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The Legal Study on the Regulation of Wind Power in the Light of the Renewable Energy Strategy and the Protection of Biodiversity in the European Union with a Case Study on Implementation in Sweden.

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Master's thesis in Joint Nordic Master's Programme in Environmental Law

JUR 3920, May 2022



Foreword

The thesis expounds on how the EU seeks to protect biodiversity when building onshore wind farms at the EU level with a case study on implementation in Sweden. Achieving the renewable energy targets and seeking biodiversity protection is a high policy conflict between wind farms and biodiversity. Different legal researchers have identified and discussed this issue and the balance between these sectors. The Legal paper outlines the exhaustive analysis of the EU's biodiversity legislation: Birds and Habitats Directive and wind energy regulations: Strategies and Renewable Energy Directive II. The study will demonstrate a case study on Sweden while analyzing Swedish biodiversity and energy legislation to understand the practical implementation of the EU law.

I want to use this foreword to express my gratitude and honour for the people who helped me complete this master thesis. My first and foremost sincere thank you to my supervisor Professor David Langlet for your guidance, support and the great time that you have spent during this research. I am grateful to have you as my supervisor.

Furthermore, I would like to express my sincere gratitude to the NOMPEL programme professors and administrative staff of Uppsala University, Eastern Finland University and UiT Arctic University.

I would also like to thank my colleagues in the NOMPEL programme for your invaluable support, suggestions and thoughts. I am honoured to have you all. A special thank goes to Hasintha Subhasingha, who has helped correct this study's grammar and spelling.

Finally, I want to thank my family, especially my mother and father, for your unconditional support, prayers and strengths that strengthened me throughout these two years. I would also like to express my special gratitude to my husband, Amila Gamlath, for your invaluable sacrifices and patience. I will always be grateful to each of you for supporting and standing for me to succeed in this two-year journey.

Uppsala, 31 May 2022

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Abstract

Renewable energy plays a leading role in phasing out fossil fuels and achieving a carbon-neutral society by 2050 in the EU. As a sustainable renewable energy source, the wind energy sector is growing steadily, and onshore wind energy represents the highest percentage of electricity demand over offshore wind energy. The key legal instrument is Renewable Energy Directive II, which promotes renewable energy sources, including wind energy. The EU has a crucial goal to achieve adopted renewable energy targets in the EU Energy Strategy. However, a growing body of literature recognizes that onshore wind farms may harm biodiversity, primarily bats and bird species. Concretely, European Commission has introduced strategies and goals to halt biodiversity loss at the EU level and internationally. In addition, the biodiversity legislation: Birds and Habitats Directive, plays a central role in EU biodiversity policy. Thus, the EU has set comprehensive strategies for biodiversity and renewable energy sectors. These two sectors are interlinked and significant in achieving targets to move to a carbon-neutral society. Sweden is one of the leading EU countries that aims to achieve 100% renewable electricity production in 2040. The approach that the EU needs to reduce conflict between onshore wind energy and biodiversity is to adopt mitigation measures, synergies between these two sectors and trade-offs.

Key words:

Onshore wind energy, biodiversity, Sweden, European Union

Abbreviations

CBD	Convention on Biological Diversity
COP	Conference of Parties
EIA	Environmental Impact Assessment
EGD	European Green Deal
EU	European Union
EURATOM	European Atomic Energy Community
GHG	Greenhouse Gas
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
INDC	Intended Nationally Determined Contribution
NECP	National Energy and Climate Plan
NDC	Nationally Determined Contribution
RED I	Renewable Energy Directive (2009/28/EC)
RED II	Recast Renewable Energy Directive (2018/2001/EU)
SEA	Strategic Environmental Assessment
SDG	Sustainable Development Goal
SEPA	Swedish Environmental Protection Agency
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union Treaty
UNFCCC	United Nations Framework of Climate Change

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Chapter 1.

1. Introduction

1.1 Background

According to the statistics, energy-related emissions represent about 80% of the European Union's (EU) total greenhouse gas (GHG) emissions. EU has identified the energy challenge as one of the most significant challenges. The EU identified that the sustainable and most secure way is to shift from fossil fuel to renewable energy sources.¹

Interestingly, the European Commission made concrete renewable energy targets and strategies at the European level. Energy is expressly mentioned in the 2007 Treaty of Lisbon² and integrated into EU energy policy. When it comes to the 2020 targets, there are three main targets: reducing GHG emissions by 20% compared with 1990, increasing the renewable energy level in the European's energy mix by 20%, and improving energy efficiency by 20%.³ Renewable Energy Directive 2009/28/EC⁴ (RED I) adopted a binding target of 20% final energy consumption from renewable energy sources by 2020.⁵ In 2018, the European Parliament and of the Council introduced the Renewable Energy Directive (EU) 2018/2001⁶ (RED II) to promote the use of energy from renewable sources.⁷ According to Article 2 of the RED II, renewable energy or renewable sources defines energy from renewable non-fossil sources, including wind power.⁸ Article 3 of the RED II sets the binding overall Union targets for 2030 whereby Member States share renewable energy in the EU's gross final

¹ COM(2010) 639 final, p. 2.

² Treaty of Lisbon: Amending the Treaty on European Union and the Treaty Establishing the European Community (2007/C 306/01).

³ COM(2007) 1 final, p.5-14.

⁴ Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

⁵ C(2020) 7730 final, p.9.

⁶ Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast).

⁷ Ibid, Art. 1.

⁸ Ibid, Art. 2.

energy consumption in 2030 is at least 32%.⁹ Furthermore, the Commission has proposed revising RED II to set 40% by 2030. This will be discussed by the Council and the European Parliament by the end of this year.¹⁰

The EU's 2030 net GHG emission reduction target is at least 55% compared to 1990. According to the European Green Deal (EGD) 32% of the energy consumed should come from renewable sources in 2030.¹¹ The EGD was negotiated to achieve no net emission of GHG by 2050¹² along with the Paris Agreement emission reduction targets and carbon-neutral society by 2050 goals.¹³ Thus, renewable energy plays a vital role in phasing out fossil fuels and achieving a carbon-neutral society by 2050.

This study will focus on onshore wind farms. But why onshore wind farms and not offshore wind farms? Interestingly, the EU's total wind farms generated 16% of the electricity demand in 2020¹⁴ compared with 9% in 2015.¹⁵ Electricity from onshore wind farms represented 13% out of the 16% of wind electricity generated in 2020. In 2020, the gross installation's new wind power capacity was about 14.7 GW. However, over the last years, there has been a dramatic decrease in gross installations due to the impact of COVID – 19.¹⁶ Significantly, wind farms play a crucial role in generating Electricity. However, statics reveal that although the sector is growing steadily, it still needs to nearly triple to achieve the EU's green deal targets by 2030.¹⁷ The "Fit for 55 Package" was presented by the European Commission in 2021. As indicated above, one of the key proposals of the package was that the current 32%

⁹ Art.3 (1) of the Renewable Energy Directive II.

¹⁰ COM(2021) 557 final, p.1.

¹¹ European Commission, "2030 climate & energy framework" < https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en> (last accessed 03.02.2022).

¹² European Commission, "A European Green Deal" < https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en> (last accessed 03.02.2022).

¹³ Paris Agreement (adopted 12 December 2015, in force 4 November 2016) (2016) OJ L 282/4.

¹⁴ WindEurope (2021). *Wind energy in Europe 2020 Statistics and the outlook for 2021-2025*. p.21.

¹⁵ Agora Energiewende and Ember (2021): *The European Power Sector in 2020: Up-to-Date Analysis on the Electricity Transition*. p.7.

¹⁶ WindEurope (2021). *Wind energy in Europe 2020 Statistics and the outlook for 2021-2025*, p.9.

¹⁷ Agora Energiewende and Ember (2021): *The European Power Sector in 2020: Up-to-Date Analysis on the Electricity Transition*. p.5.

share of renewable energy target is insufficient to meet the EU targets. Instead, the package proposed to increase renewable energy to at least 38-40% by 2030.¹⁸ According to the statics presented by WindEurope, EU wind energy capacity should be increased to 433-452 GW by 2030 to meet the new proposed renewable energy targets. Onshore wind farms should represent 361-374 GW and offshore from 73 GW to 79 GW.¹⁹

1.1.2 The arguments between wind farms and biodiversity.

There is increasing concern that wind farms may harm biodiversity. There is a growing body of literature including Rydell et al. 2010²⁰, Gaultier et al. 2020,²¹ Millon et al. 2015,²² and 2018²³, Grodsky et al. 2011, O' Shea et al. 2016²⁴ and Kati et al. 2021²⁵ recognize that wind farm development projects may have direct and indirect impacts on biodiversity such as collision mortality of birds and bats, noise pollution, disturbance of migration, feeding areas and roosting places, species displacement etc.^{26,27} In the last four decades, world wildlife population decreased by 60% due to the result of human activities.²⁸ The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) report published in 2019 ranked climate change as the third most important direct driver of loss of biodiversity while analyzing the linkage between the development of renewable energy and biodiversity conservation.²⁹ When it comes to wind farm development projects, there is a high policy conflict with biodiversity legislations.³⁰ Though wind farm is a great source, but to locate

¹⁸ COM(2021) 557 final, p.1.

¹⁹ WindEurope (2021). *Setting the course towards climate neutrality: WindEurope position on the 'Fit for 55' package.* p.3.

²⁰ Rydell et al. 2010, p.4.

²¹ Gaultier et al. 2020, p. 10385.

²² Millon et al. 2015, p. 250.

²³ Millon et al. 2015, p. 51.

²⁴ O' Shea et al. 2016, p. 176-185.

²⁵ Kati et al. 2021.p.768.

²⁶ Ibid.

²⁷ Rydell et al. 2015, p 1.

²⁸ COM (2020) 380 final, section one.

²⁹ Intergovernmental science-policy Platform for Biodiversity and Ecosystem Services (IPBES) 2019, p.14.

