (1995). *On the Interaction of the Natural Forces* (1854). In D. Cahan (Ed.), *Science and Culture: Popular and Philosophical Essays* (pp. 18-45). With an introduction by D. Cahan, Chicago and London: The University of Chicago Press.

The development of the first law of thermodynamics -regarding the conservation of energy- has emphasized that “energy cannot be destroyed or created; it can only be transformed” (Wisniak, 2008, p. 159). The law of energy conservation implies that nothing is lost or wasted in the functioning and operation of nature (Thomson, 1849, p. 545). There are different forms of energy in the universe that are mutually interactive and convertible. But the total amount of physical energy -whether actual and potential and whether in the form of motion, heat or light- is unchangeable (Rankine, 1852, p. 359).

During the 1830's and 1840's, a number of scientists working independently across the Continent and in England published conclusions more or less equivalent to the first law of thermodynamics, the law of conservation, which posited that system experience neither gain nor loss of energy (Choi, 2007, p. 301).

The scientific inquiries towards the indestructible, interchangeable and convertible characteristics and properties of energy (see, Choi, 2007, p. 303; Hanselman, 2008, p. 1; Smith, 1978, p. 247) have earlier roots. But still, industrialization process has been one of the main triggering (and demanding) phenomena behind the conceptualization and consolidation of the first law of thermodynamics regarding the conservation of energy (van den Bergh, 2018, pp. 372-374). Therefore, the materialization of the concept of energy dates back to the first decades of the nineteenth century (Wisniak, 2008, p. 159).

The development of the first law of thermodynamics has produced critical arguments about the classical definition of energy. Because “if the ability to do work were indeed conserved” or stored, then “the problem of diminishing energy resources would disappear”. With that being said, it has been expressed that “any definition of energy that is not rooted in its conservation property is false at its core” (Lehrman, 1973, pp. 16-17). The first law of thermodynamics emphasizes that the total amount of energy in the universe does not change, it simply transforms. The second law of thermodynamics, on the other hand, emphasizes some restrictions on the movement of energy. The development of the second law of thermodynamics has been oriented towards the impossibilities of certain kinds of energy movements in the universe (Berry, 2019, p. 60).

Spurred by the burgeoning industrial revolution, the theoretical physicists, between 1840 and 1860, developed the laws of thermodynamics. These were vital concerns in an epoch when

industry was changing over from water power to heat engines and was learning to use electricity to transport energy. The first law (conservation of energy) told the industrialists that they could not get anything for nothing; the second law (increase in entropy) said that they could not even break even (Lehrman, 1973, p. 18).

The development of the second law of thermodynamics has shown that the classical definition about energy is not correct and satisfactory. Although the first law of thermodynamics implies an equality between the inflowing and outflowing of energy still, “(...), most energy loses its ability to do work after any work processes”, as Howard Thomas Odum and Elisabeth C. Odum have expressed. Robert Lehrman has expressed that “everytime energy is converted, some of its ability to do work is irretrievably lost”. Thus, it can be expressed that the first law of thermodynamics implies an “order” and the second law of thermodynamics implies a “disorder” (which has been conceptualized as “entropy”) in systematic processes. Third law of thermodynamics, on the other hand, implies the maximization of energy in a competitive system for survival (H. T. Odum & E. C. Odum, 1981, pp. 31-32; Lehrman, 1973, p. 17). All of these aspects problematize the classical definition about energy.

(...) the enunciation of the second law of thermodynamics had shown this definition to be false. It is time that it was abandoned. Energy is a quantity having the dimensions of work which is conceived in all interactions. It must be defined in terms of a set of algebraic expressions, written in such a way that their sum does not change when a system is isolated. Energy transferred from one system to another may be called work, heat, radiation, or a variety of other names, depending on the mode of transfer. And at each conversion, the amount of work that can be done diminishes. A modern definition of energy, then, must be based on both the first and second laws of thermodynamics (Lehrman, 1973, p. 18).

The invention of petroleum driven engines has produced enormous changes for the production and consumption patterns in communities. Human beings have used these engines “over land and in the air, an invention which had already occupied the imagination of Leonardo da Vinci and appeared in the prophetic writings of Jules Verne and H. G. Wells” (Jensen, 1968, p. 538). Industrial Revolution as “(...) the beginning of a strong increase in the use of fossil fuels and emission of, in particular, fossil carbon dioxide (CO₂)” (IPCC, 2014, p. 124) has been actualized with the cheap heat energy from the utilization of coal (Wrigley, 2010, p. 40; Malm, 2013, p. 17). Thus, Lehrman has argued that defining energy “as the ability to produce heat” would be more correct, although this is not elegant and useful statement (Lehrman, 1973, p. 18) in order to appreciate the universal characteristic of energy. But it can be expressed

that this kind of a definition fits into the industrial re-constitution and re-invention of energy.

Climate crisis increases (and reminds) the critical, methodological and ontological inquiries about the physical, political, social, historical and humane aspects of energy. Climate crisis emphasizes political, social, historical and humane aspects of energy apart from its definitions and dimensions in physics. Thus, the idea is that both social and natural aspects of energy need to be taken into consideration in order to develop a proper understanding towards the relationship between energy security and climate crisis in the context of planetary security. It can be expressed that individualistic and social characteristic of energy has become more identifiable in the reality of climate crisis. After all, both individualistic and social aspects of energy are related to the production and consumption patterns in “complex high-energy societies”, in Vaclav Smil's words (Davtyan, 2017, pp. 1-8; Smil, 2010, p. 1).

Ricardo Trumper and Paul Gorsky have conducted a research to investigate the diverse and interdisciplinary characteristics of energy. They have identified nine frameworks about the concept of energy as follow: the Anthropocentric framework of energy, the depository framework of energy, energy as a cause or trigger for things to happen, energy as an ingredient within things, energy as the activity, energy as the product, energy as a functional framework, energy as a flow-transfer framework and energy as a scientific concept (Trumper and Gorsky, 1993, p. 639). The Anthropocentric framework of energy regarding human beings activities (Ibid, 1993, p. 639) will be the focal and definer point within the scope of this study. The Anthropocentric framework of energy implies to be aware of the differences between pre-industrial and industrial times.

Within this framework, an improper understanding of the bipolarity between actuality and potentiality implies the annihilation and demise of the harmonic / dualist relationship between human beings and nature in the context of energy security. The theoretical and practical re-invention of the notions of power, force and work through the manipulation of the relationship between the actuality and potentiality of energy - with the concentration of an industrial model in the context of the functioning of machines as more technical individuals and of the proletarianization of human beings- (Stiegler, 2017, pp. 55, 181, 197-198; Sayre, 2012, p. 58) can be read as a critical

difference for the relationship between human beings and energy in the context of pre-industrial and industrial times.

2.2 Mainstream Security Paradigms in International Relations

The production of the character of security “in terms of inside and outside, self and other, domination and oppression, or termed directly inclusion and exclusion” (Mutimer, 2009, p. 9) has influenced theoretical conceptualizations about mainstream security paradigms in IR academic discipline. A whole series of dichotomies including “security and insecurity, nation and world, male and female, war and peace” etc. (Burke, 2013, p. 85) and contestation between security, stability, power, control, sovereignty, rationality and insecurity, vulnerability, anarchy, disorder, irrationality, the implosion of sovereignty and technological advancements have been embedded in the versions of the mainstream security paradigms in IR (Lacy, 2005, p. 6).

The concerns about the protection and well-being of human beings against the violence, oppression and restriction of others have been addressed in the arguments about the formation of states. Social contract theory has been positioned as an important methodological framework in emphasizing the source and legitimacy of political authority, sovereign power and government in between the self-love (which implies the natural tendency for self-preservation) and selfishness (which implies the natural tendency to desire to have a greater value upon others). The extent and boundaries of the concept of security in mainstream security paradigms in IR have related to the arguments about social contract theory in which the exchange between the submission of the authority to a government and obtainment of security has been emphasized (Rousseau, 2002, pp. 48, 72, 125-127, 146; Shepherd, 2013, p. 2). Human beings have chosen to limit their freedom and liberty in the name of security (Bauman, 1997, p. 2; Ullman, 1983, p. 131). The search for security has been conceptualized as a central aim and need of modernity (Lacy, 2005, p. 5) in relation to the mainstream security paradigms.

Important IR debates have evolved and structured around the concept of security (Buzan and Hansen, 2009, p. 17). Security as a treatment of uncertainty has a referent role in explaining the existence of states. The intertwined connection

between security and sovereign power has been decisive in conceptualizing mainstream security paradigms in IR. Security has been evaluated as an exercise of a sovereign power over a population within a territory (Foucault, 2009, pp. 11-12). The claims of a sovereign power, in this respect, have been the unification of human beings as its citizens. Thus, international security studies have been connected with the concerns about the protection of nation states from internal and external threats. Therefore, states have become embedded within the notions of the sovereignty, authority, security and power (Buzan and Hansen, 2009, pp. 8-9; Burke, 2013, p. 85; Huysmans, 2006, p. 5; Buzan et al, 1993, p. 12).

Sovereign power as a body-politic and as a nation state exists in tension with the universal and cosmopolitan visions of humanity in IR. Because, “national security (...) secures sovereignty and the nation, and ontologises them as rigid and eternal states of being in fundamental alienation from other states and people, with whom they can cooperate but never be one” (Burke, 2013, p. 85). A global transformation in IR has influenced the structure of international order through “a complex configuration of industrialization, rational state-building and ideologies of progress” during the nineteenth century (Buzan and Lawson, 2015, p. 1). The vision of liberal security paradigm in IR with the notion of the economic interdependence has been read as “(...) a matching complement to the new multilateralism in the field of security, as embodied in the UN system” (Steffek, 2006, p. 38).

It can be expressed that liberal security paradigm has addressed the notions of free trade, market sources and “market-led society of consumers”, in Zygmunt Bauman's words (Bauman, 1997, p. 41) to undermine the tension between security and freedom. Zygmunt Bauman (1997) has argued that “(...) postmodern men and women exchanged a portion of their possibilities of security for a portion of happiness” (p. 3) and addressed that “postmodern discontents are born of freedom rather than oppression” (p. 124).

It can be interpreted that the tension between security and freedom has been effective for the emergence of critical security studies.²⁷ Apart from the relation / tension between security and freedom, the increasing impacts of climate crisis have been effective in questioning the validity and soundness of realist and liberal mainstream security paradigms in IR. Climate crisis has undermined the commitments to modernity, the functioning of nation states, the role of technological developments and innovations the promises of individual liberties. It has been expressed that the limits and failures of these commitments have become more obvious (Alberts, 2011, p. 7).

The constitution of the Welfare State as “a form of collective insurance” and the provisions of capital industry have been in a complementary relationship (Bauman, 1997, pp. 36-37) in the context of realist and liberal security paradigms. Realist and liberal mainstream security theories in IR have influenced the formulation of energy policies. It can be expressed that traditional energy security paradigm has been justified with the underpinnings of realist and liberal security paradigms, including sovereign statism/nationalism, capitalism and consumerism (Booth, 2007, p. 11). Security has been addressed as a goal and also as a consequence in international area (Ullman, 1983, p. 133). The impacts of realist and liberal security paradigms on the formulation of energy policies can be summarized as follow:

“(…), one cannot understand the importance of energy and its influence on international politics without placing it within the context of the development of global capitalism, and without exploring the role of key states in defending and expanding this economic system” (Raphael and Stokes, 2016, p. 347).

Realist security paradigm has emphasized that “the international system, (…), remains anarchical -that is, there is no greater authority than the sovereign, egoistical nation-state” (Kennedy, 1987, p. 440). Jachtenfuchs (1995) has explained that “according to this view, the highest form of governance use the state, which derives its legitimacy from the nation defined as a pre-political community of destiny” (p. 127). Energy security, in this respect, has been evaluated as “the theory and practice of securing

²⁷ For another modernity and consumerism critique through the notions of alienation and reification, see, Simmel, G., and Frisby, D. (1900). *The Philosophy of Money*. Routledge, 2004.; See also, Freud, S. (1930). *Civilization and its Discontents*. New York: W. W. Norton & Company, 1962, pp. 11-95.

energy for the nation-state” (Barnett, 2001, p. 34). It has been assumed that nation states need adequate and continued supplies and/or demands for stability and economic growth in the context of energy security. Nation states have been evaluated as the referent object of energy security relations and policies (Nyman, 2018, pp. 56-57, 62; Simpson, 2013, p. 249; Szulecki, 2018, p. 5). Energy security policies have been conceptualized “by (geo) political and material (scarcity) constraints, and governance responses” (Vogler and Stephan, 2013, p. 298). Thus, energy assets have been addressed as commodity in the energy market and as matters of domestic and foreign policy for nation states (Hadfield, 2013, p. 198).

Liberal security paradigm has emphasized “open exchanges of goods and services, (...), and international institutions and rules” to address international cooperation, peace and economic prosperity. “An open international political economy, with rules and institutions based on state sovereignty” and “a commercial and regulatory liberalism” (Keohane, 1990, pp. 166-167) have also been relevant for energy security relations and policies. It has been assumed that international energy markets can mediate relations between consumers and producers (Raphael and Stokes, 2016, p. 346). It has also been assumed that international institutions, including the IEA, can be effective in undermining selfish and egoistic behaviors of states by encouraging them for greater benefits of cooperation (Walt, 1998, p. 32). The relations / tensions between market mechanisms or governmental regulations have been one of the important debates in the context of energy security. It has been expressed that energy resources can be considered as commodities and thus, market mechanisms can be effective in order to allocate them in energy market. But it has also been expressed that energy resources can be considered as strategic materials for national security and thus, governmental regulations / control are essential in the context of energy security. There has been a strong emphasis in the role of governments for crisis management (von Hippel et al, 2011, p. 6722).

In the light of all of this, it is important to examine the interactions between realist and liberal mainstream security paradigms and traditional energy security policies from critical and interpretive point of view. The criticisms towards the dominative position of realist and liberal security paradigms in determining energy policies have been effective for the emergence and development of environmental security paradigm.

Realist and liberal mainstream security theories in IR have excluded concerns and causes about the global environmental degradation (Paterson, 2000, p. 11). The emergence of environmental security paradigm as one of the critical responses towards the dominative position of mainstream or traditional security paradigms in IR has emphasized that “(...) state security is not the only consideration” (Hama, 2017, p. 2) and “the nation, the state, the individual, the ethnic group, the environment or the planet itself” can be subject to security (Buzan and Hansen, 2009, pp. 10-11). Therefore, environmental security paradigm has been effective in challenging the narrow constitution of the concept of security in IR.

The increasing impacts of climate crisis are connected with the way energy security policies are formulated. According to IEA (2009), “energy is at the heart of the problem and so must be integral to the solution” (p. 41) in the context of climate crisis. Therefore, environmental security policies have been conceptualized as an important aspect for the relationship between energy security and climate crisis. The emergence of environmental security paradigm has given rise to the research about the connection between energy systems and global environment protection (Falkner, 2014, p. 188). In the scope of this study, the triggering role of realist and liberal security paradigms and the critical impacts of environmental security paradigm on the formulation of energy security policies will be analyzed in order to provide a planetary account of energy security in the end.

2.2.1 Realist security paradigm

2.2.1.1 Philosophical and scientific dimensions of realism

The term realism has been used and adopted in various disciplines. Philosophically, it has been positioned as an “ontological theory” within which moral and nominal considerations are underrated. From this point of view, it has been one of the core assumptions that moral aspirations, principles and judgments do not have a dominative and deterrent role in the behaviors of states (Donnelly, 2005, p. 29; Morgenthau, 1997, pp. 12-13). Realist security paradigm has never had a hopeful perspective for human species (Gilpin, 1996, p. 3) due to its core assumptions regarding the passive role of moral values and evil roots of human nature (Viotti and Kauppi, 2012, pp. 47-48).

Scientifically, realism has been positioned as a “philosophy of science” within which empiric, positivist and instrumentalist considerations are opposed. It has been argued within the scope of “scientific realism” that science attempts to offer genuine causal explanations and connections about reality. Thus, scientific theories as a model of reality aim to be true. Trueness of a scientific theory implies its usefulness, efficiency and its power for explanation. Reality -which is hidden from human beings- can be captured through scientific laws (Donnelly, 2005, p. 29; Gordon, 1993, pp. 24-25; Carnap, 1966, pp. 3-18). Scientific realism emphasizes the distinction between subject and object. It illustrates an “independent existence of reality” which is separate (or hidden) from human beings’ endeavors in order to explain and appreciate (Joseph, 2007, p. 345; Wendt, 1999, p. 49).

Empiricist perspective, on the other hand, prioritizes observations as starting point of science. Empiricism emphasizes the decisiveness of observations and examinations about single facts and nature of the world for scientific knowledge. Generalization of these observations and examinations results in the development of universal claims and laws. Empiricism states that more empirical data and knowledge are accumulated over time through observations. Thus, science can be conceptualized as an accumulative process (Donnelly, 2005, p. 29; Gordon, 1993, pp. 24-25; Carnap, 1966, pp. 3-18). It can be expressed that empiricism addresses a connection between human beings and reality through observations.

An analogy between IR and natural sciences through empiricist methodology has been emphasized with the assumption regarding the role of observations as genuine basis for knowledge. The methodologies of the natural sciences have been adopted in order to explain the social world. The rise of quantitative methods during the 1950s, for instance, reflected the logical view of empiricism. Because classical realists have been skeptical about the methodology and application of social sciences in order to eliminate “the problem of war”. In addition to this: there has been a dynamic relationship between empiricism and positivism. Commitment to objectivism through “the relationship between theory and evidence” has been emphasized within the scope of positivism which utilises empiricism. But empiricist line in IR has not been preferred by all positivists. The tension (or debate) between positivism and its critics has been effective in IR security theories (George, 2012, p. 25; Devetak et

al, 2012, pp. 69-70; Smith, 1996, pp. 11, 17; Lynn-Jones, 2012, p. 22; Wendt, 1999, p. 48).²⁸

Empirical realism has influenced realist, neorealist and neoliberal institutional theories in IR. It has been addressed within the scope of empirical realism that the world, reality and existence can be discovered through observations. Scientific realism, on the other hand, has addressed “the existence of unobservable structures and generative mechanisms” (Joseph, 2007, pp. 345-346). The dominance of empiricist line in IR has been challenged “by another strand of anti-realism, ‘post-positivism’” (Wendt, 1999, p. 47). It would be wrong to think that scientific realism can provide an alternative paradigm for mainstream theories in IR. Scientific realism “(...) provides one way of thinking about the practice of science that runs counter to broad conceived positivist approaches”. Neither scientific realism nor its critics can be positioned as substantive theories for society and IR (Wight and Joseph, 2010, p. 2).

Instrumentalist perspective has emphasized the view that science should operate as a mere ‘predictive tool’ rather than as a purposeful attempt in order to explain the functioning of the world and nature. Instrumentalism or predictive instrumentalism, in this respect, asserts that theories do not need to be explained or even described. A mere prediction (about past, present and future events) is necessary and sufficient. Science should be evaluated as a tool or “device for making forecasts” rather than a correspondence to reality. Prediction has been emphasized as an essential aspect for the functioning of daily lives and operation of science. It has been expressed that scientific theories can only be empirically adequate (Carnap, 1966, pp. 3-18; Gordon, 1993, pp. 608-609).

Instrumentalist approach favors a skeptical and modest position towards reality and trueness. The empirical test regarding the adequate trueness of a scientific theory must be applied to the conclusion (which implies its usefulness and efficiency) rather than the premises. Usefulness and efficiency, in this sense, operate as decisive conclusions in order to determine (or test) the adequate trueness of a scientific

²⁸ For the debate between positivist and pos-positivist methodologies in IR see, Lapid, Y. (1989). The Third Debate: On the Prospects of International Theory in a Post-Positivist Era. *International Relations Quarterly*, Vol. 33, No. 3, pp. 235-254.

theory (Carnap, 1966, pp. 3-18; Gordon, 1993, pp. 608-609). It can be interpreted that instrumentalist perspective emphasizes conclusions as determinative conditions to measure the applicability and adequate trueness of theories. This kind of a perspective has affected the emergence of conditional and restricted levels of analyzes in IR (e.g. Waltz, 1979).

In literature, realism has been addressed in order to challenge romantic and escapist thoughts and imaginations. In International Relations, realism has been conceptualized as “Political Realism”, “Realpolitik” or “Power Politics” in order to emphasize the indispensable and natural tendency of the pursuit of power to actualize national interests including security (Donnelly, 2005, p. 29; Morgenthau, 1997, pp. 4-5). Realist security paradigm includes diverse dynamics and paradoxes. It should not be overlooked that “realism is a broad research program that contains a host of competing theories” (Walt, 1997, p. 932). Different aspects of realist security paradigm have developed both theoretically and practically (Booth, 2011, p. 8).

Philosophical, scientific, literary and political aspects contribute to the ambiguous and multilayered characteristic of realist security paradigm. In the light of all of these: discovering the dimensions of realist security paradigm is a challenging task. But still, it is important to address the impacts of realist security paradigm on IR and traditional energy security paradigm from a critical point of view. The idea is that explanations of realist security paradigm need to be analyzed in order to increase awareness about the foundational and institutional weaknesses of IR academic discipline in struggling with the impacts of climate crisis.

Realist security paradigm has been “a point of reference for alternative theories” due to its dominative position in IR (Chiaruzzi, 2012, p. 36). It can be expressed that realism is not “a monolithic body of thought”. There are diverse, tremendous and paradoxical aspects about both realist thought and its critics. But still, there are also some common and shared principles and assumptions including the pursuit of national interests and determinative role of power in politics (Lynn-Jones, 2012, pp. 17-19). Thus, international politics has been illustrated as “a struggle for power” (Morgenthau, 1997, p. 31) in which nation states are considered to be the ultimate referent actor (Ibid, 1997, p. 12) and “the most important actors in international politics” (Vasquez, 1999, p. 156).

Realist security paradigm has adopted a pessimistic evaluation about human progress and general condition of human beings (Lynn-Jones, 2012, p. 19). Thus, it has been assumed that selfish and egoistic roots of human nature and absence of an international government (or order) provide an indissoluble linkage between power, interests and IR (Donnelly, 2000, p. 9). Realist security paradigm has prioritized nation states' self-preservation in anarchic and chaotic environment rather than the individual freedom and emancipation (McCormack, 2009, p. 19; Mearsheimer, 2001, p. 19) since individuals cannot be trusted. Realist security paradigm has viewed the modern world and human relations in terms of tragedy (Lacy, 2005, p. 1) and thus, prioritized security and survival of nation states in relation to its pessimistic read about human nature.

2.2.1.2 Deepening the assumptions and arguments of classical realism and structural realism

Realist security paradigm has influenced traditional energy security policies. The anxiety (or fear) about the sufficiency of energy resources to meet energy needs, demands and requirements (Yergin, 2006, p. 70) has been effective for the formulation of traditional energy security paradigm. Realist security paradigm has addressed the notions of anxiety, fear and skepticism in order to justify state-centric perspective and intervention with respect to power and control. Nation states have been positioned as the main actors that define energy relations and policies. Nation states' dominative role in energy security has been consolidated as a necessity in order to maintain the processes of energy exploration, extraction, taxation and privatization. Nation states have been evaluated as the main actors who are "concerned by and responsible for energy security" (Česnakas, 2010, p. 34; Langlois-Bertrand, 2010, p. 7).

The pursuit of power and control has been consolidated as a necessity for security and survival of nation states. But it has also been acknowledged that power, control or overpowering, in this respect, for the actualization of national interests (including security and self-preservation) can pose a danger for the existence of others, since there is no an international government, order or higher authority that can protect the others "from being attack, subjected, dominated or annihilated". Therefore, attaining security in order to prevent such attacks and to eliminate the adverse impacts of the power and control of other state(s) has been emphasized as a paradoxical tendency and security

dilemma, which can lead “to acquire more and more power” in international area (Herz, 1950, p. 157).

It has been stated that the policies of a nation state in order to increase its own self-preservation and security usually decrease the self-preservation and security of other nation states in an anarchic international area. Therefore, it has been a challenging task and duty for a nation state “to increase its own chances of survival” without threatening the survival of others. It has been assumed that a security dilemma is bound to emerge “among political units of power” (Herz, 1950, p. 158). It has been expressed that “throughout the history of states, each has been made insecure by the existence of others” (Buzan, 1983, p. 1).

Striving to attain security from such attack, they are driven to acquire more and more power in order to escape the impact of the power of others. This, in turn, renders the others more insecure and compels them to prepare for the worst. Since none can ever feel entirely secure in such a world of competing units, power competition ensues, and the vicious circle of security and power accumulation is on (Herz, 1950, p. 157).

Human nature, anarchic structure of international area and survival have been conceptualized as objective starting points within the scope of realist security paradigm. It has been argued that “human nature, in which, the laws of politics have their roots, has not changed since the classical philosophies of China, India and Greece endeavored to discover these laws” (Morgenthau, 1997, p. 4). Therefore, it has been assumed that “the struggle for power is universal in time and space and is an undeniable fact of experience” (Ibid, 1997, p. 38).

It has been expressed that human beings act in the pursuit of power and self-interest in the context of an “existential crisis” which has been defined by the scarce resources and conflicting interests. Domination, power and control have been evaluated as natural and inevitable tendencies for both human beings and states (Morgenthau, 1997, p. 39). Thus, realism as a theory of “both personal and state” (Lang, 2007, p. 33) has addressed the cruciality of security policies and strategies in order to undermine (and control) the adverse impacts of the existential connection between human nature and power through a state-centric perspective.