³⁰ Jackson 2011, p. 1-3.

wind farms is one of the most significant challenges for getting benefits from wind farm while protecting biodiversity.³¹ Thus, need to be adopted synergies and trade-offs between onshore wind farm developments and biodiversity conservation.³²

Initially, the EU policymakers acknowledged the interaction between biodiversity and climate change;³³ thereby highlighted that it could not achieve climate change solutions without protecting biodiversity.³⁴ Furthermore, the official sources of the EU have consistently made strategies for both renewable energy targets and biodiversity by 2030.³⁵ As a sustainable renewable source, wind energy plays a unique role while conserving biodiversity by saving greenhouse gas emissions.³⁶ The EU has a legal framework to protect biodiversity and permit properly sited or designed land-based wind farms. The Birds Directive 2009/147/EC³⁷ and Habitats Directive 92/ 43/ EEC³⁸ are the primary legal instruments and foundations of nature and biodiversity in the EU. Interestingly, Strategic Environmental Assessment Directive (SEA Directive)³⁹ and Environmental Impact Assessment Directive (EIA Directive)⁴⁰ play a remarkable role while dealing with the permission process for wind farm developments.⁴¹ Accordingly, the central aim of this master thesis is to explore how the EU seeks to protect biodiversity when building onshore

³¹ Bowyer et al. 2015, p.7-20.

³² Santangeli et al. 2016, p.3-19.

³³ Jackson 2011, p. 3.

³⁴ COM (2020) 380 final, p.2-3.

³⁵ COM (2020) 380 final.

³⁶ Ibid, p.6.

³⁷ Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the Conservation of Wild Birds.

³⁸ Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora of 21 May 1992.

³⁹ Directive 2001/42/EC on the evaluation of the effects of certain plans and programmes on the environment

⁴⁰ Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, amended in 1997 (97/11/EC) and 2003 (2003/35/EC).

⁴¹ Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, amended in 1997 (97/11/EC) and 2003 (2003/35/EC).

wind farms. This paper describes a comprehensive legal framework for wind farming and biodiversity at the EU level.

Furthermore, this paper examines a case study on how Sweden seeks to comply with the relevant EU laws. But why Sweden and not any other Nordic Countries? Sweden is one of the major EU countries that leads toward a low carbon economy.⁴² The Wind farms are expanding steadily in Sweden. Regarding the power sector, Sweden aims to achieve 100% renewable electricity production in 2040. Sweden's domestic target is to achieve at least 50% of the share of renewable energy by 2020.⁴³ Significantly; they had already succeeded this target in 2012.⁴⁴ In 2000, Sweden produced 0.5 TWh of wind power, and in 2020 it was 27.6 TWh. Thus, the Swedish renewable energy sector is specific, and this study conducts a practical application of investigation on the Swedish national laws on the wind farms and biodiversity.⁴⁵

1.2 Research Questions and Research Objectives

This research paper focuses on the regulation of wind power in the light of the renewable energy strategy and the protection of biodiversity in the European Union and with a case study on implementation in Sweden. Thus, this legal study requires a concrete discussion on wind power and biodiversity legislation in the EU and Sweden. Sweden is taken as an example of the implementation to identify biodiversity protection when building wind farms. This case study will demonstrate how Sweden could comply with the relevant EU law in its domestic legal system. The main research question of this study is: How do the EU's current policy instruments seek to protect biodiversity when building onshore wind farms, and how has Sweden implemented the EU biodiversity and renewable energy legislation in terms of domestic wind farm developments?

⁴² Energy Policies of IEA Countries: Sweden 2019 Review, International Energy Agency, p.11.

⁴³ Swedish Energy Agency, Energy in Sweden 2021: An overview, p.13.

⁴⁴ Flanders Investment and trade, “ The Energy Sector in Sweden: introduction to the market, 2020, p.4.

⁴⁵ “Energy use in Sweden Swedes use a lot of energy – yet, emissions are low. The key? Renewable energy”.<<https://sweden.se/climate/sustainability/energy-use-in-sweden>> (last accessed 19.02.2022).

In order to answer the central question, the study aims to discuss the following sub-questions.

1. What are the EU policy instruments relevant for wind energy?
2. How does the current EU biodiversity legal framework relates to wind farm developments?
3. How has Sweden implemented the EU biodiversity and renewable energy policy instruments with respect to wind farms?
4. How does Sweden seek to protect biodiversity when building wind farms?

The objective of this master thesis is to find out how biodiversity protection is taken into account when building wind farms. The findings of this paper will describe the EU's renewable energy targets, wind power and biodiversity legislation in the EU and the Swedish national legal framework on wind farms and biodiversity. The findings will also demonstrate the potential improvements in the legal framework for better implementation of biodiversity protection in building onshore wind farms.

1.3 Delimitation and Scope

The scope of this master thesis is limited to the EU's renewable energy targets, relevant legal instruments on the protection of biodiversity and onshore wind farms at the EU level and a case study on the implementation in Sweden. The protection of biodiversity and wind farms are broad areas. Wind energy comes from onshore and offshore wind farms. The onshore and offshore wind farm scopes are inevitably delivered from two different legal backgrounds. The thesis does not engage with offshore wind farms and only explores onshore wind farms. Due to practical constraints such as limited time and space, certain delimitations of the paper were adopted.

Although the EU has a broad and wide scope of climate change targets, this paper will only discuss the EU's renewable energy targets and strategies. The thesis aims to discuss a comprehensive analysis only of the relevant part of the RED II, the EU 2030 climate and energy framework, the EU 2030 legislative package, and the Paris Agreement. However, the thesis cannot encompass the entire documents.

The thesis also explores the EU's policies on renewable energy and protection of biodiversity based on the Treaty on the Functioning of the European Union (TFEU)⁴⁶, Treaty on European Union (TEU)⁴⁷ that provides a legal policy framework for the wind farm developments and to protect biodiversity. Moreover, the study will discuss the primary legal instruments on biodiversity, the Birds Directive 2009/147/EC and Habitats Directive 92/ 43/ EEC. Nevertheless, the thesis only discusses the applicable Articles to explore how the EU seeks to protect biodiversity by building onshore wind farms. Thus the author will provide an analysis of the protection and management of Natura 2000 and EU species protection.

The study also reviews the different environmental assessments, such as EIA and SEA, directly relevant to wind farm developments. EIA Directive applies to the public and private projects⁴⁸ and SEA Directive is subject to certain plans and programmes.⁴⁹

The master thesis consists of the Nordic perspective; thus, Sweden used it as a case study to provide an example of the implementation process of the EU's relevant legal regime. Due to Swedish language difficulty, this paper can not provide a comprehensive review of the Swedish primary laws, and the author mainly depends on English sources. Thus, at the national level, the paper provides Swedish energy policy and biodiversity policy while describing Swedish Environmental Code, Building and Planning Act, Electricity Act, Species Protection Ordinance etc.

1.4 Methodology

The master thesis uses an analytical approach as a research methodology. This method is beneficial to break the problem of this study down into legal elements necessary to solve the

⁴⁶ Consolidated version of Treaty on the Functioning of the European Union (adopted 13 December 2007, entered into force 1 December 2009).

⁴⁷ Consolidated version of The Treaty on European Union of 26.10.2012.

⁴⁸ Art. 1 of the EIA Directive.

⁴⁹ Art.1 of the SEA Directive.

legal problem.⁵⁰ The author uses an internal legal approach to the legal problem of this study by exploring and analysing the inside of relevant legal instruments of this paper. The research consists of the other disciplines in an Auxiliary manner. More concretely, biological, ecological and economic disciplines are used to define the problem studies and in the analysis supporting legal arguments.

Regarding wind farm regulations, the study is primarily based on the RED II, the EU 2030 climate and energy framework, the EU 2030 legislative package, and the Paris Agreement as principal legal instruments. Apart from the above mentioned EU legal instruments, other EU primary sources and secondary literature from different journal articles are used as sources for the study.

The analysis of biodiversity protection is mainly based on the Birds and Habitats Directive. The environmental assessment process discusses respect to EIA and SEA Directive. In addition, TFEU and TEU provide an in-depth discussion on the EU's renewable energy and biodiversity policy framework. Moreover, the study uses EU's official sources and other secondary sources such as research articles to assess the problem.

A case study approach is important to evaluate relevant EU law implementation in Sweden. The analysis of the Swedish case study's primary sources are Swedish Energy Agency reports, Swedish Environmental Agency reports, official translations of national legislation, information published by the Swedish government and the secondary sources of research articles published by the researchers.

1.5 Literature Review

Research into biodiversity protection in building wind farms has a long history. A large volume of published studies describe the urgency of biodiversity protection in poorly designed wind farm development. In 2016 Malafry published her comprehensive legal study on the relationship between renewable energy and biodiversity in a European Union Context.

⁵⁰ Thwink.org, "Analytical Approach"

<<https://www.thwink.org/sustain/glossary/AnalyticalApproach.htm#:~:text=An%20analytical%20approach%20is%20the,the%20same%20as%20formal%20analysis.>> (last accessed 15.02.2022).

This paper provides the competence of the EU in renewable energy Activities while explaining the EU energy policy and Renewable Energy Directive. Furthermore, her study demonstrated the environmental protection requirements in renewable energy policy. Under the Birds and Habitats Directives, renewable energy activities and habitat protection are significantly examined. This significant legal analysis and discussion are based on wind power. The last part of the paper discusses the Swedish legal framework for protecting biodiversity in wind power activities by investigating national legislation. However, this publication dates back to 2016, before the revised Renewable Energy Directive in 2018. Thus, this raises of the question whether the discussion and the conclusions can take to this current study.

In 2008, Pettersson published a paper describing a comparative study of legal rules for windmills' planning, installation, and operation. This paper is relatively old literature, but she found the environmental impact of the windmills. Furthermore, the study examined the three countries, including Sweden. Thus this paper is vital to discuss the Swedish perspective on protecting biodiversity and wind farms while analysing the renewable energy policy in Sweden, the Planning and Building Act and relevant parts of the Environmental Code. Therefore, this paper provides significant legal analysis from the Swedish perspective for this current study.

A large and growing body of literature has investigated and described the potential negative impact on birds and bats in poorly designed wind farms. Several authors have considered the birds and bats collision risk and other disturbances such as disturbance of resting place, feeding areas, noise pollution etc. (Gaultier et al. 2020.⁵¹; Million et al. 2015.,⁵² and 2018⁵³, Grodsky et al., 2011, O' Shea et al., 2016⁵⁴ and Kati et al., 2021). Furthermore, they have reported the loss of birds and bats due to the negative consequences of onshore wind farms, but they failed to study the legal framework for EU's biodiversity and wind farms. However, these sources help to build up this paper's problem statement.

⁵¹ Gaultier et al. 2020, p. 10385.

⁵² Millon et al. 2015, p. 250.