A pessimistic evaluation towards the human nature is usually associated with Niccolo Machiavelli and Thomas Hobbes in the history of western political thought (Donnelly,

2005, p. 30). This study will summarize Hobbes's thoughts and assumptions about human nature. Hobbes asserts that the natural equality of human beings leads to the equality of desire and hope which can be actualized (or materialized) through the accumulation of power and control. Hobbes argues that there is no a significant difference regarding the faculties of body and mind of human beings. Therefore, there is always a potential risk for destruction and war due to the conflicting desires and interests. The impacts of conflicting desires and interests create dangerous, uncertain and unpredictable environment within which a continual anxiety, fear and threat of death exist. Competition as one of the core dominating aspects in human nature (due to the conflicting interests) eventually leads to the control and invasion of one another in order to actualize desires, hopes, interests and purposes including gain, reputation, self-preservation, security and liberty. Conflicting interests and lack of a common power (or order) result in "a condition of war one against another" within which "every man is enemy to every man" (Hobbes, 1997, pp. 76-79).

Hobbes (1997) notes that "(...) during the time men live without a common power to keep them all in awe, they are in that condition which is called war; and such a war as is of every man, against every man" (p. 77). Egoism and lack of a common power or order underpin the need for a superior authority in order to control the behaviors of human beings which can be destructive or even self-destructive for time to time. If there is no a superior authority or power to overawe the egoistic and destructive desires and passions of human beings, then what is left in communities are grief, displeasure and gloom (Donnelly, 2000, p. 15; Hobbes, 1997, pp. 77-78). Therefore, realist security paradigm asserts a state-centric perspective by emphasizing naturally conflictual and egoistic roots of human nature as an objective starting point.

The prominent solution or rather, an adequate strategy in order to challenge the impacts of evil human nature and anarchic international area has been state-centric perspective and maximization of power for security and self-preservation. In doing so, non-state actors are avoided. It has been argued that nation states as central and highest actors in international area should dominate conditions that determine security policies (Buzan, 1983, p. 1). "Realism has been both a theory and ideology of statism" (Booth, 2007, p. 32) through a state-centric perspective. Realist security paradigm has emphasized "a materialistic ontology and positivistic epistemology" (Česnakas, 2010, p. 31), which has been effective in the formulation of

traditional energy security policies. But the problem is that the needs and demands of nation states (as the most important, dominant, decisive and rational actors in international area within the scope of realist security paradigm) do not match with the needs and demands of our planet in the context of climate crisis. Realist security paradigm imposes planetary insecurity through traditional energy security paradigm, which is irrational and contradictory.

Rigid and narrow discussions about the genuine characteristics of human beings, if there is such a thing, have been positioned as an objective starting point for the formation and development of nation states. Thus, the pessimist moral judgment towards the characteristics of human beings has led to a state-centric perspective in IR. It can be observed that the notions of nation state, actor and/or agent have been used synonymously with the notion of power in the context of realist security paradigm. Security as a core concern, purpose and existential need has been formulated in terms of power, interests, benefits and survival of nation states. The development and consolidation of nation states as main actors in international area have been influential for energy security relations and policies as well.

Realist perspective has positioned international politics as an institutional reflection of human nature in which social forces have been produced. Realist security paradigm has evaluated anarchic international environment (which is a reflection of human nature) as a threat for security, stability, predictability and continuity of international system. The absence of a superior, governing international authority has triggered nation states to fear, to worry and then, to act defensively or offensively in international area (Morgenthau, 1997, p. 20; Mearsheimer, 2001, pp. 19-20).

The theoretical and philosophical investigations about the actual principles of human characteristics have been influential in formulating the tenets of classical realism. Thus, it has been argued that the history of politics depends upon “the story of a contest” between two orientations that share different views about the nature of human beings and human societies. One of these orientations assumes that “a rational and moral political order” can be achieved through universally valid and permanent principles. The deficiencies, irrational and destructive characteristics of human beings can be remedied through reformist policies and education within which universal principles are embodied. The other orientation, on

the other hand, assumes that our imperfect and defective world is full of with opposing interests. The natural forces which are inherent in human beings effect and shape our imperfect world mainly through the desire for power, interest and security. Thus, a complete realization and actualization of morality (or peace) cannot be possible within the reality of these inherent natural forces. But an approximation through “a system of checks and balances” can be effective in order to provide a “lesser evil” atmosphere in international area (Morgenthau, 1997, pp. 3-4). Balance of power approach has been considered as a necessary mechanism in order to provide (and maintain) a lesser evil international environment for the existence and security of nation states.

Balance of power theory as a mechanism to “check the power of other states” (Chiaruzzi, 2012, p. 40) has been evaluated critical in order to provide a less dangerous international environment. A less dangerous world through the balance of power strategy has been addressed as an adequate rational strategy compare to the existence of absolute evilness, conflictual relations and impracticable idealist ideas in international area. Realist security paradigm has stimulated that conflicts cannot be eliminated. But that does not mean that conflicts cannot be mitigated and managed. Balance of power, in this respect, has been positioned as a necessary component for power politics and relations. If nation states’ foreign policies would favor an absolute power politics, power increment, demonstration and outgrowth over the balance of power strategy, then this policy formulation and treatment would be a sample of stupidity and evilness from Morgenthau’s point of view (Donnelly, 2005, p. 31; Morgenthau, 1997, pp. 187-188). Balance of power as a predictive tool for the policies and behaviors of nation states has been emphasized in order to prevent states to develop a powerful position by preponderance in international area. If one state seeks to increase power, coercion and control over others, then the other states will establish alliances in order to eliminate the threats to their existence, security and independence and to protect the continuity of the international structure of nation states (Nye, 1990, p. 184).

It has been expressed that the constraints of human nature and anarchic characteristic of international area can be managed through the balance of power strategy. Realist security paradigm has emphasized that there is no a superior or higher authority among

states. Thus, the preservation, continuity and stability of international system through nation states imply and require balance of power strategy. Simply put: the concepts of balance and equilibrium are employed in order to provide a limitation and check mechanism towards the power increment of other states whether “alone or through alliances” (Donnelly, 2005, pp. 30-31; Morgenthau, 1997, pp. 187-188; Chiaruzzi, 2012, p. 40). Morton A. Kaplan has positioned balance of power strategy as a model of international system among the loose bipolar system, the tight bipolar system, the universal system, the hierarchical system and the unit veto system. He has argued that balance of power as an “international social system” implies the existence and functioning of essential and major actors (powers) that can make the international system to continue to work (Kaplan, 1957, pp. 685-686).

The principles and rules of the balance of power international system are explained as follow:

- (1) increase capabilities but negotiate rather than fight;
- (2) fight rather than fail to increase capabilities;
- (3) stop fighting rather than eliminate an essential actor;
- (4) oppose any coalition or single actor which tends to assume a position of predominance within the system;
- (5) constrain actors who subscribe to supranational organizational principles; and
- (6) permit defeated or constrained essential national actors to reenter the system as acceptable role partners, or act to bring some previously inessential actor within the essential actor classification. Treat all essential actors as acceptable role partners (Ibid, 1957, p. 686).

The first two rules imply that essential and major actors must rely upon their own increased national capabilities and also the formation of allies (through negotiations) for self-preservation and security. The fine line between the improvement of national capabilities and formation of allies needs to be taken into consideration as well. The third rule, in this respect, implies that “expansion beyond certain limits would be inconsistent with nationality” and with the continuity of international system. The fourth and fifth rules imply that a superior or predominant coalition or a single power can pose risks for the survival and interests of others in international area. The sixth rule implies that international system is dependent upon the political and social behaviors of essential and major actors which correspond to the principles and rules of the balance of power international system. It has also been stated that the decrement

in the number of the essential and major actors in international system would result in instability and unpredictability. Thus, the number of the essential and major actors has been in relation to the concerns about stability and continuity of international system (Kaplan, 1957, pp. 686, 689).

Increasing role of oil has produced a linkage between energy geopolitics and “international political and strategic circles”. Oil resources have been concentrated in the Middle East region. Thus, it has been expressed that oil can be used as a foreign policy tool in order to challenge the dominance of USA and other major powers in international area. Therefore, geopolitics-based energy security perspectives have dominated energy policies with concern to scarcity and uneven distribution of energy resources (Yu and Dai, 2012, pp. 93-96). “Middle Eastern oil has enchanted global powers and global capital since the early twentieth century”. A connection between national energy security and Middle Eastern oil has been conceptualized (Jones, 2012, p. 208) through traditional energy security paradigm.

Geographical imbalances have intensified the separation between energy resources and consumption (Yu and Dai, 2012, p. 96). Therefore, geopolitics, consumerist and supply based concerns have dominated traditional energy security policies in order to eliminate threats for the balance of power in international area. Access to petroleum in the Middle East region has been a source for political turmoil, coercion, human suffering, exploitation, suppression and war (Frankel, 2008, p. 4). Thus, traditional energy security paradigm has been characterized in accordance to the interests and benefits of energy consuming or importing states (von Hippel et al, 2011, p. 6721) at the expense of the well-being of energy producing or exporting states.

In the *Politics Among Nations: The Struggle for Power and Peace*, Morgenthau has formulated six principles of classical realism as follow:

1. International politics is governed by objective laws which are inherent in human nature. Therefore, it is possible to develop a rational theory that reflects these objective laws and thus, helps us to distinguish the truth or reality from opinions and ideologies (Morgenthau, 1997, pp. 4-5).
2. Politics as “an autonomous sphere of action” operates through national interests which can be conceptualized in terms of power. National interests in terms of power are essential and universal aspects of international policy making processes (Ibid, 1997, pp. 5-6).

3. National interests which can be conceptualized in terms of power belong to an objective category. National interest “is unaffected by the circumstances of time and place” (Ibid, 1997, p. 10). Therefore, a rational approach towards the subjects and objects of international politics is possible. Actualization of national interests and purposes is possible through power and control. The intertwined connection among interests, power and control is crucial in order to appreciate the underpinnings of international politics. Yet the kind and precise meaning of interests may depend “upon the political and cultural context within which foreign policy is formulated”. Therefore, there cannot be a “fixed once and for all” meaning for the interests and also for the concern of power (Ibid, 1997, pp. 10-11).

4. “Political realism is aware of the moral significance of political action”. But it is also aware of the tension between morality and “the requirements of successful political action” (Ibid, 1997, p. 12). This explanation can be interpreted that classical realism assumes a problematic and mutually exclusive relationship between morality and politics.

5. Moral principles and judgments cannot be read as a point of reference in assessing the policies and actions of nation states. Moral principles and judgments cannot have a decisive role due to their relative, diverse and context depended structure. National interests, which are defined in terms of power, can spare us from the impacts of moral excesses and political foolishness from Morgenthau’s point of view (Ibid, 1997, pp. 11-15).

6. Politics as an autonomous academic discipline cannot be subordinate to the principles, norms and standards of other disciplines (Ibid, 1997, pp. 13-14).

Ioannis Vidakis and Georgios Baltos have proposed the concept of “geoenergeia” to focus on “the effects of energy resources in political and economic systems”. They have formulated the impacts of energy resources on national, regional, international and global levels of analyzes. They have argued that a connection between the political decisions / behaviors and distribution of energy resources through the classification of nation states “according to the wealth of energy resources they control” is adopted within the scope of the “geoenergeia” model. They have also argued that technological developments in energy industry and infrastructure are valuable to undermine the restrictive impacts of scarce energy resources and to change “the geostrategic importance of global regions” (Vidakis and Baltos, 2015, pp. 2-3).

It can be expressed that “(...) the influence of geographical factors on energy security is not static” due to the technological developments, market forces, “the shifting demand for raw materials, the changes in domestic and international political goals” (Yu and Dai, 2012, p. 94). Within this framework, it can be interpreted that both realist and liberal security paradigms have been in a complementary relationship for the formulation of traditional energy security policies. While realist security paradigm has prioritized the impacts of geographical imbalances and uneven distribution of energy resources on national security, liberal security paradigm has prioritized technological developments, market forces, changes in the demand side and international system.

Geopolitical approaches prioritize the potential for conflict and competition over scarce and imbalanced energy resources (Stoddard, 2013, p. 443). Therefore, it has been assumed that it is challenging for major powers “to coexist while competing over scarce resources” (Luft, 2004). It can be interpreted that technological developments have been addressed in order to challenge the impacts of geographical dependencies, to maintain the balance of power system in favor of energy-poor states and to coexist in an anarchic international environment.

There have been criticisms and suggestions for the puzzling and reductionist assumptions of classical realist security paradigm regarding the causes and impacts of states’ behaviors in the contexts of human nature, anarchy, power increment, security and survival. In the *Theory of International Politics*, Kenneth Waltz has emphasized the adverse impacts of empirical and inductive commitments on politics. A critical approach for empiric perspective, as a starting point, is important in order to appreciate the differences among theories, laws, hypotheses. Appreciating the differences among theories, laws, hypotheses is necessary in order to conduct a systematic theory of international politics from Waltz’s point of view (Waltz, 1979, pp. 1-6).²⁹

²⁹ Laws establish relations between variables which can take different values. Conditional propositions (if a, then b) are used in order to state a law whether it is absolute or probable. But a law is not dependent simply upon a conditional relationship that has been detected or found between variables. The distinctive part is that the conditional relationship between variables needs to be detected or found for multiple times. Repetition in the conditional relation between variables is a necessary component for the statement of laws. Theories, on the other hand, are more complex than laws. A theory is not merely the collection of laws, but also statements that explain the causes for the constructed relations between variables. Simply put: laws establish relations between variables and theories explain why these relations are established and detected for multiple times. Thus, theories are also statements that explain why repeated relations, connections or associations exist between variables. The focal point of a theory is the reasons for the emergence of particular detected regularities. The invention of a theory is carried out with the collection of verified and interconnected hypotheses. A theory have explanatory and predictive power. Theories are connected with the particular behaviors or phenomena in the world but

The attainment of knowledge and truth within the assurance of the inductive methodology, in this respect, cannot be valid to provide a systematic analytical framework for politics. Waltz has argued that international system or the whole cannot be known through its parts whether individualistic or national. Walt has emphasized the plural characteristics of knowledge and levels of analyzes to undermine the adverse and reductionist impacts of empiricism on politics. Waltz has opposed to the empiricist line in IR (Ibid, 1979, pp. 4-5, 18) by stating that “observation and experience never lead directly to knowledge of causes” (Ibid, 1979, p. 4).

Empiricism through inductive methodology is reductionist and illusionary from Waltz’s point of view. Thus, the accumulation of data and knowledge does not lead to the attainment of knowledge, truth and genuine explanation about the nature of the world and politics. Simply put: knowledge and truth cannot be achieved or grasped by means of the collection of more data and knowledge in time. The dynamic, pluralistic and constructive characteristic of reality needs to be taken into consideration. Because “the possible objects of knowledge are infinite” (Ibid, 1979, pp. 4-5).

Waltz’s structural realism or neorealism (Tang, 2010, p. 9) has been linked to the philosophy of scientific realism (Dessler, 1989, p. 441) due to the critique of empiricism. But this has been considered as a misinterpretation. It has been stated that Waltz has adopted an instrumentalist view towards international politics (Chernoff, 2002, p. 192) by addressing the functioning of theories with different levels of analyzes in relation to the purpose. Waltz has argued that the theories of international politics centre on three levels of analyzes as follow: Individualistic, national and international. Waltz has defined individualistic and national levels of analyzes reductionist (Waltz, 1979, p. 18).

Walt has argued that “a systems theory of international politics” is necessary. Therefore, he has addressed the differences between systems and its units (Ibid, 1979, pp. 38-40) and then, challenged the empiricist and reductionist approaches in

still, always remain distinct from the world. Theories are not constant. Therefore, they cannot be tested and positioned as ultimately true or false. Theories are neither true nor false and are not a reproduction and reconstruction of reality. Theories are “a picture, mentally formed, of a bounded realm or domain of activity”. Theories and theoretical assumptions should be evaluated and judged in terms of their temporal explanatory or predictive power and level. See, Waltz, K. (1979). *Theory of International Politics*. Addison-Wesley Publishing Company, pp. 1-20.

IR. Walt has emphasized the need for a systematic analysis in international area. He has defined system as the combination of a structure, which is as an organizational concept, and “set of interacting units” (Ibid, 1979, pp. 40, 79, 89, 99). It can be expressed that Waltz’s purpose has not been oriented towards the rejection of empiricist and reductionist approaches. Rather, he has emphasized the weaknesses and limitations of these approaches for a systematic international analysis.

Waltz has defined anarchy and decentralization as ordering principles of international system (Waltz, 1979, p. 88) and hierarchy as the characteristics of states or the interacting units of system (Ibid, 1979, p. 93). Waltz has argued that system “depends not on the configuration of power among states but instead on their policies and behavior” (Ibid, 1979, p. 48) within which security relations and policies have a critical role. In “the Origins of War in Neorealist Theory”, Waltz has argued that “the ultimate concern of states is not for power but for security” (Waltz, 1988, p. 616) which has been effective in order to discuss / revise the concept of power from a deeper and multidimensional perspective.

Defining power in terms of the existence and availability of certain resources (including oil) can arise the potential problem of “power conversion” in the context of energy security. Power conversion implies the ability to convert the potential power which is measured by the existence and availability of certain resources into actual power which is measured by the imposed changes in the behaviors of other nation states (Nye, 1990, p. 178). It can be expressed that the existence and availability of certain resources as potential power does not necessarily imply the ability to convert this potential power into actual and realized power and influence in international area (Raimzhanova, 2015, p. 4). It should be noted that the separation between energy-rich and energy poor states (or consuming and producing states) is not consistent with the classification of the developed and developing states (Barton et al, 2004, p. 9). It can be interpreted that the existence and availability energy resources may not imply power and development in international area. Thus, defining power in terms of the existence and availability of certain resources can be misleading. Because, “it is not always certain that actors will be able to use resources which are nominally under their control” (Hart, 1976, p. 290).

Waltz has argued that “the structure of a system changes with changes in the distribution of capabilities across the system’s units” (Waltz, 1979, p. 97). It can be expressed that there are multiple aspects about the notion of power that can lead to changes or conversions in IR. Power is not monolithic and unidimensional concept. Scientific and technological developments, in this respect, have been evaluated as “critical power resources”, rather than the existence and availability of natural resources in a territory. It has been stated that geographical conditions, natural resources and raw materials are less important compare to the education, technological development and economic growth in the context of power. Thus, there has been a separation between material or property concepts of power and behavioral or relational concepts of power in IR (Nye, 1990, pp. 179, 183, 188; Baldwin, 2016, pp. 49-50). This kind of a separation has also influenced the basic assumptions and underpinnings of realist security paradigm in terms of power and control.

Waltz has argued that structure as a model of analysis is important in order to observe, explain and predict the interactions and relations between states (or units). Structural perspective provides an opportunity in order to make predictions about “expected organizational effects” (Waltz, 1979, p. 100) which is important for the stability and predictability of international system. It has been argued that differences between the international system and national units need to be clarified and resolved in order to conduct a systematic analysis. Waltz has focused on the distinction between international and national politics through their different structures (Ibid, 1979, p. 103). In doing so, he has tried to re-interpret the classical assumptions of classical realism including the connection between human nature and institutionalized conflicts and struggles for the interests (including power, control and security) through a structural analysis.

Waltz has defined international affairs in terms of the interactions of units (or states) that make up the international system (Ibid, 1979, p. 94; Česnakas, 2010, p. 40). Walt has acknowledged that states are not the only actors in international area. But still, states define and form the structure and trend of the international system through their policies, actions and interactions and they set the terms / conditions of international system. It has been argued that states or sovereign political entities -who share functional similarities and capability differences- are and will be the main decisive actors in international area. Structural realism has focused on

the structure, the international system and great, major powers. Walt has argued that international structure is defined through the policies, actions and behaviors of major powers. A comparative analysis about the capabilities of states (units), in this respect, has been proposed in order to measure the influence and deterrent capabilities of national powers in international area. Thus, Waltz has emphasized a connection between the architecture of international politics and inequalities (rather than a connection between the international politics and human nature) by addressing the variety in the distribution of capabilities (Česnakas, 2010, p. 40; Waltz, 1979, pp. 93-98, 105).

Waltz has argued that the “size of population and territory, resource endowment, economic capability, military strength, political stability and competence” define the differences in the capabilities of states (Waltz, 1979, p. 131). And, security has been considered as a priority in an anarchic and unequal international environment which is constructed upon the different capabilities of nation states. In the light of all of these: energy security policies can be evaluated as critical components for national security objectives. Nation states prioritize economic interests for their political and military ends. And they use political and military means for the actualization of economic interests and achievements (Ibid, 1979, p. 94). Energy security policies, in this respect, have been evaluated as a junction point among political, military and economic interests. It has been argued that the diversity in international structure is capable of providing both opportunities and vulnerabilities for the intertwined relationships between nation states. Therefore, nation states have been encouraged or triggered as most powerful actors in international area who can take advantage of these opportunities in relation to their interests and can undermine the vulnerabilities as a necessity for their survival, security and improvement. It has been argued that nation states can re-shape and re-organize the framework, paradigm or structure of energy security relations and policies outside of their territorial sovereignty (Stoddard, 2013, p. 455).

Waltz has emphasized a connection between structural factors and economic interests through the notions of relative dependency and relative independency. Waltz (1979) has argued that “the more dependent a state is on others, and the less its leverage over

them, the more it must focus on how its decisions affect its access to supplies and markets on which its welfare or survival may depend” (p. 153). It can be interpreted that the relative dependency of energy-poor states has been effective for the conceptualization of energy security policies in relation to the security of energy supply (Newiadomsky and Seeliger, 2016, p. 385), functioning of market forces and technological developments. Besides, it has been argued that energy security within the authority of nation states has a natural tendency “to surpass national borders and affect regional and international security” (Pereira, 2015, p. 199) processes. Conflicts and competition over energy resources have been evaluated as national threats, but quickly turned into regional, international and global problems (Ibid, 2015, p. 198). Therefore, the main argument is that realist and liberal security paradigms have been effective in the conceptualization and formulation of traditional energy security policies.

Energy security has been evaluated as a national strategic imperative which is based upon a state-centric perspective (Ibid, 2015, p. 199) in the context of realist security paradigm. Realist security paradigm has emphasized that nation states “must rely on the means they can generate and the arrangements they can make for themselves” in order to survive. The principle of self-help has been positioned as “the principle of action in an anarchic order” (Waltz, 1979, p. 111). It has been explained that self-help is the ultimate principle “in an anarchic system of states where there is no higher government to settle conflicts” (Nye, 1990, p. 180). But international agreements, including production and sharing agreements (Bindemann, 1999, p. 1; Klare, 2008, p. 98), have also been addressed for energy security policies as well. Thus, it can be interpreted that both the notions of self-help and international alliances through arrangements have been proposed as important aspects in the context of energy security.

Classical realism and structural realism have emphasized a state-centric perspective through national interests, security and survival which have been formulated in terms of the pursuit of power and control. Military power has been evaluated as a vital mechanism in order to strengthen national security. Military strength has been considered as a necessary standard of political values. It has been assumed that “the foreign policy of a country is limited not only by its aims, but also by its military strength or, more accurately, by the ratio of its military strength to that of other countries” (Carr, 1946, pp. 109-110).

The ownership of oil and natural gas reserves has also been consolidated as a necessity for military power (Klare, 2008, p. 9) which is “both a means and an end in itself” (Raimzhanova, 2015, p. 3).

The national context has been crucial for energy security concerns (Demski et al, 2018, p. 882). It has been assumed that “energy security is primarily a national level concern” (Pachauri and Cherp, 2011, p. 199). It has been assumed that “energy is vital for state survival and can be used to hurt other states” (Ciută, 2010, p. 128). Therefore, state and supply security-centric policies as “a fundamental pursuit underlying biological survival” (Skinner, 2005, p. 2) have been emphasized in the context of energy security. Energy exploration and exploitation activities, in this respect, have been illustrated in terms of conflicts and struggles. The structure of global energy governance is divided in dichotomous of exporters and importers (Proedrou, 2018, p. 20) in the context of traditional energy security paradigm. And a tension between producers and consumers have been addressed in relation to the control of energy resources (Westphal, 2006, p. 46) and potential for conflict in bilateral or regional contexts (Deese, 1979-1980, pp. 142-143).

“Creating a peaceful world is surely an attractive idea, but it is not a practical one” in the context of realist security paradigm (Mearsheimer, 2001, p. 17). The hegemony of realist security paradigm in IR has divided human beings, instead of pulling them together, due to the prioritization of power, control and coercion, not truth (Booth, 2007, p. 26). Furthermore, realist underpinnings of traditional energy security paradigm have contributed to the planetary insecurity by avoiding the global ecological impacts of fossil fuels based energy security policies. While energy-importing states have focused “to secure the needed energy imports from various sources and through various conducts at an affordable price”, energy-producing states have focused on the economic revenues and market share (Dudau and Nedelcu, 2016, p. 544). Therefore, it has been argued that the principle of rationality within the scope of traditional energy security paradigm has varied for consuming and producing or importing and exporting countries (Česnakas, 2010, p. 35). But the negligence of global ecological impacts and energy inequalities has been a common behaviour through the underpinnings of realist and liberal mainstream security paradigms in IR.