⁵³ Millon et al. 2015, p. 51.

⁵⁴ O' Shea et al.2016, p. 176-185.

In 2012, Rydell et al. analyzed the data on the effect of wind power on birds and bats. This report is based in Sweden and published by the Swedish Environmental protection Agency. The report provides a general overview of wind farms' impact on birds and bats while describing the critical considerations of the Species Protection Act. One of the significances of this paper is that it discusses the suggestions for "how to make the wind power facilities as environmentally friendly in different stages. Similarly, significant analysis and discussion on the subject were presented by Akerboom et al. in 2019. They analyze wind energy projects and the EU's species protection law, namely, Birds and Habitats Directives. Furthermore, the authors pointed out the implementation and application of the SEA and EIA requirements while examining the mitigation and monitoring process. This current source is vitally important to the current study to describe the Legal Framework on EU's biodiversity protection and how it is relevant for wind farm development projects.

1.6 Research Structure

The overall structure of the study takes the form of five chapters.

Chapter 1 starts with the introductory chapter explaining the EU's renewable energy goals while discussing the significance of the wind farm as one of the sustainable ways of renewable energy. Furthermore, it provides a brief overview of the EU's legal framework on biodiversity and the Swedish perspective under the Nordic perspective. This chapter also includes research questions, objectives, methodology and literature review.

Chapter 2 begins by laying out the EU's renewable energy historical background. The main focus of this chapter is to analyze the legal framework of the wind farm at the EU level and the Energy Strategy in the EU. This chapter will discuss the EU's Energy Strategy, EU 2030 climate and energy framework, the European Green Deal, "Fit for 55 Package", the revised Directive (EU) 2018/2001, the so-called RED II, and the Paris Agreement.

Chapter 3 starts with a brief overview of the EU's biodiversity strategy, EU's environmental policies on Renewable energy and biodiversity legislation under TFEU and TEU. It will also discuss the primary species protection legislation in the EU, the Habitats and Birds Directives while explaining the protection and management of Natura 2000 sites and EU species

protection. The Environmental Assessment process will also demonstrate under SEA and EIA Directives.

Chapter 4 presents the Swedish perspective on wind farming and biodiversity protection while describing Swedish energy and biodiversity policies. This chapter will also discuss the Swedish national legislation such as the Environmental Code, planning and building Act, the Electricity Act, Species Protection Regulation, and Hunting Act. Apart from that, Swedish cases will discuss to understand how the courts have resolved practical conflicts.

Chapter 5 presents the research finding. In addition, the research may provide some legal suggestions for the better development of wind farming at the EU level.

Chapter 2

2. EU Legal Framework for the Wind Power Activities

2.1 Historical background of the EU climate and environment energy policy

Before discussing the EU's current legal framework on wind energy, it is necessary to demonstrate the historical background of EU energy policy.

In the last half of 1956, the negotiations were conducted based on new treaties for new communities: European Economic Community and European Atomic Energy Community (EURATOM).⁵⁵ EURATOM was adopted in 1956 and came into force in 1958^{56, 57} which was primarily based on the nuclear industry.⁵⁸ At the same time, the third treaty, the European Economic Community treaty, was entered into force in 1958, covering other forms of energy.⁵⁹

Significantly, the first Directive regarding the energy policy was the Council Directive 68/414/ EEC. This Directive imposed an obligation on the Member States to maintain minimum stocks of crude oil and petroleum products.⁶⁰ In 1968, the European Commission adopted the "First Guidelines for a Community Energy Policy"⁶¹ to ensure the security of supply and to adopt a common energy market. Later on, the Commission has adopted different types of directives, guidelines and strategies to engage with oil and security supply matters.⁶²

⁵⁵ Weil 1965, p.2.

⁵⁶ Gaudet 1959, p.146.

⁵⁷ Langsdorf 2011, p. 2.

⁵⁸ Consolidated Version of the Treaty Establishing the European Atomic Energy Community, 2012/C 327/01

⁵⁹ McGowan 2000, p.4.

⁶⁰ Council Directive 68/414/ EEC of 20 December 1968 imposing an obligation on Member States of the EEC to maintain minimum stocks of crude oil/ and or petroleum products, No L 308/14

⁶¹ COM (68) 1040.

⁶² Andoura et al. p.18.

The first step towards creating an internal energy market was establishing the Single European Act in 1986 and further established in the White Paper on “Completing the Internal Market”.⁶³ The development of the EU's energy policy integration did not take place sharply. Furthermore, the energy mix was changed, and the oil industry became a vibrant and vital sector. The European Coal and Steel Community and the significance of coal diminished due to changes in the energy mix.^{64, 65}

Interestingly, the Commission of the European Communities again adopted the Internal Energy Market in 1988 while explicitly mentioning the need for "greater integration, free from barriers to trade, of the internal energy market to improve the security of supply, reduce costs and improve economic competitiveness." ⁶⁶ Thus, the Internal Energy Market Document has played a crucial role in the EU's energy policy.

The Maastricht treaty concluded in 1992, and energy was first mentioned in Article 3 of the EC Treaty.⁶⁷ Currently, The energy achieves explicit identification in Article 4 of Part I of the TFEU as shared competence between the Union and the Member States. Furthermore, Article 194 of TFEU discusses the EU's energy provision with four key aims on energy.⁶⁸

In 1995 the Commission presented the Green Paper⁶⁹, followed by a “White Paper”⁷⁰ and an “Action Plan”. Subsequently, the first electricity Directive 96/92/EC⁷¹ and Gas Directive 98/30/EC⁷² were adopted. They played a pivotal role as the first serious steps towards the

⁶³ COM (95) 682 final.

⁶⁴ Langsdorf 2011, p. 2.

⁶⁵ COM (72) 1200, p.9-18.

⁶⁶ COM(88) 238 final, p.2.

⁶⁷ Andoura et al. p.11.

⁶⁸ Article 4 and 194 of Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union, C 326/47, 2012.

⁶⁹ COM (94) 659/Final/2.

⁷⁰ COM (95) 682 final.

⁷¹ Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity. OJ L 27, 30.1.1997.

⁷² Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas. OJ L 204, 21.7.1998.

liberalization of electricity and gas markets. However, in 2003 the second Electricity Directive 2003/55/EC⁷³ and natural Gas Directive 2003/54/EC⁷⁴ were adopted calling for national gas and electricity markets to be liberalized by 1 July 2004 for large consumers and by 1 July 2007 for all consumers. Nevertheless, this EU energy internal market opening had only reached 66% for electricity and 57% for gas by 2005.⁷⁵

In 2007 the commission released the “Energy and Climate Package” obliging on “An Energy Policy for Europe”.⁷⁶ Currently, there are three main pillars of energy policy in the EU such as ‘security-of-supply’; competitiveness and affordable prices of energy; and environmental sustainability and combating climate change.^{77,78}

RED I on the promotion of the use of energy from renewable sources was the first renewable energy directive.⁷⁹ Furthermore, RED I was part of the "energy and climate change package" in 2008. The EU's "20-20-20 by 2020" targets were part of it.⁸⁰ However, in 2018, RED II⁸¹ entered into force regarding "Clean Energy for all Europeans Packages". Furthermore, this also increased the renewable energy target by at least 32% in 2030.^{82,83} Nevertheless, the European Commission and European Council increased GHG emission reduction by at least

⁷³ Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas, L 176, 15.7.2003.

⁷⁴ Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity, L 176, 15.7.2003.

⁷⁵ Andoura et al. p.11-23.

⁷⁶ COM (2007) 1 final.

⁷⁷ Ibid.

⁷⁸ European Council, Conclusions of the Presidency, 2007, para. 28.

⁷⁹ Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport

⁸⁰ Langlet and Mahmoudi 2016, p.255.

⁸¹ Directive (EU) 2018/2001 of the Renewable Energy Directive II.

⁸² Kettner and Kletzan-Slamanig 2020, p. 147.

⁸³ Regulation on the governance of the energy union and climate action (EU/2018/1999)

55% in 2030. Therefore, revising the renewable energy goal to at least 38% to 40% in 2030 will be considered in terms of RED II.⁸⁴

2.2 A brief historical overview of wind farms

Wind energy exploitation has a great history. The European developments of wind farms started after World War II.⁸⁵ Interestingly, in northern Europe, the wind farm installations increased drastically over other parts of Europe by the 80s and 90s. These sustainable wind resources led to the establishment of a small but steady energy market.⁸⁶ According to the preliminary data, the world's total installed capacity increased from 8 MW in 1980 to 650,758 by 2019.⁸⁷

In 1997, "Energy for the Future: Renewable Sources of Energy", a so-called white paper, explicitly mentioned wind power as a shared renewable energy policy. Furthermore, the White Paper mentioned taking the initiative as "networks of regions, islands, and cities aiming at a 100% energy supply from renewable energies by 2010".⁸⁸

However, climate change, global warming, security of energy supply and several environmental issues have recently led to a rethink to increase the use of renewable energy sources such as wind farms.⁸⁹ Thus, as one of the sustainable renewable sources, wind farms will play a dominant role in a carbon-neutral society by 2050.

⁸⁴ COM(2021) 557 final, p.1.

⁸⁵ Kaldellis and Zafirakis 2011, p. 1887.

⁸⁶ Kaldellis and Zafirakis 2011, p. 1887.

⁸⁷ Wind Energy International "Global wind Installations" (2020).

< <https://library.wwindea.org/global-statistics/> > (last accessed 09.03.2022).

⁸⁸ COM(97)599 final, p.26.

⁸⁹ Metz 2010, p.13-27.

2.3 The Paris Agreement: Implementation of International Agreement and the climate change ambitions of the EU.

There are two types of wind farming regulations: the EU Energy Framework and the ratifying of international agreements such as the Paris Agreement.⁹⁰ UN Climate Change Conference (COP21) in Paris made a historic Paris Agreement under the United Nations Framework of Climate Change (UNFCCC) in 2015.⁹¹ Currently, 193 parties have ratified this international agreement, and it has a legally binding nature on their member States, including the EU. Primarily, the aim behind this is to strengthen the global response to the threat of climate change.^{92, 93}

According to Article 2 (a) of the Paris Agreement, the long term goal is to,

“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 [...]”⁹⁴

Furthermore, the long term temperature goal pointed out in Article 4.1 of the Paris Agreement,

“global peaking of greenhouse gas emissions as soon as possible, [...] and to undertake rapid reductions [...] to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century [...]”⁹⁵

The Paris Agreement made a landmark turning point to shift into a net-zero society. This concept requires the Member States that anthropogenic GHG emissions be reduced

⁹⁰ Paris Agreement.