2.2.2 Liberal security paradigm

Liberal security paradigm has had a key role in positioning individuals within a consumer cycle (Davtyan, 2017, p. 1), which can be connected with energy security. The argument is that liberalism has been effective in manipulating individuals' engagement and responsibility in relation to energy security relations and policies. The prioritization of military security and economic expansion through state-centric perspective has led to a globalized negligence regarding the intrinsic value of global environment. In this context, "(...) most people do not put much thought into where energy becomes from and what kind of social, political, economic, and environmental ripples it causes before entering their gas tanks and power outlets" (Sovacool et al, 2014, p. 1). It is important to note that the increase in energy demand and consumption cannot be analyzed solely from the nation state-centric perspective. The industrial and most importantly the individual levels of analyzes are also connected with the energy consumption patterns and behaviors (Chakrabarti and Arora, 2016, p. 1480).

Individuals have been evaluated as insatiable consumers in the processes of global energy security. It can be expressed that the consuming patterns have contributed to the continuity of energy extraction and production activities in international area. Individuals as consumers of energy resources have been in close relationship to the construction of political and economic ideological structures in the context of global energy security (Davtyan, 2017, p. 3). Such emphasis demonstrating "you need most what you lack most" (Bauman, 1997, p 3) can be seen as connected with liberal security paradigm. In this process, consumption has been accepted as a measurement of happiness, successful life and even human decency (Ibid, 1997, pp. 3, 40). It can be interpreted that there is a connection between individuals' consumption patterns and continuity of fossil fuel-based energy security policies and production activities. Consumerism as a "psycho-cultural fabric of life" (Goldblatt, 2005, p. 5) can be connected with traditional energy security paradigm. The explanations about traditional energy security paradigm have favored a consumeristic perspective through the underpinnings of liberal security paradigm, while ensuring the continuity of fossil fuel-based industrial production activities.

The 'westernization' of the world has led to a pattern of production and consumption which builds intensively on the nearly limitless availability of matter and energy, sophisticated

technology, and the existence of natural 'skins' in which solids, liquids and gas-emissions can be dumped (Altvater, 2007, p. 38).

It can be interpreted that a market-based approach has been emphasized for individual satisfaction and emancipation within the scope of liberal security paradigm. Liberal security paradigm has tried to provide "desirable cultural, political, and socioeconomic identity", which is produced from socialization process (Moravcsik, 2012, pp. 84-85). In this process, energy consumerism plays critical role. The functioning of modern societies includes "(...) massive extraction, processing and conversion of natural resources, both renewable and non-renewable, into 'goods' that -for the most part- soon become wastes and pollutants" (Ayres, 2008, p. 2). A materialistic view of energy has influenced communities' current consumption patterns of energy on a global scale (Bradford, 2006, p. 45). There has been a positive and supportive relationship between increasing energy consumption and economic growth (Ayres, 2008, pp. 7-8). I think it can be interpreted that the role of oil in the political, economic, industrial and social functioning of communities has been influential for the conceptualizations and metaphors regarding the liquid or fluid modernity, as in the conceptualization of Bauman (2000).³⁰ Narottam Gaan has argued that "ethnocentrism of western pattern of development, the profligate life style, world view and the view of the relationship between man and nature" should not be ignored in investigating the reasons for environmental degradation (Gaan, 2004, p. 17).

Rather than attributing environmental destruction to the actions of a relatively small number of thoughtless and careless individuals, or to some passing phase of industrial recklessness that accompanies an otherwise benign evolutionary process of economic development, the destruction described here is attributed to driving forces that are pervasive, persistent, and deeply ingrained in our values, lifestyles, and institutions (Hempel, 1996, p. 52).

The role of nation states and market forces has been justified due to their representative and instrumental role for the needs, demands and preferences of individuals within the scope of commercial and republican liberal perspectives (Moravcsik, 2012, pp. 85-88). It has been argued that political and economic strategies of nation states should focus on liberal regulations. Because it has been assumed that liberal approaches can be

³⁰ See, Bauman, Z. (1999). *Liquid Modernity*. Polity Press, 2000.

effective in order to protect consumers' right and to increase competition and transparency in energy market (Yılmaz Bozkus, 2018, p. 125). Further to this, it has been argued that consumerism is the first "global" ideological form (Jhaveri, 2004, p. 3). Hence, there have been liberal regulations in order to adjust both realism and traditional energy security paradigms into this global form. For this reason, it has been expressed that the need for a sociological change and support regarding lifestyles, life conditions and consumption habits of individuals is a prerequisite in the context of transnational political characteristic of climate crisis. The need for a sociological change and support challenges "the premise that society and nature are separate and mutually exclusive" (Beck, 2010, pp. 255-256).

Liberal security paradigm has emphasized that the functioning of international institutions and companies are important in order to support the policy dialogue between energy producing and energy consuming states. It has been assumed that a policy dialogue between producers and consumers can encourage many forms of cooperation and thus, can increase transparency and investments plans in energy market. A dialogue between producers and consumers has been addressed in order to harmonize energy market (Bressand, 2010, pp. 269-270; Harks, 2010, p. 260) which has been evaluated as "an abstraction of more complex realities" (Miller, 2014, p. 2) in international energy relations. Democratic stability and security of a state which have economic and civic roots have been evaluated necessary in order to constitute the international position of a state "as a desired ally and partner" (Czarny, 2020, p. 1) in the context of liberal security paradigm. Liberal security paradigm has emphasized the importance of a dialogue between producers and consumers in order to stabilize energy market. Stabilization of energy market through the functioning of international institutions and companies has been in relation to the purpose and need of the security of energy supply (Skinner, 2005, p. 2). But the functioning of companies in energy market has also been "a useful lynchpin for western intervention" in the Middle East region (Venn, 1986, p. 1). The Middle Eastern oil industry has been connected with the "Anglo-American hegemony in the Middle East and North Africa, and the overwhelming predominance of American and British companies in the world petroleum market" (Issawi, 1978, p. 5).

Security dilemma, which describes the obstacles for nation states to achieve peace and cooperation in international area (Acharya and Ramsay, 2013, pp. 183-184) has been tried to be eliminated with the notions of international institutionalism and market forces in the context of liberal security paradigm. While realist security paradigm has addressed the mistrust and skepticism in IR, liberal security paradigm has addressed a possibility and willingness for trust through international institutions and cooperation (Kydd, 2007, pp. 3-5; Cao and Bluth, 2013, p. 383). But it has also been assumed that governmental interventions may sometimes be necessary and beneficial in order to ensure that consumers can access sustainable and secure energy resources (European Commission, 2014) which emphasizes the complex, multi-faced and evolving characteristic of energy security (Kuik et al, 2011, p. 627).

It can be expressed that liberal security paradigm has been oriented towards both the functioning of market forces and intervention of states in the context of energy security. Sometimes nation states have been emphasized as the appropriate actors to intervene and regulate. In other instances, international mechanisms have been emphasized (Ullman, 1983, p. 145). Market capitalism has been conceptualized as a promotive strategy for the prosperity and allocation of scarce resources (Burchill, 2005, p. 55). It has been assumed that economic risks regarding the disruptions in energy supply can be undermined through governmental regulations and policies which encourage competition, free trade and investments in energy market. But the benefits of energy resources as a public good have been accessible for those who can pay for it. Thus, it can be expressed that the scope and level of energy security of market forces have excluded social aspects about energy security, including energy inequality and poverty (Bielecki, 2002, pp. 236, 246).

Liberal security paradigm has evaluated the functioning of market forces as a necessity in order to fulfill the diverse energy needs and demands of individuals and societies. Everybody, in this respect, is connected to the "global energy systems and markets" in which both the non-renewable and renewable sources are utilized. This global connection and polity / market interactions imply that no one can run away from the climatic impacts of energy systems and markets. Even though the fact that there are diverse definitions and explanations about energy security still, climatic and planetary outcomes of energy resources and energy

market are applied to everybody and every country (Kester, 2018). John Urry (2013) has expressed that “energy rarely involves a ‘free lunch’, although the bill is often paid by those not actually consuming the lunch” (p. 2). This contradiction can be read as one of the obstacles in order to develop a comprehensive response for the impacts of climate crisis. Therefore, eradication of energy poverty and inequality is also necessary in developing a global response for climate crisis.

Traditional energy security paradigm has neglected global environmental factors impacts and social inequalities. Fossil fuel based consumerism and industrialization have been considered as a measurement of the power, development and success in international area. It has been assumed that energy security requires to put planetary concerns, considerations and policies to the back burner (Luft and Korin, 2009, p. 14). It has been expressed that policies and actions to enhance energy security “may well conflict with either economic efficiency or environmental protection or both” (Lieb-Dóczy et al, 2003, p. 11). Thus, energy security has been addressed in relation to the tension between economic activities and environment (Lima et al, 2015, p. 176) which emphasizes an instrumental perspective towards the environment.

International governance mechanisms have been emphasized to balance the demand and supply of energy (Goldthau and Witte, 2010, p. 2) in the context of liberal security paradigm. Commercial and economic factors have been emphasized in order to develop the security and competitiveness of energy sources in energy market (Popescu, 2015, p. 468). EU, for instance, has emphasized a more collective approach through the functioning of energy markets and cooperation at regional and European level. Thus, conceptualizing energy security at national level has been challenged with the notion of interdependency. It has been expressed that “improving coordination of national energy policies and speaking with one voice in external energy policy” should underpin the energy policies and choices of all Member States (European Commission, 2014, p. 3).

Energy security addresses a linkage between domestic and foreign policy (Shaffer, 2009, p. 3). The security and protection of the oil fields in Iran, for instance, has been evaluated as a vital component of UK interest (Beck, 1974, p. 146). Within this framework, liberal security paradigm has asserted that nation states are embedded in domestic and transnational society (Moravcsik, 2012, p. 83) and “an energy security gain for one state does not necessarily need to be a loss for other states” through the

operation of non-state actors in global energy markets (Vivoda, 2010, p. 5262). International negotiations and agreements on energy “take place continuously and are expected to continue indefinitely into the future”. The simultaneous interactions in energy market through international institutions and agreements increase the multiple-play rather than a single-play in the context of energy market and trade (Keohane, 1984, pp. 76, 90). It has been argued that the realization of the importance of oil, to be specific, has been effective in integrating Arab economics into the global economy (Al-Moneef, 2006, p. 11; Alnasrawi, 1991, p. 174).

Energy has been a crucial component for industrialized hegemonic powers in order to increase their economic and military advancements and to maintain their preponderance in international area (Mahdi, 2012, p. 12). The international policy focus on energy security “stems from society’s inability to find ready substitutes for energy in the production of goods and services valued by consumers. More precisely the elasticity of demand for energy is low” (Metcalf, 2013, p. 12). Therefore, a reciprocal relationship between energy exporting and importing states through the functioning of institutions (Labandeira and Manzano, 2012, p. 9) has been emphasized within the scope of liberal security paradigm. But the functioning of institutions does not necessarily imply a harmonic relationship. Romantic estimation about the power of the collective egoism and institutional self-interest seeking (Niebuhr, 2002, p. 7) has been problematic in terms of energy security. Besides, intergovernmental institutions have been used in order to control the policies and actions of other states (Keohane, 1984, p. 140) in the context of energy security.

The institutional and intergovernmental reflections of energy security can be seen more clearly with the establishments of the Organization of Petroleum Exporting Countries (OPEC) and International Energy Agency (IEA). OPEC as a cartel was established in order to control oil prices in international area. Securitization of a steady income and fair return of consuming countries’ capital for the investments in energy market have been addressed as main interests for the members of Organization (Dudau and Nedelcu, 2016, pp. 546-547; OPEC, 2012, p. 1). OPEC was established by Iran, Iraq, Kuwait, Saudi Arabia and Venezuela in order to coordinate and unify the petroleum policies and to determinate the ways and means “for safeguarding their interests, individually and collectively”. It can be interpreted that individualistic

interests have been conceptualized as national interests and collective interests have been conceptualized as intergovernmental interests (OPEC, 2012, p. 1).

The majority of oil producing and exporting countries -located in the regions of the Middle East, Asia and Latin America- were not industrialized. A dependent relationship between these countries and foreign, international oil companies has developed in order to monitor, extract and develop of energy resources. These companies controlled production and distribution activities in energy market during the early years of oil discovery. Thus, Anglo-Saxon companies controlled and dominated the international trade of oil (El-Gamal and Myers Jaffe, 2010, p. 26; Dudau and Nedelcu, 2016, p. 546; Al-Moneef, 2006, pp. 11-12).³¹ Traditional energy security paradigm has marked “a story of colonial control by foreign oil companies supported diplomatically and militarily by imperial powers which needed oil to fuel their industrial economies” (Marcel and Mitchell, 2006, p. 14). Oil has been a critical determinant for the relationship between industrialized countries and producing countries (Beck, 1974, p. 123).

Political and economic concerns have increased the tensions between oil-producing countries and foreign oil companies. The acceleration of nationalist movements in the late 1940s and early 1950s, growing demand for a greater control, revenue and economic advantage have dominated the behaviors and policies of oil-producing countries in the context of energy security. Thus, a cooperation between oil producing countries has lead to the establishment of OPEC in order “to balance the market power of the international oil companies’ oligopoly with their own” power in energy market. Throughout the 1960s, OPEC focused on the “bargaining power” as a deterrence to extract taxes. OPEC’s role has changed from an oligopolistic negotiator to a direct oligopolistic player in energy market due to the globally increasing demand for oil

³¹ For more information about these international oil companies named as the “Seven Sisters”, see, Sampson, A. (1974). *The Seven Sisters: The Great Oil Companies and the World They Made*. London: Coronet Books, 1976.

and weakened position of Dollar mainly due the impacts and costs of Vietnam War (El-Gamal and Myers Jaffe, 2010, pp. 26-27; Kuzemko et al, 2016, p. 65).

The rules of the energy trade have changed over time. In the second half of the twentieth century, oil exporting countries claimed their sovereign rights after international oil companies had lost their strategic and central position due to the process of decolonization, nation-building, and nationalization of oil industries, starting in Latin America and the Arab World (Westphal, 2006, p. 46).

“Until 1960, the world oil industry outside the Socialist countries was almost entirely privately owned. The exceptions were Mexico, which nationalized its oil producers in 1938, and Iran, where the state took over as owner in 1951” (Aguilera and Radetzki, 2016, p. 42). Then, in the beginning of the 1960s, the political, economic and nationalist concerns encouraged oil producing countries to find ways and means in order to sell their oil directly. A number of countries created their own national oil companies which were operated by their respective governments as resource holders. It can be expressed that the establishment of national oil companies has been a source of inspiration for the emergence of OPEC (El-Gamal and Myers Jaffe, 2010, p. 27; Hilyard, 2012, pp. 228-229).

It has been mentioned that oil has been used as a weapon and as a mechanism of bargaining in conflicts. Arab oil ministers’ decision to reduce oil production and impose embargoes for countries that are friendly with Israel has been conceptualized as the first oil crisis. Oil exporting countries banned oil shipments to the western industrialized countries which increased anxiety and fear in energy market (Yergin, 1991, pp. 555, 557; Keohane, 1984, p. 222). These anxieties were not just about the dynamics of the power politics in international area. They were also seen as “a perceived threat to the idealized model of the global political economy as a liberal, transnational and globalized realm” (Dannreuther, 2015, p. 467). Thus, it can be interpreted that both realist and liberal security paradigms have conceptualized traditional energy security paradigm in terms of these anxieties and fears. Increasing fear and anxiety have been effective for the emergence of another collective energy institution. International Energy Agency (IEA) was established by the Organisation of Economic Cooperation and Development (OECD) countries following the Arab oil embargo in 1973. The establishment of IEA has been evaluated as a strategic

instrumental respond in the context of energy supply security (Energy Charter Secretariat, 2015, p. 6).

In early 1974 the United States called a conference of the major oil-consuming capitalist countries, and later in the year sixteen of these states (with the significant absence of France) joined together in a new International Energy Agency (IEA) under American leadership (Keohane, 1984, p. 192).

During the oil crisis, potential for cooperation among oil consuming countries has increased. Cooperation on energy supply security as a reaction to the oil crises and as a formulation to calculate the economic consequences of oil disruptions has been materialized with the development of IEA (Türk, 2014, p. 210). Apart from targeting the impacts of oil shortage and price rises, it has also been assumed that oil producing countries in IEA such as USA, United Kingdom and Canada would be called to make sacrifices (to some extent) in order to contribute to the security of energy supply. “Ensuring energy security has been at the centre of the IEA’s mission since its creation in 1974, following the oil crisis in 1973”. IEA as an institutional respond and “emergency sharing system”, in Keohane's words, has defined the concept of energy security “as the uninterrupted availability of energy resources at an affordable price.” Therefore, IEA conducts researches and analyzes in order to calculate the “current and future risks for oil supply disruption” (Keohane, 1984, pp. 192-193; IEA, n.d.).³² It has been expressed that relatively lower and stable energy prices are needed in order to undermine energy security risks and to stimulate energy economics (World Economic Forum, 2012, p. 9) from IEA’s point of view.

OPEC aimed “to create a producers’ regime based on rules for prorationing oil production” (Keohane, 1984, p. 60) and IEA aimed to cope with the economic and social outcomes of increasing oil prices, to reinforce the political influence of the USA, to protect consumers’ share in oil market and to undermine the threats and risks of selective embargoes (Ibid, 1984, pp. 22-23, 60). Collective and institutionalized energy structure, private and public establishments can be read as the interactions between realist and liberal security paradigm.

³² See, International Energy Agency (IEA, n.d.). *Energy Security: Reliable, Affordable Access to all Fuels and Energy Sources*. IEA. Retrieved October 11, 2019 from <https://www.iea.org/topics/energy-security>; see also, International Energy Agency (IEA, n.d.). *Oil Security*. IEA. Retrieved October 11, 2019 from <https://www.iea.org/areas-of-work/ensuring-energy-security/oil-security>

In addition to this: power in energy market has been evaluated as a component for the exercise of power in international area. It has been explained that Russia, for instance, has consolidated its political power both internally and externally through its market power in supplying natural gas to Europe (Pascual and Zambetakis, 2010, pp. 19-21). The establishment of OPEC for energy producers and IEA for energy consumers acknowledges the institutional aspect of liberal security tradition, but also the underpinnings of realist security tradition including egoism and distrust. The establishment of OPEC and IEA also acknowledges the complementary relationship between wealth and power (Keohane, 1984, p. 22; Niebuhr, 2002; Dudau and Nedelcu, 2016, p. 547) in the context of traditional energy security paradigm.

In addition to all of these: USA has tried to protect and increase its hegemonic power by pricing oil in the dollar currency. The dollar hegemony has been created for the trade of critical commodities, including oil. Pricing oil in the dollar currency as a geopolitical and macroeconomic strategy has created a capital surplus for the USA. This petro-dollar supremacy has been used in order to recycle the dollar earnings of the oil producing states into non-oil producing states through the functioning of western banks and financial institutions of USA. USA has tried to ensure available, accessible, affordable and reliable petroleum import, especially from the Middle East region. The political economic discourses regarding the liberalization of private banks and capital markets have been addressed in order to facilitate the investments on the petro-dollar supremacy and to support / to preserve the central role of dollar currency in international trade. The petrodollar supremacy and American centered international trade have reinforced each other. It can be expressed that the constructed connection between oil and dollar as the petrodollar supremacy has been in relation to the realist thought in IR (Liu, n.d.; Clark, 2005, pp. 20-23; Gowan, 1999, pp. 21-25; Keohane, 1984, p. 140) and has been used for “a liberal consensus for American foreign policy and military policy” (Clark, 2005, p. 23).

One of the reasons for the invasion of Iraq by USA in 2003 was to maintain the position of Dollar currency “as the monopoly currency for the critical international oil market” (Clark, 2005, p. 3) and “as the international currency standard for oil transitions” for the USA supremacy (Ibid, 2005, p. 27).

Robert O. Keohane (1984) has expressed that “in a material sense, oil was at the center of the redistributive system of American hegemony” (p. 140). Therefore, the link between national security and foreign policy has been intensified (Cao and Bluth, 2013, p. 381) in the context of energy security. Energy policies and strategies have an essential role for national security (Popescu, 2015, p. 468). The notion of national security has been “useful for thinking about the problem of energy security” (Duffield, 2015, p. 20).

It has been argued that political behaviors of nation states can be conflictual or cooperative (Moravcsik, 2012, p. 88) in the context of realist and liberal security paradigms. Liberal security paradigm, in this respect, has addressed economic interdependency and international institutions in order to eliminate conflicts and to increase mutually beneficial and cooperative international energy relations (Mearsheimer, 2001, p. 9; Chifu, 2014, p. 263). It has been expressed that nation states that are associated with liberal democratic values and structures are capable of making valid, sound and just decisions about the provision and consumption of energy resources and complex socio-environmental problems (Ariza-Montobbio, 2015, p. 80). It has also been expressed that deployed military forces can be effective for regional political stability, protection of energy infrastructure and economic security. But the invasion of Iraq by USA refutes this claim (Deutch, 2007, p. 23). It can be seen that liberal security paradigm cannot be effective in eliminating conflicts, struggles and wars upon critical commodities, including oil. Liberal security paradigm cannot be effective in preventing political, economic and military interventions and threats. The impacts of traditional energy security paradigm emphasize that liberal security paradigm cannot be reliable in proving a stable, cooperative, peaceful and eventual state of affairs in the context of the history of human societies, energy security and climate crisis, unlike the assumptions in the end of the history thesis of Francis Fukuyama (1992).³³

It has been stated that oil embargo of Arab countries has also produced adverse impacts for the countries that imposed the embargoes (Yergin, 2001, p. 557) due to the interdependent nature of the supply and demand of energy in international area.

³³ See, Fukuyama, F. (1992). *The End of History and the Last Man*. Free Press.

Thus, it has been expressed that politicization of energy recourses can produce adverse effects for the transparency and credibility of energy market (Cordesman and Al-Rodhan, 2006, p. 6). It has been stated that self-interested consumers and producers should not be in conflict for their own interests (U.S. Department of State, 1974, p. 37) in the long term. The security of energy supply and demand cannot be seen as an altruism in the context of liberal security paradigm. Rather, this has been conceptualized as a necessity, since both consuming and producing states are in a structurally dependent relationship (OPEC, 2006) in the context of energy security. The importance of mutual stability, dependence and cooperation has been tried to distinguished from the notion of altruism (Deutch, 2007, p. 13).

Energy security is critical for economic development and political stability. Thus, control and diversification of energy supplies have been addressed as critical policies in order to improve energy security in the context of realist and liberal security paradigms. Energy security “as stable and diverse sources of supply, is important to both political and economic stability” and therefore, cooperation between governments, private sector, public sector and individuals has been emphasized (United Nations Economic Commission for Europe, 2013, pp. 6, 15, 32-33). Both the militarization and cooperation have been read as viable responses and strategies in order to improve energy security (Luft and Korin, 2009, p. 13) in the context of realist and liberal security paradigms. It can be interpreted that liberal security paradigm has emphasized the need and importance for governmental responses but still, has evaluated energy security beyond the notion of national security.

Liberal security paradigm has been addressed in order to challenge the causes and impacts of resource nationalism. In this spirit, the role of liberal security paradigm on energy security relations and policies can be read “as an ideological counter-reaction”, as explained by Roland Dannreuther, for the perceived threat of resource nationalism (Dannreuther, 2015, p. 467). “A global liquid market (for oil) and relatively low fossil fuel prices” have also been emphasized critical in the formulation of energy policies (Dyer and Trombetta, 2013, p. 3). In this liquid or multiplicity, the foreign state companies have “greatly weakened the industry as against the producing governments” (Issawi, 1978, p. 7). Edward N. Luttwak has argued that there has been a shift from geopolitics to geoeconomics (Luttwak, 1990, pp. 17-23)

which has been connected with the underpinnings of realist and liberal security paradigms that are “rooted in the deep fears of consumers about security of supply” (Goldthau and Witte, 2010, p. 1) in the context of traditional energy security paradigm. The geopolitical and market themes have affected the behaviours of producers and consumers in the context of energy security (Hadfield, 2013, p. 198).

Balance of power strategy, the functioning of international institutions and companies through the underpinnings of realist and liberal security paradigms have been decisive for the consolidation of traditional energy security paradigm in relation to the interests of consuming industrialized states. The “referent object” who has been “seen to be existentially threatened and that have a legitimate claim to survival” has been nation states who have been positioned as “securitizing actors” in international area. Private and public energy companies, in this respect, may be evaluated as “functional actors” that have influenced the market dynamics (Buzan et al, 1998, p. 36). Thus, the securitization and utilization of energy have been actualized in terms of realist and liberal security paradigms in IR.

3. THE CONCEPT OF ENERGY SECURITY

It is important to be aware of the differences between conventional, traditional or classical energy security policies and contemporary energy security policies (Cherp and Jewell, 2014, p. 415). While traditional energy security policies have been conceptualized as an encompass for “the conventional forms of energy, such as crude oil, natural gas and coal” (Chakrabarti and Arora, 2016, p. 5), contemporary energy security policies have been conceptualized in relation to the environmental and social outcomes of energy policies (Fang et al, 2018, p. 2; Sovacool, 2011, p. 2; Jansen and Seebregts, 2010, p. 1657) as well. Because it has been widely acknowledged that fossil fuel-based traditional energy security policies have contributed to the climate crisis (Indriyanto et al, 2011, p. 96; Luft et al, 2011, pp. 43, 45). It is important to realize the narrow and restricted framework of traditional energy security approach, “especially in light of the major environmental, social, political context in which energy operates” (Kuik et al, 2011, p. 632).

Traditional energy security paradigm has produced “a contested and politicized notion of energy” (Sovacool, 2011, p. 8). It has mostly been about secure “access to oil and other fossil fuels” (von Hippel et al, 2011, p. 6719). Traditional energy security paradigm has been connected with consumerism and neglected or externalized environmental impacts and costs (Bohi and Toman, 1993, p. 1093). Traditional energy security paradigm has been evolving from securing oil and other fossil fuels supply to focusing on other economic, environmental, transnational and international problems which are associated with the increasing global, diverse energy markets and energy transformations in the context of climate crisis. There has been a focus shift from ensuring energy supply and price stability to taking into consideration economic, environmental and social impacts of energy security policies and patterns. Therefore, a more comprehensive and workable definition and framework about the concept of energy security are needed (von Hippel et al, 2011, p. 6719; Winzer, 2011, pp. 4-6; Vivoda, 2010, p. 5263).

Because global energy system is “the major source of global greenhouse gas (GHG) emissions” (Bradshaw, 2010, p. 275). Concentration and “(...) the build-up of carbon dioxide and other gases that increase the retention of the sun’s radiant energy in the earth’s atmosphere -known as the greenhouse effect- all countries will suffer the vagaries of changed climate” (Myers, 1989, p. 23). Therefore, contemporary policies and approaches to energy security have been in relation to the environmental protection (Barton et al, 2004, p. 8; Brown and Sovacool, 2011, p. 4; Stern and Aronson, 1984, p. 16).

The literature about energy security is mainly drawn from realist security paradigm within which the conflictual aspects of energy policies and relations are addressed and liberal security paradigm within which legal, economic, cooperative and institutional aspects of energy policies and relations are addressed. Therefore, energy security studies in literature have been evaluated as narrow and under-conceptualized (Stoddard, 2013, p. 437). The policies, analyzes and discussions about the concept of energy security have focused on the causes and impacts of oil shocks, security of supply, reliability and affordability. These traditional approaches have been dependent upon narrow geopolitical and economic perspectives (Langlois-Bertrand, 2010, p. 1). Contemporary approaches to energy security policies, on the other hand, have emphasized that the impacts of energy policies are beyond the narrow concerns and interests of the producers and consumers in energy market (Stern and Aronson, 1984, p. 17).

It has been expressed that the risks and threats for energy security can arise from human beings’ activities, technological failures, environmental factors and other issues (Mitchell and Watson, 2013, p. 4). The sensitivity of the climate, remaining oil resources, increasing global demand and political instabilities have increased pressures on the sustainability of current energy policies, systems and oil economy orientation. The need to re-formulate energy policies beyond fossil fuels have been expressed. Thus, environmental impacts have become decisive in energy policies and decisions. But the pace, timing, structure and nature of the transition beyond oil is uncertain (Meadowcroft, 2007, pp. 197-199). And this uncertainty is connected with the absence of a paradigm definition about energy security as well. Therefore, it is important to critically examine the differences between traditional and contemporary approaches in the context of energy security.

It is important to be aware of the role of realist and liberal mainstream security paradigms on traditional energy security paradigm. Later on, it is important to examine the role of contemporary approaches to energy security policies in the context of environmental security paradigm. A critical perspective for both traditional and contemporary approaches to energy security relations and policies can be supportive in emphasizing a transition from “liquid modernity” (Bauman, 2000) to “green modernity” (Beck, 2010) in the context of planetary security.

3.1 Traditional Energy Security: Explanations and Interpretations

There have been two dominative orientations within the scope of traditional energy security paradigm. The first orientation can be thought to be realist due to its conflictual assumptions regarding the control of energy resources. For this approach, oil can be used as a weapon in international area. Oil as a geographically concentrated commodity can produce struggles and conflicts between oil exporting and importing countries. Therefore, diversification of supplies and development of alternative energy resources have been recommended in order to minimize energy dependency and security risks for importing countries. The second orientation can be thought to be liberal due to its cooperative and interdependent assumptions through the trade of energy resources and the functioning of international institutions in energy market (Constantin, 2005, pp. 3-5; Chifu, 2014, pp. 257-259; Deese, 1979-1980, p. 145). This market driven approach, coupled with its idealizations regarding the notions of free trade, competitiveness, transparency, widely accepted rules and norms in order to regulate contracts and investments, has assumed that energy prices and flow of energy resources can be optimized through the functioning of supply and demand forces in the energy market (Dudau and Nedelcu, 2016, p. 545).

There have been a shift from mainly geopolitical energy policy models to more competitive and market-driven energy policy models. Thus, less government interventions / involvements and greater market competitions were suggested, especially by the 1980s. But still, the term energy security has been framed in terms of supply-based notions and assumptions including the uninterrupted access to energy resources, diversification of energy sources, routes and geographic regions, available and abundant energy resources and resistance to the external instabilities and shocks. Both the security of the supply of primary energy sources and "geopolitical tensions" have been actively involved (Dudau and Nedelcu, 2016, p. 548; Chester, 2010, pp. 887-888).

In this context, security of supply indicates to cope with various risks, including limited production capacity, especially for electricity, infrastructure and transportation insecurities, failures associated to primary fuel supply in connection with reliance on imports and faults. (Lieb-Dóczy et al, 2003, p. 11).

Both of these approaches have been effective for the consolidation and reproduction of traditional energy security paradigm within which military and economic interests are prioritized through a mix model of nation states and market forces in the energy sector with no concern for global ecological impacts. It has been expressed that the history of energy security is old as fire (Valentine, 2011, p. 4573). But the emergence and acceleration of traditional energy security paradigm have been closely entangled with the political economic dynamics of Industrial Revolution, World Wars and specially, oil crises in the 1970s.

Economic interests, military security and preparedness for disruptions have been the earliest concerns of energy security policies (Bohi and Toman, 1996, p. 2; Sovacool, 2011, p. 7; Deese, 1979-1980, p. 143). The initial motivations and endeavors for RES have been connected with the concerns and fears about the security of oil supply from early 1970s. The experiences from 1970s have been evaluated as a reference point for traditional energy security paradigm within which national security, military advancements and economic interests have had a solid diffusion (Szulecki, 2020, p. 1; Hoozevee and Perlot, 2007, pp. 488-489; Simpson, 2013, p. 248; Cherp and Jewell, 2011, pp. 202-203). But “(...), more recently the driving motivation has been a desire to decrease the greenhouse gas emissions” (Nuttall and Bakken, 2020, p. 2) in the context of climate crisis.

There has been a consistent relationship between mainstream security paradigms and traditional energy security policies. As reflecting mainly western-centric international security paradigms (Buzan and Hansen, 2009, p. 10), traditional energy security paradigm has also followed this course. Traditional energy security policies have primarily focused on the problem of oil dependency (Newiadomsky and Seeliger, 2016, p. 385). Therefore, the definitions and explanations about traditional energy security paradigm have prioritized the notion of energy supply security. A reliable and stable supply of oil, to be specific, has been positioned as a crucial aspect for national security and energy security throughout the twentieth century (Lieb-Dóczy et al, 2003, pp. 10-11; Höök, 2010, p. 28; Finley, 2019, p. 1; Kester, 2018).

Thus, it can be expressed that traditional energy security paradigm reflects “the perspective of the developed world” (Barton et al, 2004, p. 6) with no concern for the conditions and interests of other communities and global environment. Moreover: the increasing importance of oil has triggered the endeavors for colonial control and imperial interventions (Marcel and Mitchell, 2006, p. 14; Stokes and Raphael, 2010, pp. 1-2) over oil-rich territories. In this regard, oil concessions and diplomacies have been “an integral component of imperialism, both informal and formal” (Venn, 1986, pp. 1, 9).

Peter Munz’s methodological distinction between explanation and interpretation will be adopted in order to challenge the definitions and explanations about traditional energy security paradigm in the context of climate crisis. Munz has revealed how a critical interpretation is necessary in order to provide a more truer perspective. (Munz, 1977, Chapter 4). As reflecting this methodological distinction, challenging the definitions and explanations about traditional energy security paradigm can be effective in order to emphasize a paradigm shift towards the concept of planetary security.

The explanations about traditional energy security paradigm consist of the underpinnings and assumptions of realist and liberal security paradigms. According to Laudan, the successfulness of a theory indicates its proven efficiency and functionality in various explanatory contexts (Laudan, 1981, p. 23). In response to this assumption, the successfulness and functionality of theoretical approaches, including traditional energy security paradigm in the context of its restrictive explanations, cannot be reliable for the truth, veracity and soundness (Lewis, 2001, p. 373) due to climate crisis. Therefore, a critical interpretation is important in order to appreciate the adverse impacts of the intertwined connection between energy security, military advancements and economic interests on a planetary level of analysis.

Energy security is one of the crucial aspects for the functionality and survival of lives (Pascual and Zambetakis, 2010, p. 9). Energy resources, while abundant, have been decisive for the economic development, welfare growth of a nation and industrial diversification (Chakrabarti and Arora, 2016, p. 2). “From a thermodynamic point of view, energy and matter are the fundamental factors of production. Every process of production is, at root, a transformation of these factors” (Baumgärtner et al, 2006, p. 4).

It can be expressed that the economic development, welfare growth and national security have been connected with the concerns and objectives about traditional energy security paradigm (Labandeira and Manzano, 2012, p. 2; Blum and Legey, 2012, p. 1982; Verrastro and Ladislaw, 2007, p. 95; World Economic Forum, 2012, p. 7).

Energy has a vital role for national and human security. Concerns over the reliability of energy resources have influenced energy security policies. The connection between mainstream security paradigms and energy security policies in IR has been decisive for “the transformations of energy systems” (Cherp et al, 2012, p. 329) in communities. A critical review towards the explanations about energy security indicates the role of military and economic-centric perspectives in the formulation of energy policies. Realist and liberal security paradigms, in this respect, have shaped and dominated fossil fuel based energy security policies through the prioritization of military and economic interests.

In the beginning of the twentieth century, Winston Churchill’s decision “to shift the power source of the British navy’s ships from coal to oil” (Yergin, 2006, p. 69) has lead to an intertwined connection between international politics and oil. Fiona Venn (1986) has expressed that “throughout the twentieth century, the history of oil and the history of international relations have been interlinked” (p. 1). In this regard, Churchill has evaluated oil as a strategic commodity and weapon in order to strengthen the Royal Navy against the German threat on the seas (Yergin, 1991, pp. 11-12, 156-157).

It has been decided that energy transition from coal to oil can offer operational and technical advantages for the Royal Navy. Because oil supported battleships have allowed for higher speeds, “a greater radius of action”, flexibility and opportunity in refueling at sea. All of these advantageous have contributed to the minimization of time, human labor, exhaustion and discomfort. Oil’s role in undermining the drawbacks of the solid fuel (coal) has been consolidated within the scope of the national security. A transition from coal to oil has also been considered as a requirement for naval innovation and modernization (Skelton, 1934, pp. 260-262; Yergin, 1991, pp. 155-156; Dahl, 2000-01, pp. 51-52). Besides, it should be noted that Germany had large coal production, “but no oil or access to it” (Jensen, 1968, p. 541). Therefore, energy transition from coal to oil has been widely conceptualized as a national strategy and military instrument for the British Navy.

The three naval programs of 1912, 1913, and 1914 constituted the greatest addition -in terms of sheer power and cost- in the history of the Royal Navy up to that time. All the ships of those three programs were based on oil -not a coal-burning ship among them (Yergin, 1991, p. 156).

Commitment towards the liquid fuel (oil) has raised concerns and critics in terms of the security of oil supply (Yergin, 1991, p. 156; Skelton, 1934, p. 264). Because the Royal Navy could not rely on the safe and secure coal from Wales anymore. The growing need / demand for the insecure and distant oil supplies from what was then Persia, now Iran, has raised fears and anxieties (Yergin, 1991, p. 12; Yergin, 2006, p. 69) for political, military and economic benefits in international area. Disruptions and insufficiencies in oil supply have been evaluated as a threat for national security, survival, power, control, capitalistic development, modern business and energy system (Cherp and Jewell, 2011, p. 4; Yergin, 1991, p. 13).

Energy security implies the “low vulnerability of vital energy systems” (Cherp and Jewell, 2014, p. 418) in communities. Oil importing countries’ concern for security of oil supply has been influential (Energy Charter Secretariat, 2015, p. 11) in strengthening traditional energy security paradigm. A growing fear in terms of national security, economic expansion, self-sufficiency and balance of power has brought attention to the security of oil supply in international area. Churchill decided to establish a committee in order to discuss energy security threats “including pricing, availability, and security of supply” (Yergin, 1991, p. 156). Churchill’s primary suggestion in ensuring secure and certain supply of oil was diversification strategy.

There have been multiple dimensions about the security of energy supply. But still, diversification strategy has remained to be crucial in energy security policies since Churchill’s day (Yergin, 2006, p. 70). Diversification strategy implies to build pipelines, to reduce dependency on the transportation routes and sea-lanes, to strengthen reciprocal relationships with the supplier countries, to facilitate investments on energy market in order to contribute to the supply security (Yergin, 2011, pp. 397, 405). The emergence of shale oil and natural gas production in USA, for instance, has been effective in reducing its dependency and reliance on oil and in improving its security of supply. A diversified energy security strategy through the production of shale oil and natural gas has been emphasized in order to create economic benefits and competitiveness in energy market. In the “Blueprint for a Secure Energy Future” of

White House, it has been stated that oil and natural gas supplies are critical components for the national energy portfolio of USA (Andreas, 2015, p. 34; Parraguez and Campero, 2015, p. 18; The White House, 2011, p. 9).

It can be expressed that the potential and actual benefits of oil compare to the coal have outweighed all of the fears, risks and threats (Yergin, 1988, p. 113) in the end. Following Churchill's decision, nation states have considered the security of energy supply as equivalent to the security of oil supply for political, military and economic interests in anarchic international area. Throughout the nineteenth and twentieth centuries, military and economic power of the USA and England have been depended upon the ability to access and control energy resources. The military and commercial use of oil has increased. Warships have begun to employ oil burners in their navy. The growing role of oil has been evaluated as a measurement for national security and economic growth. Thus, the industrial world has become highly dependent on oil (Jiusto, 2009, p. 534; Venn, 1986, pp. 3-4).

A secure supply of oil as a challenge has dominated energy security policies throughout the twentieth century. In this regard, energy resources have contributed to the mechanization of warfare (Sovacool and Brown, 2010, p. 80). Thus, traditional energy security paradigm has emphasized security of oil supply-centric definitions and explanations. This kind of a restrictive treatment and fuel-based definitions have limited the dimensions of energy security into geopolitical and also military perspectives (Sovacool and Mukherjee, 2011, p. 5344; Cherp and Jewell, 2011, p. 204) for a time, since the Middle East region has been the focus of the oil production. This material reality has been evaluated as one of the crucial vulnerabilities of the oil (Venn, 1986, p. 10; Dannreuther, 2015, p. 469) in the context of western-centric traditional energy security paradigm. It is no surprising that conceptualized studies and analyzes about the geopolitical power of energy resources and energy security (mainly energy supply security) have intensified following the oil crises in 1970s (Dannreuther, 2015, p. 466; Bielecki, 2002, p. 236). Robert O. Keohane (1984) has noted that "(...) until 1973 Americans took stable, cheap energy for granted" (p. 139). Charles Issawi (1978) has also noted that "(...) the Western world -and the United States, in particular- were behaving like spoilt children in thinking that they could have unlimited amounts of energy at no cost" (p. 11).

Following the 1973 Arab and Israel war, oil exporting countries “banned the sale of their oil to Israel’s allies”, including USA which supported Israel (Myers Jaffe and Morse, 2013). Thus, oil prices increased significantly. This was the first oil shock and marked "an energy insecurity era" for the western countries. But it is important to note that this anti-Israel and anti-American energy policy, which increased oil prices in 1973, was connected with the activities and arrangements of USA in the oil producing states. USA has influenced, manipulated and used the oil crisis in order to undermine the economic statecraft in its allies. The trade deficit and debts of USA, which were associated with the Vietnam War, have resulted in the devaluation of the dollar in the 1970s which affected the OPEC countries to raise the oil prices. USA has taken advantage of the impacts of oil crisis in order to improve / expand its supremacy, to implement a petrodollar recycling system and to intensify the exploiting role of its institutions, companies and banks in international economy which was not possible within the scope of the Bretton Woods regime. The lending arrangements between the developing countries and International Monetary Fund have created debts and loans for the affordability of high oil prices. And these debts and loans were to be repaid in dollar currency (Gowan, 1999, pp. 19-21; Stockman, 1993, p. 351; Clark, 2005, pp. 20-22).

Traditional energy security policies have emphasized military security and economic expansion in justifying the primary role of nation states (Cherp et al, 2012, p. 329). Fossil fuels, particularly oil and natural gas, underpin the functioning of modern societies. Modern economies rely on the production, distribution and consumption of coal, oil and natural gas. The concerns in securing energy supply, particularly oil, have been embedded in the international trade of energy. The concentration of supplies in particular regions -including the Middle East, Nigeria and Russia- and constraints in the production capabilities increase the concerns (Sovacool, 2011, p. 11; Mitchell and Watson, 2013, p. 3) in the context of energy security. The feelings of insecurity have been connected with the relative “epochal shift in the distribution of power from the oil importing consumers to the oil exporting states” (Dannreuther, 2015, p. 471). But in the 1980s and 1990s, oil exporting states have politically and economically weakened. And the shifting power was back to the western countries in the "US hegemonic leadership" (Ibid, 2015, pp. 471-473).

"Ideological counterpart to this decisive material shift in global politics was the dominance of a neo-liberal conceptualization of the international political economy" (Ibid, 2015, p. 473).

The meaning and focus of energy security have been highly context dependent. "Special circumstances, level of economic development, perceptions of risks (...) and prevailing geopolitical issues" (Ang et al, 2015, p. 1078) have influenced the context dependent nature of energy security. The variety in the explanations about traditional energy security paradigm has been connected with the 'fit for purpose' way of thinking (Mitchell and Watson, 2013, p. 1) in IR. There have been multiple definitions and explanations about energy security which differ among producing, consuming and transit countries (Energy Charter Secretariat, 2015, p. 20; Chifu, 2014, p. 258). Energy security has different meanings for different actors including states, institutions and individuals (Yergin, 2006, pp. 70-71; Fang et al, 2018, p. 3; Pronińska, 2007, pp. 216-217; Luft and Korin, 2009, pp. 5-6; Sovacool and Brown, 2010, p. 80). The diverse and context dependent nature of energy security (Kruyt et al, 2009, p. 2166) has been connected with the geographical concentration and uneven distribution of energy resources (Yu and Dai, 2012, pp. 93-94; Fang et al, 2018, p. 6).

Producing states have focused on the security of demand to get benefit from their "natural endowment" and to create wealth and prosperity that can contribute to the accumulation of capital in the territory. A balance between fair prices and stability of energy demand have been evaluated as crucial for the formulation of energy security policies. Stability of demand security has been connected with the stability of revenue flow. Consuming countries have focused on the security of supply, abundant, cheap and sufficient energy resources for the functioning of their economies (Pascual and Elkind, 2010, p. 4; Luft and Korin, 2009, p. 6). A stable oil revenue from exporting activities has been evaluated critical for both economic growth and internal / external political leverage (Hadfield, 2013, p. 198). Consumer perspective has focused on "reasonably priced energy services without disruption" (Sovacool and Brown, 2010, p. 80). Thus, it has been emphasized that "the terms 'security of supply' and 'security of demand' seem to reflect fundamentally different approaches" (International Energy Charter, 2015, p. 4) in the context of energy security.

The industrial and military roots of the politicized energy security policies have resulted in the negligence of other dimensions of energy security. There are multiple examples about the militarization of energy security (Luft and Korin, 2009, p. 7). Control on oil has been linked to the national power and security in international area. The World War I, II and Cold War periods have witnessed struggles and battles in order to control energy resources, particularly oil (Yergin, 1991, p. 13; Marcel and Mitchell, 2006, p. 14). Oil and the internal combustion engine changed the course of the World War I (Yergin, 1991, p. 167). The influence of oil in industrialized and militarized international politics has been tried to justify with the underpinnings of realist and liberal security paradigms. Thus, “institutional, national, or temporal form of energy security” policies, in this respect, have been emphasized (Sovacool and Brown, 2010, p. 81).

Iran as an oil-rich state, for instance, has been the focus of the USA, UK and Russian competition throughout the World War I, World War II and Cold War periods (Clawson and Rubin, 2005, pp. 48-49). The Anglo-Iranian Oil Company (AIOC), which was known as the Anglo-Persian Oil Company (APOC) until 1935, was formed in 1908 in order to explore oil in Iran (Beck, 1974, p. 123; Beyazay Odemis, 2015, p. 23). An agreement between the British government and APOC was signed to provide British government the major share which was 51 per cent. But then, Tehran has raised concerns about the conditions of the contract (Malek, 2005, p. 128; Yergin, 1991, p. 161). Nationalist movements in Iran evaluated APOC as a target in order to criticize Iran’s dependence upon UK (Beck, 1974, p. 144). After the Iranian prime minister Mohammad Mosaddeq nationalized the British Anglo-Iranian Oil Company, US and UK governments planned a coup against Mosaddeq and overthrown his government (Kinzer, 2003; Yergin, 1991, pp. 450-478), which can be evaluated as a sample of intimidation and threat against to the endeavors regarding the nationalization of oil companies in the context of resource nationalism.³⁴

Traditional energy security policies have been oriented at ensuring the security of oil supply (Labandeira and Manzano, 2012, p. 9; Kruyt et al, 2009, p. 2167). Because

³⁴ See, Kinzer, S. (2003). *All the Shah’s Men: An American Coup and the Roots of Middle East Terror*. John Wiley & Sons, Inc., Hoboken, New Jersey.

oil's importance has increased after the period of World War II. Oil has become an indispensable commodity and input for the functioning of industrialized communities. Industrialized states have been dependent upon the oil for transportation, manufacture, food production, health care, heating and electricity generation (Cherp and Jewell, 2011, p. 1; Sovacool and Brown, 2010, p. 79). "Because of accidents of geology, the greater part of oil discovered and produced now lies outside the sovereignty of the industrial nations" (Conant, 1979, p. 6). Therefore, supply-based, consumerist and western-centric energy security policies have been embedded in the definitions and explanations about traditional energy security. Security of supply-centric studies and policies have ignored the other dimensions of energy security including environmental security, efficiency, innovation and the impacts of climate crisis (Labandeira and Manzano, 2012, p. 7; Sovacool, 2011, p. 2; Jansen and van der Welle, 2011, p. 248).

Oil importing states' respond to western-centric energy security policies has been in between the management of "resource curse", as expressed by Richard Auty (1993) and the emergence of resource nationalism (Pronińska, 2007).³⁵ Energy sovereignty as "the ability of a political community to have the authority to control, regulate and manage their own energy" (Ariza-Montobbio, 2015, p. 79) has been addressed within the scope of resource nationalism. The emergence and acceleration of resource nationalism have been connected with the activities of the foreign oil companies. It can be expressed that foreign oil companies' control and exploitation activities on the natural resources in the Middle East region have increased national movements (Venn, 1986, p. 10). These western oil companies have been evaluated as a threat and derogation for the sovereign of states in the Middle East region (Dannreuther, 2015, p. 472).

Nationalization of oil resources has been evaluated as a critical component for the protection of the political, economic and cultural identity and as a leverage to the existence and functioning of foreign oil companies in the region (Bremmer and

³⁵ Resource curse argument challenges the conventional or assumed view about the potential impacts of natural resources on political, economic, industrial and social development of states. It has been argued that natural resources may not be that beneficial for the less developed and developing countries. An examination about the industrialization performance of mineral-rich states in the postwar period suggests that these countries actually performed worse compare to the mineral-poor states. See, Auty, R. M. (1993). *Sustainable Development in Mineral Economies: The Resource Curse Thesis*. London and New York: Routledge.

Johnston, 2009, pp. 151, 156). But then, political, economic and military interventions and coercions have been set in order to undermine these national endeavors. Liberal security paradigm has been addressed against the impacts of resource nationalism. Liberal security paradigm has been emphasized in order to undermine the competition between foreign, international oil companies and national oil companies in relation to the interests of foreign, international oil companies. Because resource nationalism and national oil companies have been evaluated as a “threat to the idealized model of the global political economy as a liberal, transnational and globalized realm” as well (Dannreuther, 2015, pp. 467-468).

3.1.1 The definitions and parameters about traditional energy security

The definitions and parameters about traditional energy security paradigm can be summarized as follow: Energy security is “the availability of sufficient supplies at affordable prices” (Yergin, 2006, pp. 70-71). Securing the necessary amount and form of energy for the functioning of daily lives, socio-economic and military interests at affordable prices (Quantitative Assessment of Energy Security Working Group, 2011, p. 7) can be evaluated as primary objectives for energy security policies. Energy security implies “the reduction of vulnerability to political extortion”, which results in the emergence of the efforts for reduction of energy dependency (Winzer, 2012, p. 36). Nation states intend to give high probability to the acquirement of adequate energy supplies, including firewood, plant and animal residues as well at affordable prices. Management of the parameters of supply and demand of energy and ensuring “the reliability of imported or domestic supplies” can be evaluated as critical components for the improvement of energy security policies (Deese, 1979-1980, p. 140). Energy security is “the replacement of insecure energy supplies with secure ones” (Hughes, 2009, p. 2460). Energy security has been evaluated in terms of “both the price of energy and the cost of homeland security” (Yergin, 2006, p. 79).