⁹¹ United Nations Framework Convention on Climate Change (adopted 9 May 1992, in force 21 March 1994) (1992) 1771 U.N.T.S 107.

⁹² United Nations: Climate Action “The Paris Agreement” < <https://www.un.org/en/climatechange/paris-agreement> > (last accessed 08.03.2022).

⁹³ Bodansky et al. 2017, p.230.

⁹⁴ Article 2 (a) of the Paris Agreement.

⁹⁵ Ibid, Art. 4.1.

steadily.⁹⁶ Thus, as a member of the Paris Agreement, the EU has obliged a legal commitment to reach the peaking of GHG emissions as soon as possible the net-zero concept. The legal commitment works on a five-year cycle, and for every five years, each party should submit the so-called Nationally Determined Contributions (NDCs) that they intend to achieve. Furthermore, the parties shall pursue domestic mitigation measures.⁹⁷ However, it is noteworthy that all the parties to the Paris Agreement are under a legal obligation to submit NDCs. However, they are not bound to achieve the pre-prepared commitments. Thus, the parties are only bound to prepare, communicate and maintain NDCs that it intends to achieve.^{98, 99} Concretely, the EU has an aim to reduce emissions (for instance, 50% by 2050) and to shift into net-zero emissions. In doing so, renewable energies such as wind play a pivotal role in mitigating climate change and achieving long term goals.

2.4. The EU legal framework governing wind farm developments

As mentioned in the previous chapter, RED II is the main EU legislation regarding wind energy at the EU level. Before explaining this Directive, it is necessary to get an overall idea of the EU's energy strategy and the other EU's adopted frameworks and packages. Thus, the sections below first describe the EU's Energy Strategy, the 2030 EU Climate and Energy Framework, the European Green Deal and the "Fit for 55 packages". The last section of this chapter describes RED II in greater detail.

2.4.1 The EU's Energy Strategy

Concretely, the EU's energy strategy is significant for promoting renewable energy at the EU level. In 2015, the energy union strategy was published to provide secure, sustainable, competitive and affordable energy.¹⁰⁰ Furthermore, it adopted five closely related and mutually enforced dimensions: security, solidarity and trust; a fully integrated internal energy

⁹⁶ Ibid, p.231.

⁹⁷ Art. 4.2 of the Paris Agreement.

⁹⁸ Ibid

⁹⁹ Bodansky et al. 2017, p.230.

¹⁰⁰ European Parliament, "Energy Union New impetus for coordination and integration of energy policies in the EU" (2015), p.1.

market; energy efficiency; climate action, decarbonizing the economy and research, innovation and competitiveness. Thus, these dimensions are a vast continent for the EU's energy system.¹⁰¹

The first step of the energy union strategy was the introduction of “Clean Energy for all Europeans Packages”¹⁰² so-called “winter package” in 2016.¹⁰³ The proposed measures primarily aimed at 2030 targets as agreed by the European Council regarding the reduction of GHG emissions; renewable energy and energy efficiency.¹⁰⁴ Moreover, the new rules, finalized and accepted in 2019, will assist in tackling global warming while making a bridge to achieving the EU's long term long: carbon-neutral society by 2050.¹⁰⁵

Thus, the package consists of eight new Acts, and the recast RED II is one of them. The Member States are required to integrate this new legislation into their domestic legal system.¹⁰⁶

The strategy is also required to establish integrated 10-year plans: “National Energy and Climate Plans” (NECPs).¹⁰⁷ The NECPs are also required the Member States to outline climate and energy goals, policies and measures from 2021 to 2030.¹⁰⁸ Especially, the NECPS shall point out that how to achieve climate and energy objectives to 2030, particularly relating to 32% renewable energy targets under RED II.^{109 110} Consequently,

¹⁰¹ COM(2015) 80 final, p.3-21.

¹⁰² European Commission. “Clean Energy for all Europeans Packages” < https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en> (last accessed 12.03.2022).

¹⁰³ Capros et al. 2018, p.255.

¹⁰⁴ European Council, Conclusions Adopted by the European Council EUCO at Meeting 147/14, 2014, p.1-6

¹⁰⁵ European Commission. “Clean Energy for all Europeans Packages” < https://energy.ec.europa.eu/topics/energy-strategy/clean-energy-all-europeans-package_en> (last accessed 12.03.2022).

¹⁰⁶ Ibid

¹⁰⁷ Ibid

¹⁰⁸ Wind Europe. “National Energy and Climate Plans” < <https://windeurope.org/2030plans/>> (last accessed 12.03.2022).

¹⁰⁹ Kettner and Kletzan-Slamanig 2020, p. 147.

NECPs can mention as a leading legal instrument. It showcases visibility to the renewable energy sector for the upcoming years, and they explicitly cover the wind farming sector.¹¹¹

Paragraph 19 of Article 4 of the Paris Agreement also mentions long-term strategy.¹¹² Thus, it is notable that renewable energy plays a leading role in achieving these goals. At the same time, wind power is a crucial sector of renewable energy sources, and the EU targets cannot be achieved without developing the wind farming industry.¹¹³ Kettner and Kletzan-Slamanig pointed out that the energy union package improved some areas, including more stringent EU aims for renewable energy.¹¹⁴

2.4.2 The 2030 EU Climate and Energy Framework

The 2030 climate and energy framework consists of the EU's broad targets and policy objectives from 2021 to 2030.¹¹⁵ In 2020, the European Commission and Council proposed to adopt the GHG emission reduction target as part of the EGD.¹¹⁶ The target includes emissions and removals to at least 55% compared to 1990 in 2030. The European Commission and Council also stated that the 2030 policy framework should be in line with on full implementation of the 20/20/20 targets.¹¹⁷ Therefore, the new policy framework needs to develop energy efficiency and renewable energy to achieve and implement the advanced ambition targets for the period from 2021 to 2030. Interestingly, the EU noticed¹¹⁸ that these new targets will also lead toward a climate-neutral society under Paris Agreement.¹¹⁹

¹¹⁰ Regulation on the governance of the energy union and climate action (EU/2018/1999)

¹¹¹ Wind Europe. "National Energy and Climate Plans" < <https://windeurope.org/2030plans/>> (last accessed 12.03.2022).

¹¹² Paris Agreement.

¹¹³ C(2020) 7730 final, para 1.2.

¹¹⁴ Kettner and Kletzan-Slamanig 2020, p. 148.

¹¹⁵ European Commission. "2030 climate & energy framework" < https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en> (last accessed 12.03.2022).

¹¹⁶ COM(2020) 562 final.

¹¹⁷ COM(2014) 15 final, p.3.

¹¹⁸ European Commission. "2030 climate & energy framework" < https://ec.europa.eu/clima/euaction/climate-strategies-targets/2030-climate-energy-framework_en> (last accessed 12.03.2022).

The 2030 climate and energy framework consists of three exciting, vital targets, and the first is the reduction of at least 55% of greenhouse gas emissions compared to 1990 levels.^{120,121} This target was implemented by three key legislations such as Directive (EU) 2018/410 EU Emissions Trading System;¹²² Regulation (EU) 2018/842 Effort Sharing Regulation¹²³ and Regulation (EU) 2018/841 the Land use, land use change and forestry Regulation.¹²⁴ Especially, 40% reduction target corresponds with the Intended Nationally Determined Contributions (INDCs) that EU already submitted in 2015.¹²⁵

The second target was to increase up to 32% of the share of renewable energy consumption by 2030.¹²⁶ This target is governed under RED II and requires the Member States to achieve this goal by 2030.¹²⁷ RED II explicitly mentioned wind energy as a renewable energy source.¹²⁸ This second target and the RED II are primarily relevant for this study; as previously stated, the author discusses this at the end of this chapter.

¹¹⁹ Paris Agreement.

¹²⁰ COM(2014) 15 final, p.5.

¹²¹ SWD(2020) 177 final.

¹²² Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 (OJ 2018 L 76)

¹²³ Regulation (EU) 2018/842 of the European Parliament and of the Council in Binding Annual Greenhouse Gas Emission Reductions by Member States from 2021 to 2030 Contributing to Climate Action to Meet Commitments under the Paris Agreement and Amending Regulation (EU) No 525/2013 [2018] OJ L 156/26

¹²⁴ Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry in the 2030 climate and energy framework, and amending Regulation (EU) No 525/2013 and Decision No 529/2013/EU (OJ 2018 L 156)

¹²⁵ European Commission, “Update of the NDC of the European Union and its Member States”, 2020.

¹²⁶ European Commission. “2030 climate & energy framework” < https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en> (last accessed 12.03.2022).

¹²⁷ Directive (EU) 2018/2001 of the Renewable Directive II.

¹²⁸ European Commission. “Renewable Energy” < https://energy.ec.europa.eu/topics/renewable-energy_en> (last accessed 12.03.2022).

Apart from the above mentioned two key targets, the third one is an improvement of 32.5% in energy efficiency by 2030.¹²⁹ However, in the beginning, the share of renewable and energy efficiency targets were set at 27%. In 2018, these two targets were increased respectively by 32% and 32.5%.¹³⁰

2.4.3 The European Green Deal

European Commission presented the 'European Green Deal' (EGD) in 2019. It reflects Paris Agreement's goals.^{131, 132} EGD mentions the aim to "transform the EU into (...) no net emissions of greenhouse gases in 2050".¹³³ Thus, the EU aims to be the world's first climate-neutral continent by 2050. The overarching key aim of this EGD is climate action, meaning cutting GHG emissions.¹³⁴

Concretely, in 2019, the long term climate neutrality goal was endorsed by the European Council and the European Parliament.¹³⁵ The European Commission has presented a proposal for 2020. It also establishes the framework for achieving climate neutrality.¹³⁶ One of the key proposals was the GHG reduction target of at least 50% towards 55% in 2030.¹³⁷ Finally, the EU adopted the GHG emissions reduction target of at least 55% by 2030 compared to 1990.¹³⁸ Interestingly, the EU submitted NDCs in 2020 that 55% of emissions reduction by 2030.¹³⁹ In 2021, the EU established a series of legislative proposals, and they

¹²⁹ European Commission. "2030 climate & energy framework" < https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en> (last accessed 12.03.2022).

¹³⁰ European Council. EUCO SN 79/14: Conclusions on 2030 Climate and Energy Policy Framework (2014), p. 3 and 5-8.

¹³¹ COM (2019) 640 final, p.2.

¹³² COM (2019) 640 final, p.20.

¹³³ COM (2019) 640 final, p.2.

¹³⁴ European Commission. "European Green Deal" < https://ec.europa.eu/clima/eu-action/european-green-deal_en> (last accessed 17.03.2022).

¹³⁵ COM (2018) 773 final.

¹³⁶ COM(2020) 80 final, p.2.

¹³⁷ Ibid, p.3.

¹³⁸ COM (2020) 562 final, p.2.

¹³⁹ Ibid

are primarily based on how to go towards climate neutral by 2050 with an intermediate aim of at least 55% GHG reduction in 2030.¹⁴⁰

The EU realized that the aims set out in the 2030 climate and energy framework are insufficient to shift into climate neutrality in 2050. Thus, the EGD adopted a more ambitious EU 2030 target. In doing so, the EU made the path towards a climate-neutral society by 2050.¹⁴¹

2.4.4 “Fit for 55 Package”

In 2021 the European Commission presented the so-called “Fit for 55 Package” to implement the increased targets. One of the key proposals of the Package was to revise for RED II. Significantly, European Commission presented the proposal in July 2021 and pointed out the reduction of the GHG emissions required at least 55% by 2030 by the European Council in 2020. Thus, this target requires a higher share of renewable energy sources and the current 32% target is not enough to meet this target. As indicated above, the European Commission proposed at least 38 -40% of renewable energy in final energy consumption by 2030¹⁴² according to the European Commission’s Impact Assessment.¹⁴³ Thus, the proposal to amend the goal by 2030 will be considered by the Council and the European Parliament by the end of 2022.

¹⁴⁰ European Commission. “European Green Deal” https://ec.europa.eu/clima/eu-action/european-green-deal_en (last accessed 17.03.2022).

¹⁴¹ European Commission. “European Climate Law” < https://ec.europa.eu/clima/eu-action/european-green-deal/european-climate-law_en > (last accessed 17.03.2022).

¹⁴² COM(2021) 557 final, p.1.

¹⁴³ European Parliament, Renewable Energy Directive Revision of Directive (EU) 2018/2001, p.5.

2.5 Renewable Energy Directive

2.5.1 The promotion of the renewable energy

In 2001, Directive 2001/77/EC on promoting electricity produced from renewable energy sources in the internal electricity market was introduced.¹⁴⁴ In 2009, Directive 2009/ 28/ EC¹⁴⁵ RED I on the promotion of energy use from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC entered into force.¹⁴⁶ As demonstrated above, this RED I was a part of the "energy and climate change package" in 2008. It consisted of the EU's "20-20-20 by 2020" targets. Hence, the Member States had a binding target to achieve at least a 20% share of energy from renewable sources in overall EU's gross final consumption 2020 in 2020.¹⁴⁷ This made a binding individual target for each EU Member State to¹⁴⁸ adopt a national renewable action.¹⁴⁹ However, as mentioned before, with the introduction of the Paris Agreement in 2015, the EU adopted the 2030 climate and energy framework and increased the share of renewable sources at least 32% by 2030.¹⁵⁰

Directive (EU) 2018/2001¹⁵¹ RED II was one of the new Acts under the Clean Energy for all Europeans Packages.¹⁵² Thus, the recast of RED II entered into force by 2018. It made an overall binding Union target for 2030. According to Article 3.1 of the RED II, "Member States shall collectively ensure that the share of energy from renewable sources in the Union's

¹⁴⁴ Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market on the promotion of electricity produced from renewable energy sources in the internal electricity market.

¹⁴⁵ Directive 2009/ 28/ EC of the Renewable Energy Directive I.

¹⁴⁶ Directive 2003/30/EC of the use of biofuels or other renewable fuels for transport

¹⁴⁷ Langlet and Mahmoudi 2016, p.255.

¹⁴⁸ Art.3.1 and Annex I of Renewable Energy Directive I.

¹⁴⁹ Ibid, Art.4.1.

¹⁵⁰ European Commission. "2030 climate & energy framework" < https://ec.europa.eu/clima/eu-action/climate-strategies-targets/2030-climate-energy-framework_en> (last accessed 12.03.2022).

¹⁵¹ Directive (EU) 2018/2001 of the Renewable Directive II.

¹⁵² Ibid

gross final consumption of energy in 2030 is at least 32 %".¹⁵³ The Member States also need to adopt national contributions to meet this binding target.¹⁵⁴

As explained earlier, the EU has proposed to increase renewable energy in final energy consumption by at least 38 -40% in 2030.¹⁵⁵ The European Commission's Impact Assessment suggests this proposal.¹⁵⁶ Thus, the amendment for RED II to set the new target will be discussed by the European Parliament, and the Council end this year.¹⁵⁷

Accordingly, RED II's central aim is to promote energy from renewable sources to reduce GHG emissions.¹⁵⁸ Interestingly; this allows the Member States to establish support schemes for renewable energy projects.¹⁵⁹ Support scheme can be defined as any instrument, scheme or mechanism adopted by the Member States or the several Member States that "promote the use of energy from renewable sources by reducing the cost of that energy, increasing the selling price, increasing renewable energy obligation or increasing the volume of such energy purchased".¹⁶⁰ The adopted support schemes are investment aid, tax exemptions or reductions, tax refunds, green certificates, feed-in tariffs, and fixed premium payments.¹⁶¹ Directive also allows for joint projects between the Member States and joint projects between the Member States and third countries.¹⁶²

¹⁵³ Art.3.1 of the Renewable Energy Directive II

¹⁵⁴ Ibid, Art. 3.2.

¹⁵⁵ COM(2021) 557 final, p.1

¹⁵⁶ European Parliament, Renewable Energy Directive Revision of Directive (EU) 2018/2001, p.5.

¹⁵⁷ Ibid

¹⁵⁸ Ibid, Recital 2 and Art. 1.

¹⁵⁹ Ibid, Art.4.1.

¹⁶⁰ Ibid, Art.2 (5).

¹⁶¹ Ibid

¹⁶² Ibid, Art.9.

2.5.2 The scope of the Renewable Energy Directive for wind farm

RED II is the leading EU legislation for promoting renewable energy sources.¹⁶³ RED II defined renewable energy sources as “[...] wind, solar [...], geothermal energy, ambient energy, tide, wave and other ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas, and biogas”.¹⁶⁴

Hence, the wind energy is explicitly mentioned in RED II. Furthermore, as mentioned before, the support scheme and the joint projects between the Member States and the third countries are also applicable for the wind farm projects.¹⁶⁵ The green certificate scheme between Sweden and Norway is the most suitable example. Regarding the permitting process, RED II requires the Member States to permit new renewable energy installations within three years and repowered installations within two years. RED II defines *repowering* as “renewing the power plants”.¹⁶⁶

As indicated in the introduction chapter, according to WindEurope, the EU wind energy capacity should be increased by 433-452 GW by 2030 to comply with the proposed renewable energy target. Interestingly, onshore wind farms should represent 361-374 GW and offshore from 73 GW to 79 GW. Furthermore, the EU needs to install 18 GW per year from 2021-to 2030 regarding the current 2030 EU renewable energy target. Thus, the ongoing process of wind installs is not enough to comply with the targets. The WindEurope report mentioned that one of the main obstacles is the permitting process. One of the main reasons is that the existing rules are complex and highly investigating spatial planning, including Natura 2000 sites.¹⁶⁷

¹⁶³ COM(2021) 557 final, p.1.

¹⁶⁴ Art.2 (1) of Renewable Energy Directive II

¹⁶⁵ Ibid, Art.9.

¹⁶⁶ Ibid, Art.2 (10).

¹⁶⁷ WindEurope, “ Setting the course towards climate neutrality: WindEurope position on the ‘Fit for 55’ package”, 2021 p.3.

2.6 Discussion

This chapter has described the EU's comprehensive climate and environment energy policy history. The energy policy remarked a landmark position in the 1950s. Later, the EU could slowly build up the energy policy while adopting Directives on energy policy related to the security of supply. The recent developments show a more environmentally integrated energy policy due to the leading climate change aims.¹⁶⁸ Currently, the EU is obliged to promote renewable energy as the central priority energy policy through different strategies, directives, and regulations.

As the author pointed out, recent incidents such as global warming and energy security have led to a rethink of using wind farms as a sustainable energy source.¹⁶⁹ The current study found that wind farms' legal framework is always updated regarding the GHG emissions reduction target. Thus, the European Commission and European Parliament showcase that the EU cannot reduce GHG emissions without having support from renewable energy such as wind and move towards an overarching carbon-neutral society by 2050. The wind energy sector is growing fastly in the EU. However, wind farm needs to be installed more to achieve the exciting EU 2030 renewable energy target. Onshore wind farms play a more central role than offshore. EU aims to install more wind farms onshore.¹⁷⁰ Concretely, the EU will not be able to achieve its targets without wind farm renewable sources.

Furthermore, this is the best example to showcase that the EU is not only aiming to achieve renewable energy targets but also the protection of biodiversity. Therefore, it is noteworthy to mention a great interlink between wind farms and biodiversity. Both renewable energy and biodiversity legal frameworks are interlinked with each other. In doing so, the EU's assessment process plays a leading role through EIA and SEA Directive. The European Commission issued a Guidance document on wind energy developments and EU nature legislation in November 2020. It analyses the EU's policy framework and legislation on

¹⁶⁸ Malfry 2016, p.50.

¹⁶⁹ Metz 2010, p.13-27.

¹⁷⁰ Malfry 2016, p.50.

nature and biodiversity. At the same time, the document pointed out the wind farm legal framework.¹⁷¹ The next chapter describes the EU's legal framework on biodiversity.

¹⁷¹ C(2020) 7730 final.