It can be interpreted that the definitions and explanations about traditional energy security paradigm have prioritized supply-centric formulations and thus, varied among producers and consumers. “Resources and markets are generally located far away from each other” (Tsereteli, 2008, p. 15). Therefore, there has been a rise of consumer ethos in the global energy markets (Hadfield, 2013, p. 197),

which has been connected with the efforts of the major consuming states. Security of energy supply, in this respect, has always been a critical component for energy security policies of consuming states. Security of energy supply has a dominative influence in the energy security literature.

From exporting states' point of view, a failure in energy security has been evaluated as a threat for economic security and national revenue (Pronińska, 2007, p. 216). Because oil-exporting states are dependent on the revenues from the oil trade. Economic diversification is generally low due to the dominance of oil as primary export good in Arab countries (IMF, 2016, pp. 7, 9). Therefore, diversification of internal economic activities has been recommended for oil exporting states for the reduction of their dependency on oil revenues (Pascual and Zambetakis, 2010, p. 11). It is important to note that not all states can be positioned as pure / net producer, consumer and transit actors in the context of energy security (Hadfield, 2013, p. 197; Chifu, 2014, pp. 258-259). But still, the classification / categorization of these states have been connected with the geopolitical conditions and energy market factors which affect some common / shared policies and behaviors among these states (Hadfield, 2013, p. 197; Chifu, 2014, pp. 261-262). It can be interpreted that the classification of states in relation to the geopolitical conditions and energy market factors have been emphasized in order to abstract the dynamic and complex structure of energy security.

Energy security is “the availability of energy at all times in various forms, in sufficient quantities, and at affordable prices” (UNDP, 2000, p. 11). A failure in energy security (or energy insecurity) has been evaluated as “an interruption in the physical flow of energy” and has been in relation to the rise in energy prices from consuming states' point of view (Muñoz et al, 2015, p. 479). Reliable supply at affordable prices and stable energy market have been emphasized from the viewpoint of consumers (Hadfield, 2013, p. 197). But it should be noted that global energy prices can change independently from the production and amount of actual supplies which contributes to the uncertain and complex structure of energy security in the context of energy market (Goldthau, 2011, p. 132). The reality and perception of the instabilities in energy market, including costs and prices intensify uncertainties for both producers and consumers (Deutch, 2007, p. 1). The volatility and market manipulation have been characterised as a threat for a secure and sustainable energy market (Popescu, 2015, pp. 471-472).

Energy security implies “a condition in which a nation and all, or most, of its citizens and businesses have access to sufficient energy resources at reasonable prices for the foreseeable future free from serious risk of major disruption of service” (Barton et al, 2004, p. 5). Energy security implies a dynamic connection between national security and economic development (Deutch, 2007, p. 1). The explanations about traditional energy security paradigm have addressed nation states “as the subjects and objects of energy security” (Ciută, 2010, p. 130). It has been argued that the strategies and responses of a nation state cannot be understood and comparatively analyzed “without reference to its particular forms of state strength and weakness” (Duffield, 2015, p. 5) in the context of energy security. Thus, energy security policies have reflected a nation state’s “capacity to meet current and future energy demand reliably, withstand and bounce back swiftly from system shocks with minimal disruption to supplies” (World Energy Council, 2019, p. 13). Thus, it has been expressed that a state must be capable of obtaining adequate / sufficient, reliable and economically affordable energy supplies from various sources, “without involving the acceptance of political conditions that might compromise a state’s political independence and freedom of action” (Duffield, 2015, p. 21). It can be interpreted that the definitions and explanations about traditional energy security paradigm have prioritized the notions of security and economic growth for national interests.

There is no universal definition of energy security. “Energy security can be defined in various ways” (Bohi and Toman, 1993, p. 1094; Quantitative Assessment of Energy Security Working Group, 2011, p. 7). There is no a common definition that encompasses the concerns, benefits and “interests of all producers, consumers, exporters, importers and transit states” (Luft and Korin, 2009, p. 5). It can be seen that national security-oriented energy policies do not preclude the variety in the explanations (Langlois-Bertrand, 2010, p. 7). But still, there are shared parameters and dimensions that have been emphasized within the scope of energy security policies. The definitions and explanations about traditional energy security paradigm have

mainly emphasized the parameters that follow: availability, accessibility, affordability, diversity (e.g. Asia-Pacific Economic Cooperation, 2007, pp. 1-2; Bradshaw, 2010, p. 276; Yergin, 1991, pp. 29, 156, 159, 378; Kruyt et al, 2009, p. 2167; Chester, 2010, pp. 890-891; Sovacool and Brown, 2010, pp. 81-84; Cao and Bluth, 2013, p. 381; Correljé and van der Linde, 2006, p. 532) in the context of security of supply, military and economic interests.

The parameters and dimensions that have been employed in energy security definitions and explanations are briefly summarized as follow: Availability implies to have sufficient supplies of energy resources (Sovacool and Mukherjee, 2011, p. 5345). Availability implies to the sufficiency, adequacy and accessibility in terms of energy reserves and resources. High availability refers to the lower risks for security of supply (Narula and Reddy, 2016, p. 331). Availability of different energy resources, commodities and services (Winzer, 2012, p. 38) has also been connected with the diversification policies in the context of energy security. Availability implies the availability of infrastructure as well. Because both the availability of energy resources and infrastructure are crucial in order to ensure that consumers can benefit from the use of these energy resources. Therefore, availability refers to the existence of energy resources, capability to transform these resources into commodities and socially preferred services for public or industrial use and availability of consumers which is connected with the demand perspective (Azzuni and Breyer, 2017, p. 6; Bohi and Toman, 1993, p. 1094; Hughes, 2009, p. 2459).

It can be interpreted that availability has been addressed in terms of the geographical concentration of fossil fuels (Fang et al, 2018, p. 6) in the context of traditional energy security paradigm. But if energy security definitions and explanations would focus on the acceleration and dissemination of renewable energy resources, then the problem of availability would have been eliminated. Besides, there would be “a more balance between the existence of resources and demand” (Azzuni and Breyer, 2017, p. 6). Because the ready and available renewable energy resources can be effective in order to provide productive and efficient energy “with zero or almost zero emissions of both air pollutants and greenhouse gases” (UNDP, 2000, pp. 3, 12, 14).

Access to petroleum for military and economic preparedness and interest has been a primary strategic concern for nation states (Yergin, 1991, pp. 173, 178, 182, 189;

Azzuni and Breyer, 2017, p. 21) in the context of traditional energy security paradigm. Accessibility has been addressed in terms of the security of energy supply and demand, a secure infrastructure, the transportation routes / channels and geopolitical considerations (Fang et al, 2018, p. 6; O’Sullivan, 2013, p. 31; Narula and Reddy, 2016, pp. 331, 339; Azzuni and Breyer, 2017, p. 7). Continuity in energy accessibility has been evaluated as a crucial component in order to ensure political, economic, technical and social improvement. It has been expressed that access to clean, reliable and affordable energy resources and services is critical in order to undermine energy poverty and vulnerability to climate crisis (UNDP and WHO 2009, p. 3). Access to energy resources varies between the rich and poor people within and among countries. Energy poverty constraints the opportunities and choices for economic and social improvement (UNDP, 2000, pp. 3-4). But, traditional definitions and explanations have neglected the link between poverty and energy security (Luft et al, 2011, p. 45). Thus, it can be interpreted that traditional energy security paradigm has neglected the connection between energy security and social improvement in the context of energy poverty and equity.

Accessibility implies an equitable access to energy resources and services and it is connected with affordability (Sovacool and Mukherjee, 2011, p. 5345). Accessibility has multiple levels of analyzes and considerations including global, regional, national, local, household environments and individual (Pasqualetti and Sovacool, 2012, p. 167; Pachauri and Cherp, 2011, p. 199; Cherp et al, 2012, p. 333). It can be expressed that the parameters of accessibility and affordability reflect social and individualistic aspects of energy security. It can be interpreted traditional energy paradigm has prioritized national levels of analyzes and neglected social and individualistic considerations of energy accessibility in the context of energy poverty and equity.

Affordability has been conceptualized as “the price to be paid for energy” (Azzuni and Breyer, 2017, p. 9) or “paying ability” (Narula and Reddy, 2016, pp. 331, 339) in the context of traditional energy security paradigm. Thus, it has been expressed that “affordability refers to the ability to pay for a unit of energy for a particular energy service and is a function of retail price of energy” (Narula, 2014, p. 1068). Ensuring affordable energy resources for consumers and minimizing price volatility have been primary aspects for energy security policies (Brown et al, 2014, p. 65). It has been expressed that oil importing states are vulnerable

to the disruptions in oil supply and price shocks in energy market (Asia Pacific Energy Research Centre, 2007, pp. 35-36). It has been stated that a disruption in the access to affordable energy resources can produce adverse effects (Pachauri and Cherp, 2011, p. 199) in communities. Affordability has usually been discussed in terms of the possibilities and strategies for the security of energy supply economically (Fang et al, 2018, p. 7).

Affordability is one of the necessary components for the “equitable access of energy services” (Sovacool and Brown, 2010, p. 82). The problem is that affordability has been evaluated from economic and supply security-centric perspectives (Narula and Reddy, 2016, p. 331; Fang et al, 2018, p. 7) in the context of traditional energy security. While the parameters of availability and accessibility have been conceptualized as physical energy security, the parameter of affordability has been conceptualized as economic energy security (Asia Pacific Energy Research Centre, 2007, p. 6; Labandeira and Manzano, 2012, p. 8). But “(...), the cost of oil to the country as a whole is larger than the price” (Bohi and Toman, 1993, p. 1095) in energy market. It can be interpreted that this kind of an isolated classification is problematic since energy security is subject to interdisciplinary and dynamic interactions (Kruyt et al, 2009, p. 2167). It can also be interpreted that traditional energy security paradigm has adopted a narrow perspective for the connection between accessibility and affordability in the context of social and environmental improvement.

Diversification strategy, both physical and geographical, has been emphasized in order to reduce the security risks and burdens on national energy security (Abdo and Kouhy, 2016, pp. 22, 24). Addressing energy security “as a problem of scarce supply and/or high cost” has been effective for the development of alternative energy resources (Månsson et al, 2014, p. 4). Diversification strategy implies the variety of suppliers, the variety of transportation routes, substitution of energy resources, energy forms and structure of energy use (Tagarinski and Avizius, 2009, pp. 14, 31; UNDP, 2000, p. 11, 119). It can be interpreted that traditional energy security paradigm has emphasized temporal diversification and replacement policies based upon fossil fuels. But the parameter of diversification needs to be seen as a necessity in order to make changes in energy systems and infrastructures in accordance with the acceleration and spread of RES (Hughes, 2009, p. 2460).

Diversification strategy has been addressed within the scope of liberal security paradigm as well. It has been expressed that diversification of energy resources and commodities or a collection of resources and commodities can be effective in order to ensure “the value of choice for consumers”. It has been assumed that the reciprocal transactions in a flexible energy market can propose diverse energy choices for consumers which implies the human dimension of energy use (Stern and Aronson, 1984, p. 15).

Traditional energy security paradigm has focused on the unequal distribution of energy resources in order to justify state-centric interventions and the functioning of foreign, international companies and institutions in the energy market. Competition over the geographically concentrated energy resources, increasing demand, security of supply, the changes in energy costs and prices, the fear and anxiety regarding the unequal distribution and scarcity / depletion of energy resources, geopolitical and economic considerations, market and price volatility, security of supply and trade flows and diversification strategies have been addressed within the scope of traditional energy security paradigm (Vivoda, 2010, p. 5258; Staley et al, 2009, pp. 1-4).

Traditional energy security paradigm has been framed in terms of the uninterrupted and unimpeded accessibility to energy resources, affordable prices which imply price reliability, diversification strategies in order to not to rely on a limited number and type of energy resources and to not to be depended upon a particular geographic region and route for energy supplies and improvement of security of supply (Chester, 2010, p. 887; Labandeira and Manzano, 2012, p. 7; Frankel, 2008, p. 35). The primary focus of traditional energy security paradigm has been the security of oil supply. Because oil has been central to the Western civilization. Thus, the definitions and explanations about energy security paradigm have been fossil fuels and supply-centric (Urry, 2013, p. 6; von Hippel et al, 2011, pp. 74-76; Kruyt et al, 2009, p. 2167; Chester, 2010, pp. 887-888; Luft et al, 2011, p. 44; Indriyanto et al, 2011, p. 96; Fang et al, 2018, p. 2; Bielecki, 2002, p. 237; Vivoda, 2010, p. 5258).

Access to oil in relation to the national, military and economic interests of consuming or importing states has been one of the primary aspects in traditional energy security paradigm. The risks for oil supply security have been given as follow: Interruptions in oil supply can produce adverse effects for oil-importing states. Ensuring the security of energy supplies at affordable prices is important. Because high prices and scarcity of energy supplies can raise critical concerns for the functionality of energy markets. Oil exporting states' control over oil resources can provide them a leverage and flexibility in order to adopt policies which can oppose to the political, economic and military interests of oil-importing states which is a threat for the balance of power in international area. Oil dependency, in this respect, is a challenge for oil-importing states. In this regard, diversification of energy resources and supplies is a must. But reducing oil dependency can jeopardize the interest of major powers, especially USA, as well. Because it has been asserted that reducing oil dependency may require to reduce the military posture of USA in the Middle East region (Brown and Kennelly, 2013, p. 4; Luft et al, 2011, p. 45; Duda and Nedelcu, 2016, p. 544).

In addition to the political, economic and military problems, there are also climatic and social problems which are associated with the traditional energy security paradigm. Energy poverty and inequality need to be taken into consideration in addressing the relationship between energy security and climate crisis. In 2017, an estimated 840 million people were lack of electricity access and 2.90 billion people were lack of access to clean cooking (IEA et al, 2019, p. 2). According to UNDP, access to electricity, access to modern fuels, access to mechanical power, access to improved cooking stoves and access to cooking fuels can be evaluated as main indicators in assessing energy accessibility (UNDP and WHO, 2009, p. 6). And there are massive inequalities "in terms of the access to, and use of, energy between different regions and societies around the world" (Audouze, 1997, p. 6). There have been greater divisions and inequalities between individuals with regard to energy production and consumption (Urry, 2013, p. 2). But traditional definitions and explanations about energy security have neglected energy poverty and inequality in the world.

The term 'energy poverty' has no universal definition, but typically means that households spend an unreasonably high proportion of their income on energy or that households are unable to afford

to meet basic energy needs. The causes of energy poverty can be multidimensional, stemming from low incomes, poor quality homes, and energy inefficient appliances (Council of Europe Development Bank, 2019, p. 1).

The EU has addressed the increasing problem of energy poverty in the Community. It has been expressed that ensuring the necessary and regular supply of energy is critical in order to protect vulnerable consumers. Thus, an integrated approach which includes improvements in social policies, public security and energy efficiency has been recommended in the context of energy security (European Parliament, 2009, pp. 57, 61, 64-65). It can be interpreted that traditional energy security paradigm has been conceptualized at distinctive national and/or regional levels and with the underpinnings of realist and liberal security paradigms. Thus, traditional energy security paradigm could not provide a comprehensive perspective for energy security relations and policies. It can be interpreted that traditional energy security paradigm has avoided planetary, social and individualistic considerations. Traditional energy security paradigm has prioritized the production, distribution and consumption of fossil fuels for national security, military advancements and economic growth. But “the result is increasing and longer-term insecurity for states, human beings, and the environment” (Nyman, 2018, p. 59), which is a contradictory.

It can be expressed that the definitions and explanations about traditional energy security paradigm have neglected environmental concerns. Environmental and social parameters have not been included within the scope of energy security policies until the 1980s (Valentine, 2011, p. 4573). But increasing awareness about the causes and impacts of environmental degradation has been effective in addressing energy security as “the provision of available, affordable, reliable, efficient, environmentally benign, properly governed and socially acceptable energy services” (Pasqualetti and Sovacool, 2012, p. 167). The concerns about carbon-induced climate crisis have been connected with the energy, food and water supply insecurities (Urry, 2013, p. 90-91). Therefore, it has been expressed that regulatory policies and structures should focus on the gaps between energy security and environmental risks and environmental and public health impacts of production and exploration activities (The White House, 2011, pp. 11-12).

The parameter of acceptability has been addressed in relation to the environmental and social considerations (Narula, 2014, p. 1063; Asia Pacific Energy Research Centre, 2007, pp. 27-28) of energy security.

The parameter of acceptability has been emphasized in order to control and manage the adverse impacts of fossil fuel based energy security policies (Indriyanto et al, 2011, p. 110). Public acceptance and environmental impacts have been addressed as critical determiners for energy policy framework. Thus, energy security has been evaluated as a condition within which a nation state, region or population within a territory can access available, affordable and environmentally acceptable energy resources and services in adequate quantity and quality (Jansen and van der Welle, 2011, pp. 241, 244).

Environmental security paradigm, in this respect, has been effective in order to criticize the role of realist and liberal security paradigms on energy security relations and policies in the context of climate crisis. Traditional energy security paradigm has been conceptualized in reference to the national security and economic growth. But it can be expressed that environmental security paradigm has been effective in broadening the referent objects, purposes, areas and themes of energy security policies. Environmental security paradigm has emphasized a modern and transnational account of energy (Barton et al, 2004, p. 8). RES and sustainable energy policies have been emphasized as an obligation for environmental protection (European Parliament, 2009, pp. 55, 64; European Commission, 2019, p. 6). Clean energy resources have been emphasized in order to achieve sustainable development (Millennium Ecosystem Assessment, 2005, p. 76). The ignored environmental issues produce conflicts and tensions with the current, existing policy paradigms and structures (Allenby, 2000, pp. 7-8). Thus, “the validity of the dominant paradigm that embraces fossil fuel energy as the synergic partner for enhancing energy security” has been widely refuted (Valentine, 2011, p. 4573).

In the light of all of these: A critical review indicates different and contested perspectives about energy security. The diverse actors (regarding producers, consumers, transit states and energy companies) and diverse political, economic, geographical, environmental and social conditions contribute to the divergent and contested structure of energy security. The complexity and required transformations of energy systems imply that energy security cannot be studied, analyzed or resolved in isolation or in separation from other disciplines and research fields. Thus, the efforts and endeavors in conceptualizing and measuring energy security cannot be actualized

in isolation. Therefore, developing an integrated and unified framework of energy security is necessary. For this reason, it is important to overcome theoretical and methodological differences (Sovacool and Brown, 2010, p. 79; Cherp and Jewell, 2011, p. 202). Therefore, this study proposes to address a planetary account of energy security through the concepts of planet politics and planetary security. A planetary account of energy security is proposed in order to provide an integrated, unified and normative framework in the context of climate crisis.

3.2 The Impacts of Environmental Security Paradigm on Energy Security

The discussions and analyzes about security as a central organizing concept within and between nation states share a heavy military emphasis. Because it has been easier and attractive for politicians to focus on military threats, whether real or imagined than on non-military threats. But this traditional approach is dangerous and insecure. It has been expressed that prioritizing military threats and concerns can lead to excessive militarization and negligence of other threats (Buzan, 1983, p. 3; Ullman, 1983, p. 129), which may produce "perhaps even more harmful dangers" (Ullman, 1983, p. 129). Environmental damages are not compatible with the national frontiers (Moss, 2000, p. 6). Thus, the boundaries of international security studies have been organized around the engagement of these questions that follow: should we privilege states as the referent object of security, should we include internal and also external threats in the context of the linkage between security and state sovereignty, should we expand the concept of security beyond the military means and ends and should we evaluate "security as inextricably tied to a dynamic of threats, dangers and urgency" (Buzan and Hansen, 2009, pp. 10-13).

Over the past 50 years, humans have changed ecosystems more rapidly and extensive than in any comparable period of time in human history, largely to meet rapidly growing demands for food, fresh water, timber, fiber and fuel. This has resulted in a substantial and largely irreversible loss in the diversity of life on Earth (Millennium Ecosystem Assessment, 2005, p. 1).

The traditional focus on security -regarding the internal and external threats on military power and national security in the context of realist and liberal assumptions- does not encourage a full and complete reconciliation between environmental alterations and security (Page, 2002, p. 27). It has been expressed that climate crisis cannot be challenged "by unilateral action or traditional security measures". This requires the

new paradigms and ways in the conceptualization of security policies (Dalby, 2013, p. 35). Environmental interdependencies require new diplomacy, new institutions and regulatory regimes (Mathews, 1989, p. 174). It has been expressed that environmental issues are integral components of industrial, economic and social systems (Allenby, 2000, p. 7). It has also been expressed that the future challenges and issues will be derived “from the routine and extraordinary rhythms of human life, consumption, and industrialization: from the encounter between humanity and ecology” (Burke et al, 2016, p. 503).

Therefore, there have been critical and/or deconstructive efforts in order to redefine the concept of security through the notion of human security as both in individualistic and collectivistic manner or the desecuritization (e.g. Ullman, 1983, pp. 129, 133; Mathews, 1989, pp. 162-177; Gaan, 2004; Buzan, 1983; Buzan et al, 1993; Brown, 1977; Westing, 1989, pp. 129-134; Wæver, 1995). While environment has been addressed as a security issue which exceeds the role and authority of the nation states in dealing “with threats to shared ecosystems” (The World Commission on Environment and Development, 1987, p. 301), some have adopted a skeptical position about the pearls and pitfalls of the securitization of environment (Wæver, 1995). But the ideas and discussions about the risks and threats in securitizing environment will not be shared within the scope of this subchapter. Rather, this subchapter aims to focus on the relationship between environmental security and energy security in the context of climate crisis.

Increasing awareness and knowledge about environmental degradation have intensified critical efforts in order to provide “a more comprehensive security concept” in IR (Græger, 1996, p. 109). Critical perspectives regarding the expansion of the concept of security has emphasized that a true and comprehensive security policy should encompass economic, social and environmental aspects in addition to the military concerns. Because negligence of environmental necessities and responsibilities is a deficient (Westing, 1989, pp. 129, 133). Therefore, regional and international cooperation through the support of international institutions have been addressed for the environmental protection, reforestation and conservation of biodiversity. Encouragement of the “environmentally sound and economically feasible” production activities and development of alternative energy resources, which can

“lessen pressure on ligneous resources” have been suggested in the context of environmental security (UN, 1993, pp. 154-155).

The overwhelmingly military approach to national security is based on the assumption that the principal threat to security comes from other nations. But the threats to security may now arise less from the relationship of nation to nation and more from the relationship of man to nature. Dwindling reserves of oil and the deterioration of the earth’s biological systems now threaten the security of nations everywhere (Brown, 1977, p. 5).

Human beings’ activities have altered “the environment on a planetary scale” (Mathews, 1989, p. 168). Industrialization and consumption of fossil fuels pose huge threats for human security (Barnett et al, 2010, p. 3). Environmental problems and increasing demand for consumption have been effective in questioning “the sustainability of the existing energy system” (Dyer and Trombetta, 2013, p. 3). The political will and energy policies have addressed a linkage between national security threats and military solutions. But it has been explained that a sensible and rational strategy to ensure a secure supply of energy, which has been a key component of national security, would be to foster the development of alternative energy resources or substitutes rather than to use military means as an instrument (Ullman, 1983, pp. 146, 153). The emergence of environmental security paradigm in the second half of the twentieth century has given rise to a distinctive and multilayered literature regarding the connection between energy systems and global environmental protection (Falkner, 2014, p. 1). Because conventional energy paradigm encourages the use of fossil fuels and GHG emissions (Millennium Ecosystem Assessment, 2005, p. 64).

John H. Herz has detected two global survival threats for human beings as follow: nuclear weapons and “(...) the combined effects of the ongoing population explosion, the destruction of the human habitat, pollution, and depletion of vital resources” (Herz, 2003, p. 136). A contradiction between industrial expansion and stability of climate has been expressed. This contradiction has raised both empiric and normative questions about the existence and activities of human beings in the planet. Commitments to the notions of modernity, civilization, industrialization, mechanical / technological developments, metropolitan life and the measurements and frameworks of human valuation, ascendancy, emancipation and self-realization have been critically questioned (Alberts, 2011, pp. 6-7). Marc A. Levy, for instance, has argued that there are political, physical

and existential forms about the connection between environment and security (Levy, 1995, p. 36). All of these forms can be employed for energy security relations and policies in the context of climate crisis.

Access to energy resources and services has been connected with economic welfare and prosperity, “but frequently at a high environmental cost, mainly due to high reliance on fossil fuels” (Lima et al, 2015, p. 176). Economic growth requires the use of energy resources, the conversion of lands from their natural states and increasing demand for products and services (Mathews, 1989, p. 163). But the use of energy from fossil fuels has produced adverse climatic impacts “that are difficult to reverse on the human timescale” (Universitat Politècnica de Catalunya, 2017, p. 4). A range of issues including pollution, depletion of natural resources, growth of population, preservation and protection of whole ecosystem, security of energy supply, food and water safety (Dryzek, 2013, p. 3) have been emphasized within the scope of environmental security paradigm. Analyzes and discussions about environmental security have been effective in emphasizing a change or “‘transition’ to a different kind of energy system” (Ibid, 2013, p. 20).