Chapter 3

3. EU's biodiversity legal framework

3.1 EU Biodiversity Strategy

In the last decades, the EU and the Member States have made strategies and goals to halt biodiversity loss both continental and globally.¹⁷² In 2006, the Biodiversity Action Plan set the main target of halting biodiversity loss by 2010.¹⁷³ In 2009, the European Environment Agency published the report on “Progress towards the European 2010 Biodiversity Target” stated that the set overall target of halting biodiversity loss by 2010 has not achieved.¹⁷⁴ The European Commission's “EU biodiversity Action Plan: 2010 Assessment” has concluded that though the EU could achieve significant progress in the several areas, the overall goal: of halting biodiversity loss in 2010 has not been reached.¹⁷⁵

The COP10 to the Convention on Biological Diversity (CBD) adopted the global strategic plan for biodiversity from 2011-to 2020 in 2010. The EU 2020 biodiversity strategy has mandated meeting its biodiversity goals and international obligations. The main target was to halt the loss of biodiversity and the degradation of ecosystem services by 2020.¹⁷⁶

As demonstrated in the above chapter, the EGD was introduced by European Commission in 2019¹⁷⁷ with the primary aim to “transform the EU into [...] no net emissions of greenhouse

¹⁷² Hermoso et al. 2021, p.2. and EC, 2011.

¹⁷³ European Commission, “ Biodiversity: Assessment confirms EU has missed 2010 target, but important lessons learned”, <https://ec.europa.eu/commission/presscorner/detail/en/IP_10_1303> (last accessed 12.03.2022).

¹⁷⁴ European Environment Agency, “Progress towards the European 2010 biodiversity target “No 4/2009” (2009), p.7.

¹⁷⁵ European Commission, “ Biodiversity: Assessment confirms EU has missed 2010 target, but important lessons learned”, < https://ec.europa.eu/commission/presscorner/detail/en/IP_10_1303> (last accessed 12.03.2022).

¹⁷⁶ COM(2011) 244 final, p.2.

¹⁷⁷ COM (2019) 640 final.

gases in 2050”.¹⁷⁸ The EGD is also aiming to preserve and restore ecosystems and biodiversity. Thus, EGD can be integral to implementing the United Nation’s 2030 Agenda and Sustainable Development Goals (SDGs).¹⁷⁹

In 2019, the IPBES report identified the urgent necessity for ecosystem conservation and restoration. Furthermore, analyzing the linkage between renewable energy developments and biodiversity conservation, climate change is mentioned as the third key reason for biodiversity loss.¹⁸⁰

In May 2020, the EU presented their biodiversity Strategy for 2030; ‘Bringing nature back into our lives’.¹⁸¹ The central aim is to put the EU’s biodiversity on a path to recover in 2030.¹⁸² The 2030 biodiversity strategy sets three key commitments in 2030 protecting and restoring the EU’s protected areas and adopting a new governance framework to halting biodiversity loss were two of them.¹⁸³ The EU’s Birds and the Habitats Directive is the cornerstone of the EU biodiversity legal framework, and they are the primary legal instruments for the EU’s protected areas called “Natura 2000”.¹⁸⁴

3.2 The relationship between EU’s renewable energy and nature protection Legislation.

In 1957 the environmental policies were not identified on the priority list on the agenda. However, currently, the EU’s environmental policies play a central role in the international arena.¹⁸⁵ The legal basis for the EU’s environmental policy is based on Article 11, 191-193 TFEU¹⁸⁶ and Articles 3 (3), 21 of TEU¹⁸⁷. The above mentioned TFEU Articles address the

¹⁷⁸ COM (2019) 640 final, p.2.

¹⁷⁹ Ibid, p.3

¹⁸⁰ C (2020) 7730 final, p.17.

¹⁸¹ COM (2019) 640 final.

¹⁸² Ibid

¹⁸³ Ibid

¹⁸⁴ COM (2020) 635 final, p.1.

¹⁸⁵ Malafry 2016, p.91.

¹⁸⁶ Consolidated version of Treaty on the Functioning of the European Union.

¹⁸⁷ Consolidated version of The Treaty on European Union.

integration principle, high level of protection, precautionary principle, preventive action, proximity principle and polluter pays principle, best available technology, sustainable development, and the principle of sincere cooperation, environment protection measures, and more stringent protective measures. When it comes to the Article 3 (3) of TEU implies sustainable development, and Article 21 points out the principle of democracy, the rule of law, human rights, dignity, and equality.

There is an excellent inter-linked between EU energy and environmental law. According to Article 7 of the TFEU, “the EU should ensure the consistency between its’ policies [...]”¹⁸⁸

RED II demonstrated '*consistency*' consistent with other EU laws, such as nature protection legislation. Initially, this provision aims to demonstrate that EU institutions are obliged to cooperate in the decision-making process to comply with the consistency of EU policies. Specifically, RED II is mentioned in its preamble,

“the coherence between the objectives of this Directive and the Union's other environmental law should be ensured [...] during assessment, planning or licensing procedures for renewable energy installations, Member States should take account of all Union environmental law and [...] environmental and climate change objectives”.¹⁸⁹

This provision signifies the principle of *consistency*. Concretely, "Union's other environmental law should be ensured, and the Member States should take all the environmental law" implies biodiversity protection Directives shall be considered when achieving renewable energy goals set by the RED II.¹⁹⁰ RED II has used a different term, coherent, not consistent. There is no agreed definition of what constitutes coherent. Dworkin defined *Coherence* as "a mere agreement and compatibility between a set of rules".¹⁹¹ Thus, Coherence is a broader and more flexible concept than consistency.¹⁹² In summary, it has

¹⁸⁸ Art. 7 of the TFEU

¹⁸⁹ Preamble 45 of Renewable Energy Directive II.

¹⁹⁰ Malfry 2016, p.90.

¹⁹¹ Dworkin , R., Taking Rights Seriously, Harvard University Press, 1978, as quoted in Herlin-Karnell, E., and Konstadinides, T (2012-2013).p. 142.

¹⁹² Cremona 2008, p.14.

been shown from this review that RED II and other biodiversity protecting directives should not contradict each other and be coherent or compatible. ¹⁹³

Interestingly, to ensure this consistency, the integration principle referred to under Article 11 of the TFEU, "the requirements of the environmental protection must be integrated into the definition and implementation of the Union's policies [...] with a view to promoting sustainable development [...]." ¹⁹⁴

This provision embodies that environmental protection cannot be taken as an isolated concept from other EU policies. The Union's shared competence with the Member States have been pointed out under Articles 3 and 4 of TFEU. There is a close relationship between these sectors and the environment and energy represented in the EU's competence list. The systematic integration of environment and the climate change is governed under the EU policy framework in Article 11 of TFEU. ¹⁹⁵

As demonstrated in chapter 1, the EU has its energy provision under Article 194 of TFEU. It explicitly mentions that the Union energy policy should be based on establishing and functioning the EU internal market and the need to preserve it and improve the environment. Significantly, "the development of new and renewable forms of energy" has been stated explicitly as the primary energy aim under Article 194 (1) (C) of TFEU. ¹⁹⁶ This can also be taken as an excellent example to indicate that the energy provision encompasses the integration principle. RED II was adopted under Article 194 (1) of the TFEU, exploring the integration principle. However, in practice, the Union energy policy should reflect EU environmental goals because, in a practical case of conflict, this integration can be seen later. Though climate features are to some extent added to the energy policy, the other

¹⁹³ Malfry 2016, p.91.

¹⁹⁴ Art. 11 of the TFEU.

¹⁹⁵ European Commission, Environment and Climate Change Mainstreaming in EU Development Cooperation, 2018 p.3.

¹⁹⁶ Monti and Romera 2020, p. 222.

environmental goals are not. The integration principle needs to ensure enhanced consistency between renewable energy and nature legislation.¹⁹⁷

3.3 The conflict between EU onshore wind farms and biodiversity

Many published studies describe that wind farms may harm biodiversity directly and indirectly. Rydell et al. 2010¹⁹⁸; Gaultier et al. 2020¹⁹⁹; Millon et al. 2015²⁰⁰ and 2018²⁰¹; Grodsky et al. 2011; O' Shea et al. 2016²⁰² and Kati et al. 2021²⁰³ discussed wind farms might cause harm to collision mortality of birds and bats. They are noise pollution, disturbance of migrating, feeding areas and roosting places, species displacement, etc.^{204,205} O'Shea et al. 2016 stated that wind farms as one of the major causes of the bat's mortality.²⁰⁶ The same evidence was stated by Rydell et al. 2015. They highlighted that bats are attracted to the wind turbines' noise when installed in bat's feeding areas, migrating ways, and roosting places.²⁰⁷

According to the literature's evidence, wind turbines illuminate at night. Therefore they can attract insects and bats. Unfortunately, bats are unable cognitively to recognize wind turbines and trees. Primarily, fatalities occur from August to mid-September: the autumn migration season.²⁰⁸ Furthermore, Rydell et al. 2015 demonstrated that bats had been killed by moving wind turbine rotor blades.²⁰⁹ When it comes to the wind farm constructions, they also build power lines, roads, and temporary and permanent buildings. Thus, construction may also

¹⁹⁷ Malafry 2016, p.98.

¹⁹⁸ Rydell et al. 2010, p.4.

¹⁹⁹ Gaultier et al. 2020, p. 10385.

²⁰⁰ Millon et al. 2015, p. 250.

²⁰¹ Millon et al. 2015, p. 51.

²⁰² O' Shea et al., 2016, p. 176-185.

²⁰³ Kati et al., 2021,p.768.

²⁰⁴ Ibid

²⁰⁵ Rydell et al. 2015, p 1.

²⁰⁶ O' Shea et al. 2016, p. 176-185.

²⁰⁷ Rydell et al. 2015, p 1.

²⁰⁸ Simon et al. 2020, p.10387.

²⁰⁹ Rydell et al. 2015, p 1.

cause disturbances, including vibration, light pollution and noise pollution.²¹⁰ Wind turbines have also killed the birds, especially near the breeding and resting sites.²¹¹ Thus, the wind farm projects could cause a loss of habitats at the EU level.

However, biodiversity considers one of the priority areas in the EU. As discussed above, the EU's biodiversity strategy in 2030 addresses one of the key commitments to halt biodiversity loss.²¹² The European Commission and Council presented the 'Guidance Document on wind energy development and EU nature legislation in November 2020. According to the Guidance document, wind energy assists in conserving biodiversity and does not generate GHG emissions. Furthermore, it stated that poorly sited and poorly designed wind farms can cause harm to vulnerable species and habitats governed under birds and habitats directives.²¹³ The following sections will discuss the EU's biodiversity framework and permitting process for wind farm developments.

3.4 EU's legal framework for wind farm development and biodiversity protection

As mentioned before, the Birds and Habitats Directive are the central biodiversity policy in the EU. They apply to all the EU Member States and work as a common legislative framework to conserve the EU's most endangered, vulnerable and valuable species and habitats in their inherent range in EU.²¹⁴

The objective and the applicability of the Habitats Directive are set under Article 2,

- I. “[...] to contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora in [...] the EU [...]”
- II. “[...] to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest.”²¹⁵

²¹⁰ EKOenergy 2015, p 1.

²¹¹ Thaxter et al.2017, p.1.

²¹² Akerboom et al.2019.p.144.

²¹³ C(2020) 7730 final..

²¹⁴ Ibid, p.17.

²¹⁵ Arts. 2 (1) – 2 (2) of the Habitats Directive.

The Birds Directive applies to the conservation of all naturally occurring birds species.²¹⁶ Furthermore, it applies to birds, their eggs, nests and habitats.²¹⁷ Furthermore, Member States are required to take necessary measures to maintain the population at the level which relates to ecological, scientific and cultural requests.²¹⁸

These Directives aim to guarantee that species and habitats are protected, maintained/restored at a favourable conservation status over their native range in the EU.²¹⁹ To achieve these overall aims, both Directives established two methods, such as,

1. The first method is designating and conserving sites for habitat types and habitat species protection listed in Annex I and II (priority species) under Habitats Directive²²⁰ and bird species listed in Annex I (threatened species of birds) and for migratory birds²²¹ under Birds Directive.²²² Significantly, the Special Protection Areas (SPAs) established by the Birds Directive and the Special Areas of Conservation (SACs) established by the Habitats Directive together create the EU's ecological network so-called, 'Natura 2000 sites'.²²³
2. The second method is a strict protection regime for all the EU bird species and species listed in Annex IV (strict protection) under Habitats Directive. Interestingly, these measures apply to an all-natural range of species in the EU (inside and outside protected sites).²²⁴

²¹⁶ Art. 1 (1) of the Birds Directive.

²¹⁷ Ibid, Art. 1 (2).

²¹⁸ Ibid, Art. 2.

²¹⁹ Ibid, p.17.

²²⁰ Art. 3.1 of the Habitats Directive.

²²¹ Art. 4.1-1.2 of the Birds Directive.

²²² C (2020) 7730 final, p.17.

²²³ Klimmek and IUCN, p.3.

²²⁴ C (2020) 7730 final, p.17.

3.4.1 Natura 2000 sites: the protection and management

Article 6 of the Habitats Directive is the applicable legal provision for the management and protection of Natura 2000 sites. There are two types of measures established by this provision.

i) Article 6 (1) and 6 (2) of the Habitats Directive governs the conservation and management of Natura 2000 sites.

According to Article 6 (1) of the Habitats Directive, Member States must take the appropriate conservation measures in line with the ecological requirements of Annex I habitats and Annex II species present on the sites. Article 6 (2) requires, “The Member States shall take appropriate steps to avoid [...] the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated [...].”²²⁵ Hence, the wind power developers and the relevant authorities should be aware of this Natura 2000 conservation aims.²²⁶

ii) Article 6 (3) and 6 (4) provide an assessment and permit procedures. According to Article 6 (3)

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon [...] shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives [...].”

“[T]he competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned [...].”²²⁷

This step can be mentioned as a pre-assessment stage, where investigate whether any project or plan likely has any significant effect. Furthermore, this will be conducted alone or with other projects or plans on the Natura 2000 site. This screening process is based on the opinions of the expert and existing information. When it comes to wind farm developments,

²²⁵ Art. 6 (2) of the Habitats Directive

²²⁶ Ibid, p.18

²²⁷ Art. 6 (3)

they must complete the screening process. The European Commission's Guidance document pointed out that the construction and operation of new wind energy projects, repowering²²⁸ power plants, and decommissioning and refurbishing existing wind energy are subject to the screening stage.²²⁹

If it is identified that the particular plan or project might significantly affect the site, an appropriate assessment should be conducted under Article 6 (3) of the Habitats Directive. The appropriate assessment explores the impact of the plan or projects in terms of the conservation aims of Natura 2000 sites. The ultimate result of the appropriate assessment should be referred to the competent authorities to determine whether the plan or project will significantly impact the site integrity. Article 6 (3) and 6 (4) apply to the Habitats Directive and Birds Directive under Article 7.

In the *Waddenzee* case, the court held that,

“pursuant to Article 6(3) of the Habitats Directive, the competent national authorities, taking account of the conclusions of the appropriate assessment [...] authorise such activity only if they have made certain that it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects”.²³⁰

Recently, the European Court of Justice issued a preliminary ruling for the joint case *C-473/19 and C-474/19* under the collective name “Skydda skogen”.^{231 232} The court held that “Article 12(1)(b) of the Habitats Directive, which prohibits the deliberate disturbance of species, particularly during the period of breeding, rearing, hibernation and migration, it should be noted that in so far as it seeks to stress the increased importance of that prohibition

²²⁸ Art. 2 (10) of the Renewable Energy Directive II.

²²⁹ C (2020) 7730 final, p.18.

²³⁰ C-127/02 *Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij* (2004), para 59, p.7471

²³¹ C-473/19 and C-474/19 *Föreningen Skydda Skogen and Others v Länsstyrelsen i Västra Götalands län*
232 “Focus on the individual in the Habitats Directive- Court of Justice of the European Union rejects Swedish case law” (Published on 12.03.2021) < <https://www.foyen.se/en/news/focus-on-the-individual-in-the-habitats-directive-court-of-justice-of-the-european-union-rejects-swedish-case-law/>> (last accessed 06.05.2022).

during periods [...]”²³³ Advocate General J.Kokot delivered the court decision on the above-discussed case. In addition to the court decision, Advocate General J. Kokot gave a comprehensive opinion on this case on 10 September 2020. Thus, she stated in paragraph 113.4,

“under Article 5(d) of (Bird Directive) disturbances must be prohibited if they have a significant effect on the objective of maintaining populations of bird species at a satisfactory level or adapting them to that level, particularly if they are detrimental to rare birds when breeding or rearing.”²³⁴

The next chapter describes a few cases of wind energy. The appropriate assessment can be discussed under SEA Directive²³⁵ and EIA Directive.²³⁶

3.4.2 EIA Directive

EIA Directive applies to public and private projects likely to have an adverse impact on the environment.²³⁷ EIA is required before development consent is given to the plan or project.²³⁸ The applicable scope of the EIA is discussed under Article 3 (1). It explicitly pointed out the direct and indirect impact on biodiversity, focusing on species and habitats protected under the Habitats and Birds Directive.²³⁹

EIA is mandatory for all projects listed in Annex I.²⁴⁰ Projects listed in Annex II; the National Authorities have to decide the need for EIA. They will decide after the screening stage.²⁴¹ However, "installations for harnessing wind power for energy production (wind

²³³ C-473/19 and C-474/19, para.56.

²³⁴ Opinion of Advocate General Kokott, Joined Cases C-473/19 and C-474/19 *Föreningen Skydda Skogen and Others v Länsstyrelsen i Västra Götalands län*, para. 113.4.

²³⁵ Directive 2001/42/EC SEA Directive

²³⁶ Directive 85/337/EEC EIA Directive

²³⁷ *Ibid*, Art. 1.

²³⁸ *Ibid*, Art. 2 (1).

²³⁹ *Ibid*, Art. 3 (1).

²⁴⁰ *Ibid*, Art. 4.1 and Annex I.

²⁴¹ *Ibid*, Art. 4.2 and Annex II.

farms)" have been listed in Annex II. 3 (i) of the EIA Directive. Thus, EIA is not mandatory, and national authorities have to decide the need for EIA after the screening process.²⁴²

3.4.3 SEA Directive

SEA Directive applies to assess the effects of certain plans and programmes on the environment.²⁴³ Interestingly, SEA is mandatory for energy projects that are likely to have an adverse impact on sites that have been considered to require an assessment under Article 6 and 7 of the Habitats Directive.²⁴⁴

The derogation rule under Article 6 (4) comes under exceptional circumstances. Thus, the appropriate assessment concludes that any plan or project harms the site; Article 6.4 will apply as a derogation rule. However, the derogation rule can only be granted under limited circumstances such as the absence of alternative solutions, overriding public interest and compensation needed to ensure that the overall coherence of the Natura 2000 site is protected.²⁴⁵

3.4.4 EU Species protection

The biodiversity Directives aim to protect the species throughout their natural coverage within and outside Natura 2000 sites in the EU. Thus, this species protection provides species listed in Annex IV (a)²⁴⁶ and plant species listed in Annex IV (b)²⁴⁷ under Habitats Directive. Thus, it has prohibited,

- a) “[...] Deliberate capture or killing [...]”
- b) “Deliberate disturbances of these species, particularly during the period of breeding, rearing, hibernation and migration;”
- c) “Deliberate destruction or taking of eggs [...]”

²⁴² Ibid, Annex II. 3. I.

²⁴³ Art. 1 and 2 of the SEA Directive.

²⁴⁴ Ibid, Art. 3 (2) (b).

²⁴⁵ Ibid, Art. 6.4.

²⁴⁶ Art. 12 of Habitats Directive.

²⁴⁷ Ibid, Art. 13.

d) “Deterioration or destruction of breeding sites or resting places.”²⁴⁸

Species protection is also applicable to all bird species under the Birds Directive.²⁴⁹ Therefore, the Member States are required to take necessary protection for all bird species and prohibits,

- a) “deliberate killing or capture [...]”
- b) “deliberate destruction of, or damage to, their nests and eggs or removal of their nests;”
- c) “taking their eggs [...] and keeping these eggs even [...].”
- d) “deliberate disturbance [...] particularly during the period of breeding and rearing [...]”²⁵⁰

As indicated above, the Derogation rule applies only under limited conditions. They are interests of public health and public safety or overriding public interest- ensuring that there is no other alternative and that the Derogation conditions should not be incompatible with the overall objectives of both Directives. The consequences are pointed out in Article 16 of the Habitats Directive and 9 of the Birds Directive.