The extensive use of fossil fuels has been one of the main reasons for climate crisis (Proedrou, 2018, p. 2; Brown, 1977, p. 21). Environmental changes produce deleterious impacts on the natural composition, ecosystems, functioning and operation of social and economic systems, health and welfare of human beings. In *the United Nations Framework Convention on Climate Change* (UNFCCC), climate change has been acknowledged as “a common concern” for human beings. Therefore, the urgent need for international / intergovernmental cooperation -with respect to different capabilities, economic and social conditions of nation states- has been emphasized in the global context of climate crisis. It has been stated that “countries whose economies are highly dependent on income generated from the production, processing and export, and/or on consumption of fossil fuels and associated energy-intensive products,” are vulnerable to the adverse impacts of climate crisis. Energy has a key role for the protection of “climate system for present and future generations”. Economically and socially sustainable developments can be achieved through “greater energy efficiency” (UN, 1992, pp. 2, 6-7, 15-16).

Therefore, global energy transition towards renewable, renovated, sustainable and low-emissions energy systems (Colantoni et al, 2017, p. 3) has been emphasized in order to challenge the causes of climate crisis.

Fundamentally new way of thinking which allows the concerns and policies about “global environmental protection to be an essential component of national security” (Levy, 1995, p. 43) has been emphasized in the context of environmental security paradigm. Analyzes about the connection between environmental problems and conflicts (Homer-Dixon, 1991, pp. 76-116; Homer-Dixon, 1994, pp. 5-40; Mathews, 1989, p. 166; Myers, 1989, pp. 24, 28-30, 39; Brock, 1991, pp. 408-411) have been effective in addressing a linkage between environmental protection and security policies. There have also been intergovernmental and institutional orientations / emphasizes in order to focus on the need for transformative policies, global cooperation and elimination of fossil fuel based patterns rather than to focus on conflicts and violence through a linkage between national security and environmental protection (Dalby, 2013, pp. 34-43; Hauge and Ellingsen, 1998; European Commission, 2019, pp. 4- 9). Because it has been expressed that environmental problems are connected with systemic and structural frameworks (Low and Gleeson, 1998, p. 2). Thus, it has been emphasized that there is an urgent “need to rethink policies for clean energy” to protect the natural ecosystems across industry and other activities at large (European Commission, 2019, p. 4) and therefore, energy security policies should encompass the dimensions of “availability, affordability, technology development, sustainability, and regulation” in the context of climate crisis (Sovacool and Mukherjee, 2011, p. 5343).

Environmental dimension of energy security has been emphasized in order to contribute to the environmental sustainability. Energy efficiency, awareness for the impacts of consumption and energy-saving policies have been critical components for the environmental acceptability of energy security (Augutis et al, 2017, p. 890; Nelwan et al, 2017, pp. 397-398). It has been expressed that globalization and global economy -as both economic and ecological processes that have affected our planet- can be re-constructed in order to provide solutions (Dalby, 2013, p. 41) in the context of climate crisis. Thus, sustainable development has been addressed primarily in industrial production, energy use and agricultural activities. It has been expressed that these areas need to be remodeled and reinvented (Mathews, 1989, p. 173).

Energy usage / absorption patterns and increasing energy demand have been one of the primary reasons for the environmental insecurities which disseminate at the planetary level. Air and water pollution in various kinds, inadequate food and water, drought, loss of habitats and biodiversity, the degradation of ecosystems, extinction of species, deforestation and desertification have been connected with fossil fuel-based policies and behaviors (Bradford, 2006, pp. 48-52; Elliot, 2015, p. 12). Therefore, critical questions about the equitable provision of “affordable, reliable, efficient, environmentally benign, properly governed and socially acceptable energy services” have raised (Sovacool and Mukherjee, 2011, p. 5344) in the context of climate crisis.

It has been expressed that global environment cannot be defined and analyzed in isolation and separation from human beings’ activities, desires, ambitions and needs (The World Commission on Environment and Development, 1987, p. xi). “Increasingly, security is being defined as the security of individuals as human beings as such, and not only as citizens of a particular state” (Græger, 1996, p. 109). In the *Human Development Report 1994* of UNDP, it has been argued that achievement of sustainable development leads to the human security which is no longer a personal, local or national issue. In this report, it has been expressed that “the search for human security lies in development, not in arms”. Therefore, sustainable human development as human-centric paradigm and transition have been emphasized in the context of environmental security. Both human beings’ activities / choices and natural forces can harm the well-being of human beings. Human security, in this respect, implies to address the multidimensional threats from different sources including hunger, poverty, disease, repression and degradation. It means to provide necessary mechanisms to protect human beings “from sudden and hurtful disruptions in the patterns of daily life—whether in homes, in jobs or in communities”. Economic security, food security, health security, environmental security, personal security, community security and political security have been given as the primary categories for the concept of human security (UNDP, 1994, pp. 1-3, 22-25). In this spirit, categorization of the environment in isolation and separation from human beings, “along with the ancient story of humanity’s fall from nature” has been considered as politically suicidal (Beck, 2010, p. 263).

Human beings have been evaluated as the referent objects for concerns, threats and envision about sustainable development. It has been expressed that human beings “are entitled to a healthy and productive life in harmony with nature” (UN, 1993, pp. 1-5). Sustainability as an underlying value that emphasizes the protection of natural environment and well-being of future generations has been evaluated as a measurement of energy security in the context of environmental stewardship (Sovacool and Brown, 2010, p. 87). It has been expressed that protection of the health and well-being of individuals from environmental risks can be achieved through a collective transformation (European Commission, 2019, p. 2). Thus, environmental security paradigm has been effective in positioning human security as an important aspect of energy security as well. For this reason, both national security and human security have been addressed as referent objects in the context of energy security.

“The sovereignty of the nation-state is, strictly speaking, a non-human referent object” (Coward, 2008, p. 146). But “a planetary environmental problem erodes national sovereignty” (Moss, 2000, p. xi) and broadens traditional approaches to the security (Scott, 2012, p. 220). Therefore, human security and human well-being have been addressed in the context of environmental security paradigm. Human security has been evaluated critical in terms of civilization and energy security as well. “In this view, the ultimate referent object of environmental security is the risk of losing achieved levels of civilization—a return to forms of societal barbarism—while apparently being able to prevent doing so” (Buzan et al, 1998, p. 75). Both “the nexus of civilization and environment” and the global environment itself have been referent objects in the context of environmental security (Ibid, 1998, p. 76). In this regard, decarbonization of civilization has been emphasized as a necessity for continued survival (Burke et al, 2016, p. 507). Energy security and human security are critical components for civilization. The linkage between environmental security and human security has been effective in emphasizing the importance of social aspects about energy security as well.

There is an important background assumption which shares in the general ignorance concerning environmental issues and, paradoxically, this is incorporated in the specialism of environmental sociology itself – this is the category of ‘the environment’. If ‘the environment’ only includes everything which is not human, not social, then the concept is sociologically empty. If the concept

includes human action and society, then it is scientifically mistaken and politically suicidal (Beck, 2010, p. 255).

In Shalom H. Schwartz's psychological test which has been titled as "Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries", interactions and associations among social values, cultures, experiences and behavioral orientations have been tried to conceptualized. In this empirical test, it has been expressed that prioritizing individual-centric interests and self-directive values can pose a danger for the internalization of universal values including protection of the environment, unity with nature, equality, social justice and a world at peace. Therefore, the idea is that addressing human-centric, individualistic and national approaches may not be effective in emphasizing universal values as primary motivational types (Schwartz, 1992, pp. 3-10) in the context of climate crisis. Thus, challenging climate crisis through the notions of human security and national security may not be effective in the long term. And the idea within the scope of is study is that potential risks in prioritizing the notions of human security and national security can be eliminated with the emergence of planetary security paradigm in the context of energy and climate.

While realist security tradition has focused on the potential conflicts, resulting from the environmental alterations in the context of national security, liberal security tradition has focused on the role of international institutions and regimes to produce a collaborative respond for the global environmental issues. Some have argued that conceptualizing environmental security in terms of the relation / tension between interstate conflict and cooperation implies oversimplification. There have been criticisms in constructing environmental security paradigm around the underpinnings of the realist and liberal security paradigms. A more skeptical and deeper approach towards the current, existing political, economic, social and normative structure of world politics has been emphasized in the context of green theory. (Paterson, 2000, pp. 7-8; Paterson, 2005, pp. 236-237; Eckersley, 2007, pp. 248-249). Green theory has criticized the impacts of anthropocentric perspectives and structures "in reducing the non-human world to being merely of instrumental value to humans" (Paterson, 2000, p. 35) and extended the critical line of environmental security paradigm "to include neglected areas of environmental domination and marginalization, such as the domination of non-human nature, the neglect of the needs of future generations, and the skewed distribution of ecological risks among different social classes, states, and regions" (Eckersley, 2007, p. 248),

which has been effective for the emergence of normative perspectives and policies, including the notions of justice and equity. These notions have been evaluated critical for “the relationship between humans and the rest of the natural world” (Low and Gleeson, 1998, p. 2).

Green theory has addressed a critique of industrialization and modernity in relation to the struggles and inequalities between rich and poor, labour and capital. Therefore, integrating the notions of justice and equity into the environmental security policies has been emphasized in addition to the elimination of the ecologically destructive impacts of economic growth (Eckersley, 2007, p. 252). Green theory has also been connected with the emergence of ecological feminism within which the similarities between “the oppression of women, and the degradation of nature” have been emphasized (Cuomo, 1998).

It can be interpreted that the concept of sustainable development has been addressed in order to resolve the dilemma and tension between the process of civilization and environmental protection. Therefore, environmental problems have been analyzed through the political, military, institutional and social welfare lens in IR (Buzan et al, 1998, p. 71). It has been stated that “(...) dynamic and sustainable development of our civilization depends on reliable access to energy” (International Atomic Energy Agency, 2006, p. 33). Environmental security paradigm, in this respect, has been effective in defining energy security as “the equitable provision of available, affordable, reliable, efficient, environmentally benign, properly governed, socially acceptable energy services to citizens” (Brown and Sovacool, 2011, p. 3). The notion of energy security is connected with national security, economic interests and environmental concerns (Pascual and Elkind, 2010, p. 2). Environmental security has been effective in framing climate crisis “as a threat to human, national and international security” (Scott, 2012, p. 221). Energy poverty, climate crisis and sustainable development have been critical components of energy security (International Atomic Energy Agency, 2006, p. 33). Thus, environmental and social acceptability of energy security has been emphasized in the context of environmental security paradigm.

Energy security objectives and environmental obligations cannot be evaluated as competing interests. A more holistic policy approach has been implied

for energy security policies in the context of environmental security paradigm. Accessibility to energy resources / services, sufficient and adequate energy resources, survivability and resilience of energy systems in case of potential damages, natural disasters, sabotage and disruptions and the notion of sustainability in order to limit, quantify and manage energy demands, to reduce waste and pollution, to utilize renewable energy resources in effective manner and diversification of energy resources and portfolio have been strongly suggested for contemporary energy security policies (Kleber, 2009). Matthew Paterson (2000) has expressed that “(...) the international power structures are inconsistent with principles of sustainability” (p. 5) and they provide obstacles in order to achieve sustainable development goals. Because mainstream security paradigms in IR have excluded the critical questions about the causes and impacts of global environmental change (Paterson, 2000, p. 11). Traditional energy security policies are also inconsistent with the notions of sustainability and sustainable development goals as well.

In UN's *Transforming our world: The 2030 Agenda for Sustainable Development*, the urgent need for transformative policies and actions regarding the well being of human beings and planet has been emphasized in order “to shift the world on to a sustainable and resilient path”. Thus, human and people-centric 17 Sustainable Development Goals (SDGs) have been announced in order to abstract and demonstrate this path for states, stakeholders and individuals (Figure 3.1). The three dimensions of sustainable development have been defined as economic, social and environmental. A proper balance and integration between social, environmental and economic dimensions have been emphasized within the scope of sustainable development. Ensuring “(...) universal access to affordable, reliable, sustainable and modern energy services” has been defined as Goal 7 within the scope of this agenda. Increasing the global share of renewable energy and improving technological innovation for energy diversification have been addressed. International cooperation in order to facilitate access to clean energy research resources and environmentally sound policies in accordance with the reduction of waste and more efficient use of energy resources have also been addressed in this agenda (UN, 2015, pp. 1-19).



Figure 3.1 : Sustainable Development Goals (UN Brussels, 2018).

Environmental issues have been evaluated as a threat for economic interests, development and growth. Therefore, the concept of sustainable development has been addressed in relation to the environmental protection and socioeconomic systems. It has been argued that “unless the survival of the population is in question, the huge range of the national economy doing better or doing worse cannot be seen as existentially threatening” (Buzan et al, 1998, p. 22). Sustainable development has been emphasized for the improvement of both environmental security and economic security. The legitimization of economic growth in the context of environmental concerns and policies has been a key component for sustainable development (Bernstein, 2013, p. 130). A holistic and joint approach in addressing “economy-environment interactions” have been emphasized (Baumgärtner et al, 2006, p. 10). And the very reasons for environmental degradation have been tried to reconstructed and re-conceptualized to be part of the solution in the context of sustainable development.

Conceptualizing environmental security in terms of national security, human security, economic interests and growth implies instrumentalist, exploitative and pragmatic approach towards the environment and nature. This instrumentalist and pragmatic approach emphasizes that natural processes exist as material and/or spiritual guide for human beings. Environmental resources have been emphasized important for the development of human societies, human survival and economic interests. This traditional approach can be considered as the roots of human beings’ destructiveness (Passmore, 1975, pp. 253-256; The World Commission on Environment and Development, 1987, p. 1).

Because human beings have evaluated nature “not as something to respect, but rather as something to utilize” for their own purposes and concerns (Passmore, 1975, p. 254). “In other words, solving the global climate change crisis is going to rely on, in one way or another, changing human behavior” (Williamson et al, 2018, p. 11).

Therefore, it has been expressed that this UN-based system cannot harmonize and integrate environmental, security and economic systems in normative terms; since it has no effective policies and mechanisms for non-human entities (Burke et al, 2016, p. 509). It has also been expressed that military security, economic security and environmental security are not fundamentally different. They emphasize different dimensions, forms and aspects about security. State-centrism is one of the main common elements within the scope of these security approaches. Thus, it has been argued that the efforts in order to re-define the concept of security have been in relation to the re-production of the agendas and conditions of nation states rather than a conceptual analysis about the concept of security itself (Baldwin, 1997, pp. 5-23). Within this framework, it can be expressed that re-evaluation of mainstream and critical security studies’ position on nation states and human beings as referent actors is essential to conduct critical and appropriate conceptual analysis about the concept of security in IR which is important in the context of climate crisis.

The causes of climate crisis cannot be challenged within the traditional and prevailing understanding about the relationship between human beings and nature. Human beings’ disposition for instrumental and pragmatic valuation cannot be handled with no concern for ethics and philosophy. It can be expressed that improving critical awareness for the intrinsic value of nature and non-human entities is necessary in order to undermine the exploitation and utilization activities and to actualize the objectives of sustainability (Aydin Bayram, 2012, p. 1077-1088). “(...), it is essential to increase the value given to protecting and restoring natural ecosystems” to achieve transformative policies in energy, economy and society (European Commission, 2019, p. 4). In *Legitimation Crisis*, Habermas has argued that “the crisis cannot be separated from the viewpoint of the one who is undergoing it (...)” (Habermas, 1988, p. 1). Thus, the ideas, habits, values, perceptions and experiences of human beings, who are subject to the impacts of climate crisis do matter.

Human beings are not the only ones who are subject to the impacts of climate crisis. Human beings are not the only ones who suffer. Animals and plants are also

affected by the increasing impacts of climate crisis. Because “(...) their very means for living –their habitats and their worlds– are poisoned and destroyed” (Burke et al, 2016, p. 516). Intergovernmental Panel on Climate Change (IPCC) has stated that “human influence on the climate system is clear, and recent anthropogenic emissions of green-house gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems” (IPCC, 2014, p. 2). Therefore, it is not fair and rational to focus only on the security of human beings in the context of climate crisis.

“The planet, and indeed the universe, seems much more than the surroundings of a human person to be defined only in relation to the human” (Low and Gleeson, 1998, pp. 1-2). Therefore, it has been explained that ethical approach that appreciates and recognizes not only the rights and security of states and human beings, but also the rights and security of nature and non-human entities is critical in the context of environmental security (Westing, 2013, p. 119). Increasing critical awareness and normative perspectives are also critical for the elimination of contradictory dynamics within the components of civilization.

In a research model called HANDY, Human and Nature DYnamics, the reasons for the collapse of civilizations in the past have been investigated in order to provide a general framework about the relationship between human beings and nature. In this interdisciplinary investigation and model of analysis, the tension among resources and ecological carrying capacity, socioeconomic stratification and inequality have been emphasized as main reasons for the collapse of civilizations (Motesharrei et al, 2014, pp. 90-91, 100-101). Lothar Brock (1991) has expressed that “today, there is widespread fear that the natural basis of human civilization may be destroyed through the dynamic of this very civilization; (...)” (p. 407).

It may seem reasonable to believe that modern civilization, armed with its greater technological capacity, scientific knowledge, and energy resources, will be able to survive and endure whatever crises historical societies succumbed to. But the brief over- view of collapses demonstrates not only the ubiquity of the phenomenon, but also the extent to which advanced, complex, and powerful societies are susceptible to collapse (Motesharrei et al, 2014, p. 91).

Therefore, environmental security paradigm has emphasized a sustainable energy security regime in order to undermine the causes of climate crisis. Energy has a vital role to challenge the tension between the components of civilization and

environmental protection. Sustainable energy security has been connected with the impacts of energy security policies on the well-being of environment. “(...) provisioning of uninterrupted energy services (short and long term) in an affordable, equitable, efficient, and environmentally benign manner” has been emphasized in the context of sustainable energy security (Narula, 2014, p. 1056). The contradictions within the components of human civilization, including energy poverty and inequality have been tried to be eliminated through the notions of sustainability and sustainable development. And there have been attempts to integrate the notions of climate, energy, environment, equity and justice into the insights of the global energy transition process (e.g. McCauley and Heffron, 2018, pp. 1-7). World Energy Council, for instance, has evaluated energy security, energy equity and environmental sustainability of energy systems as energy trilemmas in the context of climate crisis (World Energy Council, 2019, p. 13).

“The world is undergoing an unprecedented energy transition, from a system based on carbon-intensive fossil fuels to a system based on low carbon, renewable energy” (World Energy Council, 2019, p. 11). The distinctive characteristics of the current energy transition process towards RES have been given as urgency and necessity (Brown, 1977, p. 11; Rojey, 2009, p. 35) in the context of climate crisis. Global energy transition process towards RES has been emphasized in order to challenge the impacts of climate crisis. Thus, energy security has been evaluated as an “overlap between economic security, national security and the environment’s security” (Popescu, 2015, p. 467). Energy security has been emphasized “as a supply of energy that is reliable, affordable, and environmentally sound” (Kuik et al, 2011, p. 632). The security of supply, the security of demand, adequate, affordable and environmentally sustainable energy resources have been addressed within the scope of contemporary approaches to energy security. Within this framework, the economics and welfare of energy security have been determined in relation to the “the amount, distribution and intrinsic environmental quality of its consumption of energy services” (Blum and Legey, 2012, p. 1983).

Climate crisis as “a destructive force that will exacerbate existing social, environmental, economic, and humanitarian stresses” (Pascual and Zambetakis, 2010, p. 5) emphasizes the urgent need for a paradigm shift in energy security relations and

policies. Thus, environmental sustainability of energy systems and energy equity have been addressed in the context of sustainable development. Environmental sustainability of energy systems implies global transition of energy systems in order to undermine the impacts of climate crisis and environmental degradation. Global energy transition processes are connected with the development and evolution of socioeconomic systems. Intertwined connections between governmental regulations, socioeconomic factors, technological developments, environmental concerns and individual consumer behaviors, consumer patterns / practices (which result in emissions of pollutants), cultural meanings have been emphasized in the context of global energy transition process. Therefore, it has been expressed that global energy transition from fossil fuels to RES or “socio-energy transition” is connected with the notions of fairness, justice and equity (World Energy Council, 2019, pp. 11-13; McCauley and Heffron, 2018, pp. 1-2; Rojey, 2009, p. 16; Healy and Barry, 2017).

There have been dynamic connections between the insights of environmental security paradigm and liberal institutionalism in IR. “Global institutions, including environmental institutions, are founded to a large degree on liberalism as well, including the Nation States, the Universal Declaration of Human Rights, the Rio Declaration, the recently endorsed global Sustainable Development Goals, and others” (Sonnenfeld and Taylor, 2018, p. 515). It has been argued that cooperation through international institutions, meetings and conventions can be effective in order “to conserve, protect and restore the health and integrity of the Earth’s ecosystem”, as explained in the Rio Declaration on Environment and Development of UN (UN, 1992, p. 2; Stavins et al, 2014, p. 1007).

“Energy and the environment are global issues and the solutions to be implemented must be managed through international governance” (Rojey, 2009, p. 10). Within this framework, energy security has been evaluated as a property of energy systems which consist of individuals, institutions, technologies and energy resources (Mitchell and Watson, 2013, p. 13). Thus, energy systems have been addressed in complex relationships and circumstances with an emphasis on social, political, economic, cultural and ecological aspects (Ariza-Montobbio, 2015, p. 79). Energy security has been evaluated important for societal needs and demands. It has been argued that energy policies should provide decent standard and quality of living with regard and consideration to the goals and principles of sustainable development (Popescu, 2015, p. 468).

It can be expressed that environmental security paradigm has been effective in increasing awareness about the impacts of fossil fuel based traditional energy security paradigm and in emphasizing the social and individualistic aspects about energy security. The environmental and social costs of traditional energy security paradigm have become more obvious. Both nation states and human beings have been evaluated as referent objects in the context of energy security. Besides, the need for an integrative referent framework / paradigm about the concept of energy security has been addressed in the context of climate crisis.

3.3 A Paradigm Shift for Energy Security Relations and Policies

There is a blurry in the definition of the framework / paradigm about energy security. Climate crisis emphasizes the need for serious alterations in energy security policies. The traditional or conventional energy security paradigm has emphasized the notions of national security, military security and economic interests (Nuttall and Manz, 2008, p. 1248). Thus, the paradigm of energy security has been too limited. Daniel Yergin has argued that this paradigm was created in order to challenge the impacts of 1973 oil embargo from energy exporting / producing states in relation to the interests of energy importing / consuming and industrialized states. Therefore, security of energy supply, diversification of supply, international collaboration on energy security policies and deterrent policies for the use of oil as a weapon have been emphasized. Monitoring the functioning of energy markets, analyzing energy policies, strengthening the capacity for disruptions, providing emergency mechanisms in order to facilitate recovery for the impacts of energy disruptions have been evaluated as key purposes (Yergin, 2006, pp. 69, 74-75, 78) in the context of traditional energy security paradigm.

It can be interpreted that traditional energy security paradigm has favored western and consumption / supply-centric policies and relations. This paradigm has externalized social and environmental impacts of fossil fuel based energy policies and activities. The contemporary approaches, on the other hand, have emphasized the adverse impacts of fossil fuel based energy policies in the context of environmental degradation and climate crisis. Increasing energy demand and consumption, “along with environmental and health risks associated with traditional means of energy generation” have raised criticism and concern about the soundness of these

conventional methods. Therefore, “transition to environmentally friendly energy sources” has been emphasized (Biresselioglu et al, 2020, p. 1). The need for “socially just and environmentally sensitive” energy resources and services has been emphasized in the context of sustainable energy security (Jiusto, 2009, p. 534). Sustainable energy security has been emphasized in order to promote “human well-being and ecological balance” in the long term (UNDP, 2000, p. 3). Thus, the concept of energy security has been analyzed in terms of environmental security and human security in addition to the national security, military security and economic security. It has been expressed that challenging climate crisis is inevitable policy rather than a policy choice for nation states (Hickman, 2018, p. 52) and “energy security is arguably one of the most important forms of human security” (Sovacool and Brown, 2010, p. 79).

The traditional and contemporary energy security concerns including energy prices, affordability, availability, volatile international energy markets, environmental sustainability, climate crisis, required changes in the infrastructure and technology have provided high level of uncertainty and challenge. Global transition to sustainable energy security has been characterized by significant systemic and instrumental uncertainties and challenges. Thus, there have been projects and calculations in order to detect and undermine these uncertainties and to broaden the policies and strategies about energy security (Watson et al, 2015). The relations / tensions between traditional and contemporary approaches have also contributed to this uncertainty. There have been suggestions for conceptual boundaries, conditions and measurements in order to “reduce the overlap between the policy goals of energy security, sustainability and economic efficiency” (Winzer, 2011, p. 2). But there have also been criticism for the conceptualization and analysis of energy security dimensions in isolation. Benjamin K. Sovacool and Ishani Mukherjee have expressed that “(...), the notions of energy security can either be so narrow that they neglect the comprehensiveness of energy challenges, or so broad that they lack precision and coherence” (Sovacool and Mukherjee, 2011, p. 5343; Sovacool and Brown, 2010, p. 79).

This dilemma is connected with the lack of an integrated paradigm about energy security. It can be interpreted that the unsoundness of traditional energy security paradigm and competing ideas / choices about the linkage

between traditional and contemporary approaches lead to the set of contradictions and incoherences in determining and constructing a new paradigm / framework for energy security. Energy transition from non-renewable energy resources to renewable energy resources is a complex process and connected with diverse political, economic and social factors. Besides, the need for a change in social behaviors is critical in order to actualize global energy transition. Apart from the other factors, the human factor can be evaluated as one of the primary reasons which intensifies the uncertainty and complication. Therefore, a holistic and comprehensive perspective is necessary for the concept of energy security (Universitat Politècnica de Catalunya, 2017, p. 4; Sovacool and Brown, 2010, p. 85). This study aims to emphasize the need for a comprehensive and holistic paradigm of energy security in order to undermine the impacts of climate crisis.

The tensions and controversies between traditional (or conventional) and revolutionary approaches, which interrupt the dominative impacts of traditional approaches, have been one of the focal emphasizes in *the Structure of Scientific Revolutions*³⁶ of Thomas Kuhn (1996). Kuhn argued that paradigms, which relate to normal science or particular research traditions, clarify (and represent) the guiding scientific methods, rules, problems, and standards in relation to particular scientific communities. Paradigms, in this respect, indicate acknowledged scientific models, explanations, and assumptions with recorded achievements for a time. A revolutionary shift from one paradigm to another underpins the development of mature science (Kuhn, 1996, pp. 10-13).

The acceptance of a theory as a paradigm can indicate its suitability and competitiveness. However, very often, it cannot provide explanations for all the facts (Ibid, 1996, pp. 17-18). In this process, a comparison of paradigms in relation to nature and each other, confrontation with anomalies and crisis, and the decision for the acceptance of another paradigm eventually lead to paradigm rejection. The rejection of one paradigm, the acceptance and the emergence of another characterize scientific research and process (Ibid, 1996, pp. 77-80). A minor breakdown and the commencement of the blurring of a paradigm can also be sufficient in encouraging new means and perspective in the research field, which leads to alternative approaches. In essence, the functionality, competitiveness, and responsiveness of paradigms can be re-tested and

³⁶ See, Kuhn, T. (1962). *The Structure of Scientific Revolutions*. The University of Chicago Press, 1996.

re-questioned. Accordingly, the nature of scientific process and research leads to such extraordinary episodes, and professional investigations within which the existing paradigms are challenged and paradigm shifts occur. This achievement, as a transition from normal to extraordinary research, can be defined in terms of scientific revolution (Kuhn, 1996, pp. 86-91).

Thomas Kuhn (1996) argued that “successive transition from one paradigm to another via revolution is the usual developmental pattern of mature science” (p. 12). It can be expressed that the status of scientific paradigms has been connected with their correspondence to problems, which has been described as more successful in comparison to other competitors. In this regard, the success of a paradigm indicates the actualization of its promise concerning the level of match between its predictions and facts, coupled with further articulation (Kuhn, 1996, pp. 23-24).

According to Kuhn, identification of facts, match between such facts and theory and the articulation of theory exhaust the empirical and theoretical literature of normal science. With that being said, there are also extraordinary problems and resolution of these problems underpins the value of the scientific enterprise (Kuhn, 1996, p. 34). It can be expressed that scientific models and paradigms are accepted and employed with the assumption that they have solutions for problems (Ibid, 1996, p. 37). The exploration of violations surrounding the expectations of a paradigm indicates an awareness, which is directed to anomaly (Ibid, 1996, pp. 52-53). It can be expressed that paradigms are in a dependent and sensitive relationship with the dynamics of the natural and social world within which crises, failures and pressures occur (Ibid, 1996, pp. 66-72). At this point, critical awareness about anomaly, the emergence of observational and conceptual recognition and change of paradigm, which is accompanied by resistance, occur (Ibid, 1996, p. 62).

Paradigm changes are destructive and constructive processes through the discoveries and invention of new theories. Paradigm crises consist of resistant (regarding the persistency of traditional existing paradigm) and revolutionary (regarding the emergence of new paradigms) movements. Rejection of a paradigm implies to choose another one when confronted with anomalies or crises. The tension between resistant and revolutionary movements eventually results in the replacement of the traditional existing paradigm with the new paradigm. Kuhn argued that this endless cycle of scientific process is critical in order to increase our knowledge and awareness about the world. Transition from one paradigm to a new paradigm, a paradigm change, is not compatible with the argument that science is a cumulative process. Thus, it has been expressed that science must be considered as a reconstructive and revolutionary process (Kuhn, 1996, pp. 62-77, 84-85, 136).

Climate crisis implies the urgent need for a paradigm change in energy security relations and policies. The traditional paradigm which favors the production and consumption of non-renewable energy resources through the role of nation states and consumers-centric perspectives is weakened due to the globally increasing impacts of climate crisis. Therefore, there have been attempts to re-evaluate and re-frame the concept of energy security in terms of environmental security, sustainability and human security. But the idea within the scope of this study is that environmental security paradigm cannot be read as the ultimate re-construction of energy security policies due to the problematics in the human-centric perspectives. The assertion is to critically re-evaluate the positions of both nation states and human beings as referent actors in the context of energy security.

Energy poverty, increasing energy demand from developing economies and climate crisis require more comprehensive and further studies about energy security (Kuik et al, 2011, pp. 632-633). It has been expressed that environmental issues, energy markets and energy security require global policies and responses (United Nations Economic Commission for Europe, 2013, p. 7). Therefore, this study proposes the emergence of the concept of planetary security paradigm to resolve the tension between traditional (resistant) and contemporary studies / movements in the context of energy security. The need for a paradigm shift in energy security relations and policies has been naturally justified. Yet political process is slow. It has been argued that “the entrapment of energy policymaking within the paradigm of national security” can be evaluated as one of the reasons for this delay (Karlsson-Vinkhuyzen and Jollands, 2013, p. 508). Therefore, a planetary account of energy security is proposed as an alternative paradigm in the context of energy security and climate crisis.

4. THE EMERGENCE OF PLANET POLITICS AND PLANETARY SECURITY

In “Planet Politics: A Manifesto from the End of IR”³⁷, the concept of planet politics has been addressed “as an alternative thought and process”, as an onto-political commitment and as a new normative and political paradigm in the context of climate crisis. It has been expressed that the concept of planet politics needs to be emerged to ensure the engagement of IR with planetary reality. Planet politics has been proposed to re-configure and recovery “political answers to the planetary questions” within the scope of IR discipline. Because climate crisis challenges traditional and current paradigms, methodologies, categories, institutions and demands new kinds of responsibilities and profound changes about “our traditional understandings of the nature and humanity” and relationship between humans and non-human entities. Industrialization, power and economic interests-centric policies and mainstream security paradigms in IR are not consistent with planetary reality. Therefore, multi-dimensional and multi-species action plan about climate crisis is necessary to undermine the tensions between the needs of our planet and international policies / mechanisms. It has also been expressed that we must re-organize the energy patterns of communities and states and encourage the use of RES for environmental health (Burke et al, 2016) in the context of energy security. The components of planet politics paradigm can be effective in order to provide normative and integrated conceptual basis for energy security policies. Therefore, planetary security as a component of planet politics is chosen to provide an alternative referent paradigm for energy security.

4.1 Planet Politics and Planetary Security in the Anthropocene

Human beings’ activities have produced adverse impacts on the entire planet. The term Anthropocene has been conceptualized in order to emphasize the impacts of human

³⁷ Burke, A., Fishel, S., Mitchell, A., Dalby, S., and Levine, D. J. (2016). Planet Politics: A Manifesto from the End of IR. *Millennium: Journal of International Studies*, Vol. 44, No. 3, pp. 499-523.

policies and behaviors on the well-being of the planet. A linkage between geological processes / timescales of the planet and various forms of human induced activities has been the main characteristics of the Anthropogenic era. The Anthropocene as a "geological transition" is associated with industrialization. The reason is that industrial activities and extensive use of fossil fuels have produced profound impacts that rival with the great forces of nature (Fishel et al, 2017; Steffen et al, 2007, pp. 614-616). It has been expressed that industrial activities and processes produce desired materials and goods for human beings. But industrial activities and processes “necessarily and unavoidably jointly produce high entropy waste” and the joint, irreversible, both desirable and undesirable outcomes have been evaluated as constraints on the economic growth, industrial expansion and ecosystems (Baumgärtner et al, 2006, pp. 4-6). “Globalization of waste” (Beck, 2010, p. 262), in this respect, has been a basic characteristic of the Anthropocene. The social and economic power has also been deeply embedded within the hegemony of conventional energy systems (Jiusto, 2009, p. 535).

The Anthropocene presents “human-dominated, geological epoch” and emphasizes the accelerated impacts of human beings’ behaviors on the global environment. Industrial activities have been considered as one of the main reasons for the anthropogenic era. Many damaging toxic substances have been released into the atmosphere in the latter part of the eighteenth century. Therefore, human beings have been evaluated as “major environmental force” (Crutzen, 2002) in the context of industrialization. Human beings’ activities have damaged the material and ontological conditions of the planet (Fishel et al, 2017, p. 211; Burke et al, 2016, pp. 19-20). “The strong causality between energy and emissions” has increased critiques about the main objectives of energy policies. For this reason, a sustainable energy security (Narula and Reddy, 2016, p. 326) and ethical awareness about the intended and unintended outcomes of economic actions and human beings’ potential ignorance about ecological impacts and environmental degradation have been emphasized (Baumgärtner et al, 2006, pp. 8-9).

Some have argued that the roots of the Anthropocene can be found in the pre-industrial times. It has been expressed that the Anthropocene era began thousands of years ago with the development of agricultural activities and earlier technical innovations in the practices of farming (Ruddiman, 2003, p. 261) within which the discovery and control of fire had a solid role. In the pre-industrial times, human

beings affected their environment from local to continental scales by means of hunting, gathering and farming. But they did not have enough economic, social and technological power in order to exploit and damage natural resources. Simply put: they “did not have the technological or organizational capability to match or dominate the great force of nature”. Therefore, “their impacts remained largely local and transitory, well within the bounds of the natural variability of the environment” (Steffen et al, 2007, pp. 614-615) in the pre-industrial times.

Industrial times, on the other hand, have marked a turning point for the well-being and functioning of our planet. Human beings’ activities and imprint upon the Earth have evolved into a major impacting force with the emergence of Industrial Revolution (Oldfield et al, 2013, pp. 3-4). Industrialization process has been effective in emphasizing a separation between society and nature by fabricating the themes of modernity, globalisation and development (Chakrabarty, 2018, p. 272) and in turning “both humans and other beings into resources”, resulting from the alienative impacts of capitalism and technical developments (Tsing, 2015, p. 19). Thus, the mechanical and industrial advancements have been defined in terms of anthropological and instrumental perspectives, in relation to the objectification of nature (Heidegger, 1977) and “the modern human conceit” (Tsing, 2015, p. 19). Therefore, it can be expressed that the Anthropocene is also connected with the shift or alteration in the relationship between human entities and non-human entities in the nature. Anthropocentrism reads nature in an instrumental usage, which contributes to the global environmental problems for both human life and non-human life (Youatt, 2014, p. 208).

The geological conceptualization of time, though projected as an “objectively” existing and measured phenomenon, opens out of the human understanding, while at the same time investigating reality beyond it – obviously inescapably in relation to the human – and trying to imagine a temporal scale within which human life appeared and, most likely, will at some point disappear (Ziarek, 2011, p. 20).

The term Anthropocene leads to re-evaluate our relation to both human and non-human entities in the planet. International politics take human beings and/or humanity as the “key point of reference” and as the sole entity, who have capacity for "political interaction" albeit with the cases in which “the boundary of who counts as human” can be shifted and can be subject to the political perceptions especially, in conflicts and wars (Youatt, 2014, pp. 207-208). Simultaneously, there

have been cases in which the position and value of human beings and human life have been ambiguous. There has also been “a limit to the amount that a government or community will spend to preserve one life” with regard to different circumstances and variations (Moss, 2000, p. 107). Within this framework, the definition and position of human beings in IR have been controversial. IR theories evaluate the modern world through the lenses of human beings and sovereign states. Human beings “constitute themselves in political societies and (...) these societies, as sovereign states, constitute themselves as a system or society” (Onuf 2013, p. 132). Nation states and international organizations are employed in order to represent the human in IR.

“Accordingly, in IR, the human appears in manifold terminological shapes and forms: as actor, agent, subject, individual, person, body/being, self, mind, psyche, and so forth” (Jacobi and Freyberg-Inan, 2015, p. 8). Anthropocentric arguments address human beings as “the sole criterion of value”. Therefore, they evaluate natural world as an instrument for the purposes of human beings. Within this framework, “the environment becomes worthy of consideration through human valuing” (Vincent, 1998, pp. 446-447). Anthropocentrism emphasizes “a conceptual division between human beings and nature, or, more broadly, between human beings and all the other non-human elements that comprise the world” (Coward, 2008, p. 109). But this study asserts that focusing on the causes of climate crisis and Anthropocentric era can provide us an opportunity in order to criticize the impacts of “traditional (anthropocentric) IR framework” and encourage us to focus on both human entities and non-human entities (Kavalski and Zolkos, 2016, p. 146), which align with the planetary security paradigm. Security threats and issues affect both human and non-human entities. Wars, conflicts and ecological crises are destructive for the lives of humans, animals, plant and for the preservation of habitats and landscapes. But Anthropocentrism harnesses human beings as the only important entity for harm and ethical responsiveness (Mitchell, 2014, pp. 5-6). “The ‘globe’ of globalisation presents a story with humans at the centre of it” (Chakrabarty, 2018, p. 261) and therefore, the use of the words of ‘global’ and ‘planet’ have been treated as synonyms (Ibid, 2018, p. 262), which is problematic and alienative.

With that being said, there have been criticisms for the negligence of human beings at

the expense of nation states and/or for the prioritization of human beings in IR. While realist security paradigm has asserted that human beings cannot be trusted and therefore, prioritization of the sovereignty of nation states in IR is necessary³⁸; liberal and environmental security paradigms have intended to focus on the role, liberty and security of human beings in IR. Liberal conception of human nature has been read as optimistic, progressive and deterministic. Therefore, regulations on the destructive flow and energy in human nature for “the secure boundaries of the self and the territorial order” have been achievable within the scope of liberal arguments. Liberal conception of human nature has been considered to abstract / insulate human beings from their social connections in order to observe the individual psychology. It has been argued that the assumed analogy between the behaviors of nation states and human beings does not imply that human beings are directly involved in IR. Subsequently, the notions of human, human survival and human security have also been critical components within the scope of environmental security. Thus, the instrumental and/or central role of human beings in IR have been connected with the construction of political theories and paradigms. These theories and paradigms have organized and also restricted views about the existence and responsibility of human beings in the planet (Freyberg-Inan, 2004, pp. 37-41; Jacobi and Freyberg-Inan, 2015; Rosow, 2015, pp. 54-58).

“We might say that IR either studies world politics through an anthropological lens that places the human at the center of its observation or through a post-anthropological one that chooses to de-center the human to different extents” (Jacobi and Freyberg-Inan, 2015, p. 6). Our views and perspectives on human, humanity and world politics are organized by theories and paradigms (Ibid, 2015, p. 2). In this regard, this study favors neither the instrumental role of human beings nor the central role of human beings in IR. Rather, this study aims to emphasize the need for a critical re-evaluation for the position and role of both human beings and nation states in IR. The concept of planetary security, in this respect, can be effective in order to

³⁸ For the evolution of the realist psychology, see these publications, as further readings, Freyberg-Inan, A. (2004). *What Moves Man: The Realist Theory of International Relations and Its Judgment of Human Nature*. Rosenau, State University of New York Press, pp. 9-10; for the role of human nature on the formulation of realist security paradigm, see, Brown, C. (2009). Structural Realism, Classical Realism and Human Nature. *International Relations*, Vol. 23, No. 2, pp. 257–270.; Rosen, S. P. (2004). *War and Human Nature*. Princeton, NJ: Princeton University Press.

emphasize a planetary account of security as a referent paradigm for energy policies. This kind of a critical and post-human thinking can allow us to formulate methodological, conceptual and normative basis for the concept of energy security. A post-human thinking does not imply the abolishment of nation states and negligence of human beings in IR. The distinction between anthropological and post-anthropological thinking “does not imply that world politics only occurs either with or without humanity. Rather, it directs attention toward the analytical angles scholars use to study either one or both” (Jacobi and Freyberg-Inan, 2015, p. 7). The Anthropocene requires us to re-evaluate and re-define “the very notion of the human and its freedom” (Burke et al, 2016, p. 521). The idea is that the notion of human as the citizen and consumer (Simon, 2020, p. 126), through the underpinnings of realist and liberal security paradigms, needs to be critically re-evaluated in the context of energy security and climate crisis. A critical perspective about the Anthropocene can encourage human beings to investigate their commitment to certain patterns and types of modernity and globalisation and thus, it can help them “to understand their own story by standing outside” (Chakrabarty, 2018, pp. 265-266). In this context, an outsider perspective rather than an insider perspective can be valuable for planetary security.

The constitution of human as individual and political subject in IR indicates an existential priority for human beings. This assumption reduces the intrinsic value of environment and non-human entities in “to secondary concerns, mere contingent, empirical facts rather than ontological characteristics”. This Anthropocentric assumption implies “an instrumental relationship” between human beings and nature (Coward, 2008, p. 111) and asserts “the conceptual hegemony of the individual” (Ibid, 2008, p. 114). The process of globalisation has positioned human beings at its centre in order to contribute to the creation global markets (Chakrabarty, 2018, p. 261) as well. But the policies and judgements about the notions of sustainability and development “can no longer be left to individualised producers and consumers interacting in markets created and conditioned by national states” (Low and Gleeson, 1998, p. 13). In essence, critical perspective about the policies and behaviors of nation states and human beings provides an opportunity to be aware of the impacts of traditional energy security paradigm and insufficiency of contemporary approaches on the well-being of our planet and all entities within.

This kind of a perspective also emphasizes the urgent need for a paradigm shift and definition in the context of energy security and climate crisis. Because fundamental transformation of global energy systems is a must to foster just and sustainable societies (Jiusto, 2009, p. 533).

“A transition away from a petroleum economy” has been considered as a reality upon human beings (Deutch, 2007, p. 11). Because the constitution of the fossil fuel driven modernity and civilization has become burdened with contradictions, irrationalities and damages for the ones, who are subjects of these notions as well (Chakrabarty, 2018, pp. 273, 275). Energy production and consumption patterns, which have been decisive for the development of human societies, civilization and industrialization, have re-shaped “Earth systems in ways that have undermined the ecological services upon which humans, along with many other biophysical beings, have depended for their survival as Earthlings” (Froestad and Shearing, 2017, p. 516). Therefore, traditional and/or mainstream energy security paradigm has been criticized. A sustainable energy security regime or paradigm which will not threat the well-being of human beings and our ecosystem has been emphasized. Ecological and environmental studies, in this respect, have paved the way to develop alternative approaches and theories for sustainable energy policies (Proedrou, 2015). But the idea is that the position of nation states and human beings as referent actors in the formulation of energy policies may not be effective in order to provide a comprehensive and proper respond and clarifications for the relationship between energy security and climate crisis. In *Environmental Security: Concept and Dimensions*, Narottam Gaan has suggested that planetary security needs to be addressed as a foundation for environmental security and human responsibility (Gaan, 2004, p. 245). Drawing from the framework of planet politics (see, Burke et al, 2016), planetary security can be adopted in order to provide a referent paradigm and ethical foundation for energy security relations and policies.

Planet politics must emerge as an alternative thought and process: a politics to nurture worlds for all humans and species co-living in the biosphere. The local, national, and global no longer define our only spaces of action. The planet has long been that space which bears the scars of human will: in transforming the world into our world, we damaged and transformed it to suit our purposes. It now demands a new kind of responsibility, binding environmental justice and social justice inextricably together (Burke et al, 2016, p. 500).

The concept of planet politics has been criticized by David Chandler, Erika Cudworth and Stephen Hobden in “Anthropocene, Capitalocene and Liberal Cosmopolitan IR: A Response to Burke et al.’s ‘Planet Politics’”. It has been argued that the concept of planet politics is concerned with “the nation-state based framing of Realism” in IR, rather than the “liberal institutionalist attempts to constitute new forms of global governance” (Chandler et al, 2017, p. 192).

But in “Planet Politics: A Manifesto from the End of IR”, there is a strong critical emphasis for both mainstream and contemporary security approaches in IR. It has been expressed that the dominant theoretical, methodological, intellectual and institutional structures in IR are not adequate in order to address the climatic, ecological, moral and industrial issues and challenges. Reducing perceptions and life into the underpinnings of western, neo-liberal political and economic interests has also been criticized, along with the realist-centric assumptions. Therefore, the need for an earth politics in IR has been emphasized (Burke et al, 2016) and within the scope of this study, this suggestion has been employed for the relationship between energy security and climate crisis.

But still, negligence of the critique of liberal institutionalist approaches is problematic in the context of climate crisis. Because comprehensive climate politics is also “about transforming the basic concepts and institutions of first, industrial, nation-state modernity” (Beck, 2010, p. 256) and avoiding the related assumptions of liberal security paradigm, in this respect, cannot be sound in order to develop a response for climate crisis. Changing energy regime or paradigm requires to change “cultures and associated institutions” (Froestad and Shearing, 2017, p. 516) and consumption patterns. Attachment to the post-colonial and post-imperial formations of modernity has also been effective in delaying the transition process (Chakrabarty, 2018, p. 280). In this spirit, the main idea within the scope of this study is that planetary security paradigm -which can be defined as a component of planet politics- can be effective in order to eliminate traditional energy security paradigm, to challenge and/or revise the contemporary approaches, to actualize the continuing global energy transition process and to increase individualistic and collectivistic critical awareness in the context of energy security and climate crisis. The concept planetary security paradigm has been suggested in order to provide methodological, conceptual and normative facilitation for the global transition process towards the RES. It has been argued that our focus and attention shift “to questions of existence or not” when we are confronted with the impacts of profound changes, uncertainties and unpredicted behaviors (Holling, 1973, p. 1). Climate crisis as an existential and ontological crisis, in this respects, requires to formulate energy security policies in relation to the climatic, social and ontological perspectives. In this regard, the variety and dissonance in the political decisions, choices and “preferences of individual states and grouping of states for the allocation of carbon emission national ceilings and target global average temperatures” (Hickman, 2018, p. 50) may also be challenged through the concept of planetary security referent paradigm.

Energy politics is one of the primary areas that “will determine the survival of life as we know it on our planet” (Pascual and Zambetakis, 2010, p. 9). Therefore, critical perspective, conceptual clarification (Ciută, 2010, p. 126) and “strengthening the methodological understanding” (Månsson et al, 2014, p. 1) are necessary for the concept of energy security in the context of climate crisis. Planetary security paradigm, in this respect, can be effective in undermining the methodological challenges and ambiguities for energy security studies. Foucault (1997) has expressed that a critical perspective as “an instrument, a means for a future or a truth” (p. 25) implies “the art of not being governed” (p. 29) and “the art of voluntary insubordination” (p. 32). Criticizing the traditional and current, existing, energy security policies is thus valuable in order to not to be subject to the impacts of these policies and to broaden our awareness about alternative perspectives and paradigm. Climate-related security challenges requires “the urgent need to do something” (Lisle, 2016, p. 419). Energy security is one of the crucial areas within which there is an urgent need for a paradigm shift. It has been expressed that the power of Anthropocene requires a new planetary project and action (Burke et al, 2016, p. 502). “Radical turns have happened in human history before-now it must happen globally” (Herz, 2003, p. 143). Therefore, the emergence of the concept of planetary security is proposed in order to provide an alternative, integrated and unified paradigm for energy security relations and policies.

Hayley Stevenson has expressed that prioritizing the mitigation of GHGs and encouraging ecologically sensitive policies rather than “transforming the political, economic, and cultural drivers of excessive emissions” can produce an institutionalized unsustainability in international area (Stevenson, 2012, pp. ix-x). Because a widespread global energy transition requires profound changes in the usage patterns, institutions and infrastructures as well (Tester et al, 2012, p. 13). Planetary security paradigm, in this respect, can eliminate the risks, contradictions and paradoxes in the context of energy, environment and climate. The idea is that “‘planetary security’ (...) captures the new security challenges of our century better than the phrase ‘climate security’, or even the wider

concept of ‘environment and security’ (Verbeek, 2019).

The emergence of planetary security as a new paradigm, framework and agreement between energy security and climate crisis can be effective in order to increase political awareness for the impacts of energy policies and actualization of global energy transition process. Planetary security as a post-human thinking can be effective in increasing altruistic awareness and responsibility in the context of energy security. Therefore, the concept of planetary security needs to be read as an opportunity in order to encourage both human beings and nation states in re-conceptualizing and re-formulating their behaviors, choices and policies in the context of energy security. Planetary security can also be effective in encouraging interdisciplinary studies in the context of energy and climate and can provide a match between the needs and demands of our planet and energy policies by emphasizing the value and role of both human and non-human entities.

4.2 The Role of Solar Energy

It is important to emphasize the role of solar energy in the context of global energy transition process and planetary security. Solar energy deserves serious attention because it can play a leading role in order to reduce carbon emissions, wasteful policies and to provide energy services for individuals. In MIT Energy Initiative’s report, which is titled as “The Future of Solar Energy”, it has been expressed that the use of solar energy in the electricity generation, heating and transportation can make huge differences in order to challenge the impacts of climate crisis. Solar energy has a huge transformative role in order to mitigate the impacts of climate crisis. The costs for technological infrastructures and intermittent characteristic of solar energy are addressed as main obstacles in order to integrate solar energy into energy policies, markets and industries. Therefore, it has been expressed that regulations on the conditions of energy market and formulation of energy policies are necessary in order to undermine these obstacles. The distribution of solar energy at the global scale is massive. The broad scale of solar energy and its distribution support the potential leading role of solar energy in the process of global energy transition (MITEI, 2015, pp. 1-20).

Concerns about “energy security and the environmental impact of anthropogenic energy consumption” have attracted public attention for the development and well-being of human societies and economics (Hughes, 2009, p. 2461). It has been expressed that the constraints and problems which are associated with the traditional energy paradigm cannot be accepted and tolerated “from a humanitarian and moral standpoint” (UNDP, 2000, p. 9). Therefore, it has been expressed that elimination of fossil fuels and acceleration of RES are necessary in order to mitigate climate crisis (Owusu and Asumadu-Sarkodie, 2016, p. 3). The transition from fossil fuels to RES is connected with the social, collectivistic and individualistic aspects about energy security. Because energy resources and services should not be distributed “only to a minority of privileged people”. The principles of energy equity, economic and social sustainability need to be employed in the context of energy transition (Armaroli and Balzani, 2016, p. 35). RES are critical in order to eradicate energy poverty and stabilize GHG emissions (Tester, J. W. et al, 2012, p. 4). Solar energy has a crucial role for “energy access, climate mitigation and lower air pollution” (World Energy Council, 2019, p. 7, 21). A sustainable community model is connected with “alternative/renewable energy paradigm” (Simon, 2020, p. 112) and solar energy has a critical role in order to contribute to community sustainability (Ibid, 2020, p. 126). Solar energy can be effective in order to emphasize social and planetary aspects about energy security. The idea is that the emphasis on solar energy should not be merely technical. Philosophical, social and planetary aspects about energy and security should be taken into consideration as well.

It has been expressed that solar energy as “the oldest form of energy utilized by human beings” (Simon, 2020, p. 101) can resolve the dilemma between “carbon emissions reduction and affordability concerns” (Proedrou, 2018, p. 86). Utilization of solar energy has also been emphasized in order “to reduce the foreign dependence of our energy character” (Heperkan, 2017, p. 6). Solar energy has been addressed as both economically and environmentally inevitable and healthier solution (Bradford, 2006, pp. 6-7). The use of solar energy has been recommended, “especially in regions with high insolation” (Tester et al, 2012, p. 70). The use of solar energy has been evaluated as a component for human security, energy efficiency, land, air and water protection in the long term. It has been expressed that environmental sustainability of economic development is possible through the elimination of fossil fuels and use of solar energy (Scheer, 2004, pp. 8-9, 14, 25).

It can be expressed that economic, social and environmental benefits of solar energy are critical in the context of energy security. And this study aims to emphasize that social and environmental benefits of solar energy is appropriate for the relationship between energy security and climate crisis through the concept of planetary security.

4.3 Turkish Republic of Northern Cyprus' Energy Security and Potentiality for Solar Energy: An Overview

The Cyprus issue is “a complex case of a conflict society” (Yakinthou, 2009, p. 1) and is “a triangular trajectory of colonialism, nationalism, and modernity” (Michael, 2009, p. 8). Cyprus island is divided between the Turkish Cypriots and Greek Cypriots and there is no single authority that represents both the Turkish Cypriots and Greek Cypriots (Yakinthou, 2009, pp. 2-3; IEA, 2020, pp. 45, 48). The political identity of the Greek Cypriot regime has been internationally recognized and accepted as the Republic of Cyprus, with the exception of the Turkey. But the political identity of the Turkish Cypriot regime as the Turkish Republic of Northern Cyprus (TRNC) has not been internationally recognized and accepted. TRNC is recognized and accepted only by the Turkey. The Republic of Cyprus, which is controlled by the Greek Cypriots, has been evaluated as the only legitimate governing authority in the island (European Parliament, 2005, pp. 3-4; Michael, 2009, p. 48; Yakinthou, 2009, p. 1), in contrast to the assertions of the Turkey, which evaluates it as "defunct administration" (Hague Conference on Private International Law (HCCH), 2016).

Cyprus issue is very suitable for misunderstandings and manipulations due to the different interpretations and ideologic approaches. In addition (and in relation) to the political, historical, constitutional, economic and military issues and struggles, there are sociological and psychological issues and traumas that could not be resolved. Accordingly, there are two different interpretations regarding the source of the intensification of the conflicts in the island. Vamik D. Volkan has emphasized that there are different orientations and chooses as societal trauma both from the Turkish Cypriots' and the Greek Cypriots' perspectives. While the Turkish Cypriots evaluate the hostilities during the 1963 and 1974 period, within which they were killed or imprisoned in the horrible enclaves, as their societal trauma, the Greek Cypriots evaluate the arrival of the

Turkish army in 1974 as their societal trauma in the context of the Cyprus issue (Volkan, 2008, pp. 95-97; Volkan, 1979, pp. 82-85, 105, 121-122, 133-134; Rodger, 2015, p. 72).

The struggles and conflicts between the Turkish Cypriots and Greek Cypriots have been connected with the historical construction and activation of the rival identifications between the self and other, identity confusions, physical and psychological boundaries and polarizations in the island. The inability to integrate or synthesize ethnic, socio-cultural and religious diversity in a wholeness and collapse of the bi-communal Republic of Cyprus resulted in the constitutional crisis, violent actions and interventions. The Turkish Cypriots, who became the target of the externalization process resulting from the policies and actions of the Greek Cypriots, were imprisoned in enclaves as "interim survivors", if not killed, during the ethno-national episodes of the violent radicalization in the island. The enclaves were also the mental representation of the "psychological walls" and boundaries between the two communities or large group identities in the island (Alimi et al, 2012; Gülseven, 2020, p. 25; Aslm, 2017, p. 42; Volkan, 2008, p. 95; Volkan, 1979, pp. 3, 11, 80-96, 110-122; Volkan, 2010, pp. 15-17).

Violent actions have been connected with the ideological purposes, including the union with Greece. The reflections of this ideological purpose have produced existential insecurities and anxieties for the Turkish Cypriots. Therefore, the Turkish Cypriots have evaluated the arrival of the Turkish army in 1974 as a liberation against the violence, coercion and oppression that they have experienced. But the Greek Cypriots have evaluated the arrival of the Turkish army in 1974 as their trauma, parallel with the fall of Constantinople in 1453 (Volkan, 2010, p. 13; Volkan, 1979, pp. 81-82; Michael, 2009, p. 32).

The psychological effect of 1974 was exacerbated by parallels drawn with the fall of Constantinople in 1453 and the Asia Minor Catastrophe of 1922. The year 1974 perpetuated the image of the "unspeakable" Turk as Orthodox Hellenism's eternal enemy, out to expel them from their ancestral homeland, in a melancholic fatalism colored by betrayal, defeat, and loss. Within this context, 1974 represents the apex of national treachery for Greek determinism, which reverberates through Greek Cypriot political culture and haunts their decision-making throughout the peace process (Michael, 2009, p. 32).

It can be seen that there are different interpretations in evaluating and choosing certain incidents as traumas. These interpretations matter because they can be reactivated, especially in conflicts and crises and can further produce adverse impacts

for the reconciliation and conflict resolution processes. The perceived parallelism between the intervention in 1974 and fall of the Constantinople in 1453 (Michael, 2009, p. 32) confirms that the past historical incidents which have been unconsciously chosen as a trauma can be reactivated in conflicts and crises. (Volkan, 1999, pp. 152-153, 173-174; Volkan, 2001, pp. 85-88). "A chosen trauma is the mental representation of an event in a group's history in which the group suffered catastrophic loss, humiliation, and helplessness at the hands of a neighboring group" and can be reactivated in crises (Volkan, 1999, p. 152).

The memories, sociological traumas and perceptions about the past are important in shaping and constructing identities, "communal self-understandings", political perceptions and affiliations. The evolution of the memorization process into a national form has been connected with the communal traumas. The connection between memories and identities, in this respect, is decisive at individualistic and collectivistic levels (Bell, 2006, pp. 5-6, 15; Bartelson, 2006, pp. 33, 37). The memories and traumas are also important for the recognition of political identities and obtainment of political legitimacy. It has been expressed that both the formation and internalization of identities and external recognition / acceptance of these identities are essential for the human beings and communities (Ringmar, 2010, pp. 3, 6; Bell, 2006, p. 20). It has also been expressed that human beings can even use suicide, "the act of self death, (...) to deny the loss of self-identity, to defend the boundaries of the known self" (Humphrey, 2002, p. 17). In *Legitimation Crisis*, Habermas argued that experiencing structural alterations and existential threats on social identity, which disrupt continuity, creates crisis in societies (Habermas, 1988, p. 3). Thus, the constitution, protection, recognition/acceptance of political identities can be considered as critical components for the existence and security of human beings and communities.

Following the arrival of the Turkish army and division of the island, the Turkish and Greek Cypriots as two large group identities in the island have tried to adapt themselves into the new political and social dynamics. While the Greek Cypriot administration, in the south of the island, has been recognized and accepted as the sole legitimate authority in the Cyprus, TNRN as a traumatized society has remained to be subject to the international disapproval and isolation, except by Turkey (Volkan, 1979, pp. 80, 123-129; Volkan, 2008, pp. 95, 98-99; Yakinthou, 2009, p. 8; Martin, 2015, p. 17; Deputy Prime Ministry and Ministry of Foreign Affairs of TRNC, n.d.).

Since the island's de facto partition in 1974, the South has prospered, with an average annual per capita GDP of \$17,000, while the North has struggled to achieve an average annual per capita GDP of \$5,000. The precise amounts are controversial, especially for the north, but the size of the disparity is not. Whereas the South has become a major winter tourist destination and Nicosia has replaced Beirut as a financial entrepot, the North has been yoked to the devalued and inflation-prone Turkish lira, and the entire chaotic Turkish economy. As a result, Turkish Cypriots long ago lost their ties to a fiscally stable enterprise, run along prudent lines. They lost easy access to Europe, and to the emerging global economy. They imported a Turkish penchant for state capitalism—for interventionism, protectionism, and autocratic control and distribution of economic opportunity to favored clients. Corruption followed. Being unrecognized, except by Turkey, also prevented the beaches of North Cyprus from becoming a tourist destination (Rotberg, 2003, p. 3).

But the historical background, struggles, conflicts and endeavors for conflict resolution about the Cyprus issue will not be given within the scope of this subchapter. Rather, this subchapter aims to emphasize a critical consideration for the globally increasing interest on the Cyprus island due to the “Eastern Mediterranean offshore oil and gas reserves” (Ruble, 2017, p. 342) and to address the political and climatic insecurities and solar energy potentiality of TRNC in the context of energy security and climate crisis.

Mediterranean region represents natural and Anthropogenic human activities and “the complexity of interactions between weather/climate and natural environment” (Plan Bleu et al, 2008, p. 10). The Mediterranean Sea has been evaluated as one of the primary vulnerable hot spots for the impacts of climate crisis (Giorgi, 2006, pp. 1-4). “(...) a large decrease in mean precipitation and an increase in precipitation variability during the dry (warm) season” have been observed in the Mediterranean region (Ibid, 2006, p. 2). The increase and positive trend in the air temperature and decrease of precipitation can produce adverse impacts for the Mediterranean region, including the acceleration and spread of water scarcity which “is already quite high in several areas” (Saadi et al, 2014, p. 103) and disruption in the agricultural activities and cultivation (Ibid, 2014, pp. 113-114). It can be argued that climatic, environmental, geopolitical and psychosocial dynamics and sensitivities pose huge threats for the Cyprus and Eastern Mediterranean area (Figure 4.1) in the context of energy security and climate crisis. But still, it can be observable that climatic, environmental, and psychosocial insecurities are neglected. The endurance of traditional energy security paradigm may be considered as one of the reasons for such negligence.



Figure 4.1 : Cyprus and the Eastern Mediterranean Area (Volkan, 1979, p. 6).

The past five years, 2015–2019, have been evaluated as the five warmest years on record. In World Meteorological Organization (WMO)’s *Statement on the State of the Global Climate in 2019*, it has been noted that “since the 1980s, each successive decade has been warmer than any preceding one since 1850” (WMO, 2020, p. 5). The increase in the air temperature, the decrease in precipitation and growth of population threaten the water availability and security in the Mediterranean region. All of these threats also jeopardize the energy security of TRNC. It can be expressed that the Mediterranean region is one of the prominent areas that faces with the severe impacts of climate crisis. Apart from the political conflicts, identity problems and social instabilities, the climatic challenges, including warming, drought, rise of the sea-level, ocean acidification and pollution also intensify the multidimensional complexity in the region (Mediterranean Experts on Climate and Environmental Change et al, 2019, pp. 5, 10). The impacts of climate crisis can particularly be dominative on agricultural activities, fishery, tourism, infrastructure and urbanized coastal zones. Therefore, it has been stated that the Mediterranean region is and will likely to be more affected from climate crisis compare to the other regions in the world (Plan Bleu et al, 2008, p. xii).

In the light of all of these: It can be concluded that Mediterranean region is very vulnerable and responsive to the impacts of climate crisis (Giorgi, 2006, pp. 1-4; Giorgi and Lionello, 2008, p. 90). There are social risks, which are connected

with various impacts of climate crisis and uncertainties about energy security (Plan Bleu et al, 2008, pp. vi, 45). But still, the developments about the natural gas have been treated as more important and have been evaluated as appropriate mechanism in order to improve regional stability, cooperation and energy security. In this regard, it can be expressed that the Mediterranean region continues to be primarily subject to the commercial interests, instrumentalist, exploitative and pragmatist influences and interventions, resulting from the national and regional energy security policies in the context of natural gas discoveries (Ellinas, 2016) rather than to the reconciliation and resolution processes for identity problems, social instabilities and/or to the climatic problems, in which existential, ontological, social-psychological and planetary perspectives have a critical role. It has been argued that the countries in the Eastern Mediterranean region can improve their energy security policies and can become energy importers. But it has also been expressed that the deep-rooted security issues and conflicts in the region can hinder potentials for political and economic improvements and collaborations. Therefore, it has been argued that it would not be likely to see profound political transformations, changes and conflict resolutions in the region just “for the sake of energy” (Adamides and Christou, 2015, pp. 192-193). These two orientations, which have been conceptualized as cooperation or conflict, result in the negligence of deeper considerations in the context of energy security.

Traditional energy security policies and considerations cannot be effective for profound transformations and reconciliations in the region and for the improvement on the energy security of TRNC. For this reason, this subchapter aims to emphasize that the developments in the Eastern Mediterranean region may strengthen traditional approaches and dilemmas regarding the impacts of realist and liberal security paradigms on energy security policies. The natural gas discoveries have been evaluated as an instrument for conflict or cooperation in terms of national and regional security. It has been expressed that the actors (within and on the periphery of the Eastern Mediterranean) can choose to struggle over the resources or cooperate in the context of realist and liberal security paradigms. Therefore, geopolitical and commercial aspects have, for once again, been emphasized in the context of energy security (Aslım, 2017, p. 38; Grigoriadis, 2014, pp. 124-131; Stocker, 2012, p. 580). Natural gas factor has been characterized as a facilitator for cooperation and reconciliation or as a facilitator for conflicts (Adamides and Christou, 2015, p. 193). But this kind of a restrictive and dichotomous perspective is problematic and restrictive in the context of climate crisis and planetary security. Natural gas as “a transition fuel” has no significance in a de-carbonized world (Nuttall and Bakkenne, 2020, p. 119) and it also limits the concept of energy security into the assumptions of realist and liberal security paradigms in IR.

In contrast to the optimistic views, it has been expressed that the political instabilities in the Eastern Mediterranean region can increase hesitations for energy investments. Because it has been argued that “investors do not seek to create stability through an investment, but rather the reverse; they seek political stability in order to invest” (Adamides and Christou, 2015, p. 190). Drawing from this explanation,, regional stability and cooperation may not be possible in the context of energy security, which leads to the revival of realist-centric assumptions.

TRNC is affected by the climatic, political, economic, social and energy dynamics in the region as well. The linkage between Cyprus issue and energy security is addressed through a traditional perspective within which climatic, social and identity issues are neglected. The Greek Cypriots, who have been recognized as the Republic of Cyprus and accepted as the sole ruler and authority in the island, except by Turkey, claims that they have a right “to explore and exploit its natural resources”. The internationally accepted identity and government, except by Turkey, and the EU membership strengthen their position in the regional energy security. But TRNC emphasizes that natural resources belong to all Cypriots and the processes of exploration and exploitation should be carried out jointly. Sovereignty issue, in this respect, continues to produce adverse and externalizing impacts for TRNC. In a speech by the former Minister of Foreign Affairs Dr. Erato Kozakou-Marcoullis, dated as 2012, economic and political benefits of the hydrocarbon deposits in the region, improvement of the national and regional energy security and supply diversification opportunity for EU have been addressed as core aspects in the context of energy security. In addition to this: Turkey’s activities in the region have been criticized (Aslm, 2017, p. 42; Mullen, 2014, pp. 7-9; Sartori et al 2016, p. 7; Minister of Foreign Affairs of Republic of Cyprus, 2012). It can be argued that the traditional approaches to energy security contribute to the formation of blocks in the region and intensify deep-rooted issues about Cyprus, which is a threat for TRNC’s energy security.

The decisions and actions of the Republic of Cyprus to explore and exploit its natural resources within its Exclusive Economic Zone fall squarely within its sovereign rights as recognized by the UN Convention on the Law of the Sea, of which Cyprus is a state party and are therefore in full conformity with international law (Minister of Foreign Affairs of Republic of Cyprus, 2012).

Ministry of Foreign Affairs of Republic of Turkey has evaluated the activities of the Greek Cypriot Administration as irresponsible, unilateral, provocative and violation for the inalienable rights and authority of the Turkish Cypriots on the island’s natural resources. Besides, the activities of the international oil and hydrocarbon

companies and consortiums within which there exist the cooperation and partnership of the Greek Cypriot Administration have been evaluated problematic due to the violation of the Turkey's and Turkish Cypruts' rights and interests (Ministry of Foreign Affairs of Republic of Turkey, n.d.).

(...), the Turkish Cypriots, like the Greek Cypriots, have equal and inherent rights over the natural resources located on the whole continental shelf of the Island. Disregarding this reality is not acceptable both to Turkey and TRNC. The two peoples of the Island should jointly decide on how to use the off-shore natural gas and oil resources (Ministry of Foreign Affairs of Republic of Turkey, 2012).

In the light of all of these: It can be seen that the emphasis on traditional approaches and insufficiency of contemporary approaches to the energy security eclipse the climatic, environmental and psychosocial insecurities in the region. TRNC is particularly vulnerable to the multiple climatic, political, economic, social and energy issues due to the sovereignty issues and revival of the externalizing blocks in the regional energy security. The global and regional uncertainties, instabilities and international isolation pose huge threats for TRNC's energy security. For these reasons, it is important to focus on TRNC's potential for solar energy as a resilience. In a report, which has been published by the Economic Policy Research Foundation of Turkey (TEPAV), it has been argued that TRNC as a small insular country needs to improve "the failure in ensuring security of energy supply, the low level of energy efficient and the insufficient use of renewable energies" (TEPAV, 2016, p. 41). RES, in this respect, can be evaluated as a policy instrument for both energy security and planetary security. TRNC's potential for solar energy is important in order to address the relationship between energy security and planetary security.

TRNC's solar energy potentiality can be read as a reference model for a comprehensive perspective about the concept of energy security. TRNC's energy sector is dependent upon the imported fossil fuels. But TRNC has a huge solar energy potentiality that can be harnessed, for instance, electricity generation (Aliyu et al, 2017, p. 5; Kassem et al, 2019, p. 2525). TRNC's isolated energy system and increasing demand for energy consumption are primary reasons for the dependency on imported fossil fuels and high costs of supply. Therefore, "effective exploitation of renewable sources" has been emphasized in order to reduce the adverse impacts of fossil fuels, to protect "the natural and visual beauty of the island" (Kassem et al, 2019, p. 2522), to increase energy self-sufficiency and to undermine energy inequality.

It has been expressed that the costs for the use of solar energy can be reduced with the use of other RES, including "wind energy" in the island. Thus, wind energy can be used to support high solar energy potential (Yenen and Fahrioglu, 2013). Wind energy has been evaluated as a concentrator for solar energy (Tester, J. W. et al, 2012, p. 70). Thus, it is important to develop political, institutional and social support and policy frameworks for this combination, which can be evaluated as a diversification and high availability strategy and preparedness for both regional and planetary threats. It can be argued that both the solar energy and wind energy can offer promising resolutions for the development of a proper and comprehensive perspective about TRNC's energy security. Actualization of the RES potential in TRNC can be effective in order to provide political economic and climatic improvements for both regional dynamics and planetary security. Therefore, further studies corresponding to the implications of RES, including solar energy in the TRNC can be important for the improvement of TRNC's energy security and planetary security at large.

5. CONCLUSIONS AND RECOMMENDATIONS

Realist and liberal mainstream security paradigms in IR have constituted traditional energy security paradigm in terms of national security, military advancements and economic growth. Traditional approaches to energy security have avoided the intrinsic value of global environment and emphasized an instrumental relationship between human beings and nature. The climatic, social, normative and conceptual issues about traditional energy security paradigm have resulted in planetary insecurities. The emergence of contemporary approaches to energy security within the scope of environmental security paradigm, on the other hand, may not avoid the reproduction of traditional and instrumental characteristic of energy security policies. The developments in the Eastern Mediterranean region can be read as one of the reflections resulting from the dominant impacts of supply, consumption and fossil fuel-based traditional and/or mainstream energy security policies and relations in IR.

A brief history of energy through a comparative and retrospective analysis of pre-industrial and industrial times is important in order to focus on the developed linkage between energy and security from a critical point of view. Such critical awareness about the methodological consideration of energy in the pre-industrial times can be effective in order to provide a match between energy policies and planetary security. Then, a critical review about the role of realist, liberal and environmental security paradigms on energy security policies is critical in order to investigate the position of the concept of energy security in the interacting and/or competing IR paradigms. Accordingly, this study explains and interprets the constitutional and reformative impacts of realist, liberal and environmental security paradigms on energy security policies. And this study argues that neither traditional approaches in terms of national security, military security and economic growth nor contemporary approaches in terms of environmental security and human security can be effective in providing integrated and universal paradigm, conceptual and normative clarifications for the concept of energy security in the context of climate crisis.

The argument is that there is a blurry in the definition of the framework / paradigm about the concept of energy security. This study asserts that there is a need for a paradigm shift and definition in addressing the relationship between energy security and climate crisis. Thus, an alternative paradigm beyond the combinations and/or interactions of realist, liberal and environmental security paradigms is recommended in order to conceptualize energy security policies in terms of climatic, planetary, social and normative considerations. The idea is that a critical interpretive methodology regarding the explanations of traditional energy security paradigm can be effective in order to emphasize the need for alternative paradigms within which the relationship between energy security and climate crisis can be properly tackled. A critical review about traditional energy security paradigm indicates that national security, military advancements and economic expansion have been preferred in the conceptualization and formulation of energy policies. The climatic and social impacts of energy policies have been avoided and for this reason, traditional energy security paradigm has resulted in planetary insecurity. Therefore, there has been a shift from traditional approaches to contemporary approaches in terms of environmental security and human well-being in the context of sustainable development. But there is a danger in the emphasis of the contemporary approaches to energy security regarding the well-being of human societies, continuity of economic activities and civilization. The idea is that prioritizing human-centered approaches can lead to re-production of the instrumentalist and pragmatic values and behaviours towards the nature and environment.

It can be concluded that a critical perspective is necessary for both traditional and contemporary approaches in the context of energy security. For this reason, it is recommended that the relationship between energy security and climate crisis needs to be addressed in normative methodological terms. This study analyzes contemporary approaches to energy security within the scope of environmental security paradigm in IR and emphasizes that the referent paradigms (regarding the traditional and contemporary approaches) and referent objects (regarding the positions of nation states and human beings) of energy security need to be re-evaluated in the context of climate crisis. While traditional approaches to energy security have evaluated nation states as the referent objects for energy policies, contemporary approaches to energy security have focused on the security and well-

being of human beings as the referent objects for energy policies with the emergence of the environmental security paradigm. But this study favors neither the prioritization of nation states nor the prioritization of human beings as the referent objects for the concept of energy security. This argument does not indicate the degradation of nation states and human beings in IR. Rather, this argument provides an opportunity for a critical re-evaluation and re-consideration directed to the positions and definitions of nation states and human beings in the context of energy security and climate crisis.

This study asserts that conceptualizing and formulating energy policies in isolation from climatic and social considerations and from normative references is a deficient and deviation from the philosophical roots of energy. Therefore, a critical perspective is recommended for traditional and contemporary policies, paradigms and actors. This kind of a critical perspective is encouraged in order to re-consider and re-define the role and responsibilities of nation states and human beings as the referent objects for energy policies. The impacts of climate crisis require a paradigm shift for the concept of energy security. What drives energy security policies should not be based on national and economic interests of nation states and satisfaction and well-being of human beings as the prior criteria. Thus, this study emphasizes the concept of planetary security as a referent paradigm for the relationship between energy security and climate crisis.

A post-human paradigm can be effective for the development of an integrated methodological and normative referent basis surrounding energy security policies. This kind of an alternative paradigm can focus on the climatic, social and moral issues about energy security policies, can undermine the adverse impacts of instrumental utilization of energy resources and can encourage a change for individualistic energy behaviours and choices. The concept of planetary security paradigm has been derived from the concept of planet politics. The idea is that the concept of planetary security paradigm can be effective in order to increase awareness about the impacts of energy policies and the intrinsic value of global environment. A planetary account of energy security can be meaningful in order to re-consider the meaning and involvement of nation states and human beings in IR. This kind of a planetary perspective can increase awareness about the recognition of the intrinsic value of global environment as a basis for energy security policies in the context of climate crisis.

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