In *Commission vs Greece* case, the court declared that,

“It is undisputed that the use of mopeds on a beach used for breeding by the *Caretta caretta* turtle is [...] liable to disturb that species. [...] [T]he use of mopeds on the breeding beaches was prohibited. [...] It follows that the use of mopeds on the sand beach [...] and the presence of pédalos and small boats in the sea area] constitute the deliberate disturbance of the species. [...] during its breeding period for the purposes of Article 12(1)(b) of the Directive”²⁵¹

Thus, deliberate disturbance of the species during their beering periods is prohibited in respect of Article 12(1) (b) of the Habitats Directive. This species protection is directly

²⁴⁸ Art. 12 (a) – (d) of Habitats Directive.

²⁴⁹ Art. 5 of the Birds Directive.

²⁵⁰ Ibid, Art. 5 (a) – (d).

²⁵¹ *C-103/00 Commission v. Greece (2002)*, para 34 and 36, p. I- 1176.

relevant for this study under wind farm developments. The wind energy developments should ensure that they do not cause an impact on the protected species' breeding and resting place, killing and disturbance.

3.5 Discussion

This chapter determines the EU legal framework on biodiversity and the environmental assessment process regarding wind farm developments. The study demonstrated that the Habitats and Birds Directive play a central role in ensuring habitats and species protection within and outside Natura 2000 sites. As demonstrated above, Natura 2000 sites are for habitats type and habitat species protection listed in Annex I and II (priority species)²⁵² of Habitats Directive and Annex I (threatened bird species) and for migratory birds under Birds Directive.²⁵³

One of the central adverse claims for the onshore wind farm development projects is that they may harm bats and birds. According to the European Commission's report, 45 bats are protected by Habitats Directive.²⁵⁴ More to the point, there are 14 bat species listed in Annex II (Chiroptera) under priority species.²⁵⁵ ²⁵⁶ This evidence indicates that bats species are accounted for the priority protection, and core site designation is primarily for bats species protection (so-called SACs).

Moreover, Article 6 of the Habitats Directive can be critical in managing and protecting natura 2000 sites. When considering the environmental assessment process, the competent

²⁵² Art. 3.1 of Habitats Directive

²⁵³ C (2020) 7730 final, p.17.

²⁵⁴ European Commission "EU Species Action Plans for selected species" <https://ec.europa.eu/environment/nature/conservation/species/action_plans/index_en.htm#:~:text=EU%20Species%20Action%20Plans%20for%20selected%20species&text=They%20provide%20information%20about%20the,their%20conservation%20status%20in%20Europe.> (accessed date 27.05.2022)

²⁵⁵ European Commission, Action Plan for the Conservation of All Bat Species in the European Union 2018 – 2024, p.15.

²⁵⁶ Annex II of the Habitats Directive.

national authority shall approve a certain project only if it will not negatively impact the site's integrity. However, as declared by the *Waddenzee case*, there should not be scientific doubts about the sites. Thus, it is noteworthy that permission shall not grant if there are scientific doubts. The most exciting finding was that wind farm permits are delayed due to EU biodiversity requirements established under the Birds and Habitats Directive. When granting wind farm plans or project permits, the competent authority must apply several EU nature legislation. Thus, to grant a permit, the indicated habitats and species protection must be fulfilled. The evidence proves that obtaining an EIA permit for wind energy installations is a complex process and should not have any scientific doubts. However, under the derogation rule, some exceptional circumstances are mentioned, which apply under limited occasions, and the developer should prove the listed requirements.²⁵⁷

The strict protection provision applies to habitat types and birds within and outside of sites within the EU. All the bats' species listed in Annex IV (a) (so-called Microchiroptera) and all the birds are governed under strict protection provisions.²⁵⁸ The provisions expressly prohibit deliberate killing/ capture, disturbances, deterioration or destruction of breeding sites or resting places.²⁵⁹ Especially further mentioned taking preventive measures to anticipate threats and risks related to the disturbance. Another important finding was that this provision is directly relevant for the onshore wind farm development projects. The wind farm developers must ensure that the plan or project does not disturb, deteriorate, or destroy birds and bats' breeding and resting places. In 2018, EU Bats Action Plan expressly pointed out that "some of the protected bat species are vulnerable to hindrances in between their distant summer and winter roosting sites; these provisions must be taken into account when considering building traffic infrastructures or wind farms (if roosting sites or resting places around)".²⁶⁰

²⁵⁷ Art.6.4 of the Habitats Directive.

²⁵⁸ Annex II of the Habitats Directive.

²⁵⁹ C (2020) 7730 final, p.24.

²⁶⁰ EU: Action Plan for the Conservation of Bat Species in the European Union 2018, p.17.

The derogation rule is applicable for this strict protection provision under limited conditions. As pointed out above, obtaining permission under the derogation rule is also not easy. The Species protection provisions play a vital role in focusing on habitats and bird protection. These results indicate that EU biodiversity provisions are comprehensive and strict and ensure comprehensive protection for birds and bats. However, the established bats and bird provisions should be considered effective in wind energy development projects.

Regarding environmental assessments, EIA and SEA are the key tools in the EU. The current study found that though environmental assessment is compulsory for wind farm projects under SEA Directive²⁶¹, it is not mandatory under EIA Directive.²⁶² More to the point, the competent national authority has the power to decide the need for EIA under the screening stage. Pinho et al., stated an “unsystematic approach to screening Annex II projects”.²⁶³ Pinho et al. challenged this on the ground that there is no systematic and certain approach for the projects listed in Annex II. Therefore, it can mention as a drawback of the EIA Directive, which may harm the birds and bat species. These results suggest that though EIA plays a crucial role in wind farm projects, there is a doubt about the process due to being not mandatory.

EU guidance document on “wind energy development and EU nature legislation” has provided possible mitigation measures that were proposed in order to minimize the negative impact of onshore wind farm developments on bats and birds.²⁶⁴

1. Micro-siting: Turbines are placed in low-ecological risk areas and use a sensitivity mapping approach²⁶⁵

²⁶¹ Art. 3 (2) (a) of the SEA Directive.

²⁶² Annex II.3.i and Art. 4.2 of the EIA Directive.

²⁶³ Pinho et al. 2010, p.91-93.

²⁶⁴ C (2020) 7730 final, p.65-80.

²⁶⁵ Ibid.

2. Infrastructure design: taller turbines may have less impact on breeding birds, and longer blades turbines may have an adverse negative effect. Furthermore, small and large turbines are installed apart, but suitable to place many small turbines.²⁶⁶
3. Avoiding, reducing, stopping activities and cut-in speed .²⁶⁷
4. Set timing for turbine operation²⁶⁸
5. Use alternative construction methods to avoid the disturbance²⁶⁹

These measures aim to reduce collision risk but may also impact the displacement and barrier effect.²⁷⁰ As mentioned above, the EU made strategies for renewable energy and biodiversity. Thus these sectors are equally crucial for the EU. When it comes to the onshore wind farms, if installed in a suitable location, the impact on the birds and bats are less. However, the above mitigation can balance onshore wind farms and biodiversity to achieve the EU goals.

²⁶⁶ Ibid, p.65- 81.

²⁶⁷ Ibid, p.69.

²⁶⁸ Ibid, p.65- 80.

²⁶⁹ Ibid, p.65- 81.

²⁷⁰ Ibid

Chapter 4

4. Kingdom of Sweden's perspective on wind farming and biodiversity protection

As was pointed out in the introduction chapter, the following Chapter of this paper moves on to describe a case study on Sweden. The sections below describe the Swedish energy policy, biodiversity policy and legal framework on biodiversity.

4.1 Energy policy in the Kingdom of Sweden

Sweden is one of the leading EU countries toward a low carbon economy. For decades Sweden's energy policy is aimed to adopt a sustainable energy system with energy efficiency and to shift from fossil fuels to domestic renewable energy sources.²⁷¹

In March 2015, the Swedish Government concluded to establish a parliamentary commission to manage energy policy. Initially, the key duty of the Energy Commission was to prepare an agreement in terms of energy policy. They mainly focused on electricity supply after 2025-2030 periods. In June 2016, five political parties: Social Democrats, the Moderates, the Green Party, the Centre Party and the Christian Democrats, who represented the majority power in the Riksdag, came to a contract.²⁷² Later on, the Riksdag implemented Sweden's energy policy goals based on the Framework Agreement on Energy policy.^{273 274} The Riksdag (the

²⁷¹ Energy Policies of IEA Countries: Sweden 2019 Review, International Energy Agency, p.11.

²⁷² Sweden's Integrated National Energy and Climate Plan, 2020, p.6.

²⁷³ Ibid, p.7.

²⁷⁴ Framework agreement between the Swedish Social Democratic Party, the Moderate Party, the Swedish Green Party, the Centre Party and the Christian Democrats.

Swedish Parliament)²⁷⁵ can be defined as the highest decision-making assembly focused on making and passing a law in Sweden.²⁷⁶

In 2016, the Energy Agreement set two main targets such as no net emissions of GHG emissions by 2045 and 100% renewable electricity generation by 2040.²⁷⁷ Furthermore, Sweden also has a goal for a 50% reduction in energy intensity from 2005-to 2030 and a 70% of GHG emissions reduction in the transport part from 2010 to 2030.²⁷⁸

In June 2017, the Riksdag established a climate policy framework in Sweden. The framework comprised comprehensive national climate targets, a Climate Act, and a Climate Policy Council. There are four main climate policy targets in Sweden such as an overall environmental quality target; a long-term emissions target for 2045; Intermediate targets for Swedish emissions outside the EU's emissions trading scheme for 2020, 2030 and 2040; special intermediate goals for GHG emissions from Swedish transport.²⁷⁹

The Riksdag has set 16 environmental quality goals, and one of the goals was “Limited Impact on the Climate” this has been demarcated as “limiting the global average temperature rise to less than 2 °C above its pre-industrial level and making efforts to achieve an increase of less than 1.5 °C above the pre-industrial level [...]”²⁸⁰ This goal is similar to Paris Agreement's long term target. Interestingly, Swedish long term goals are to zero GHG emissions by 2045 and negative emissions after that, meaning that by 2045 GHG emissions

²⁷⁵ Government Offices in Sweden, Ministry of the Environment and Energy, Sweden's draft Integrated National Energy and Climate Plan: According to Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action, p.3.

²⁷⁶ Sveriges Riksdag, “What does the Riksdag do?” < <https://www.riksdagen.se/en/how-the-riksdag-works/what-does-the-riksdag-do/> > (last accessed 15.04.2022).

²⁷⁷ Framework agreement between the Swedish Social Democratic Party, the Moderate Party, the Swedish Green Party, the Centre Party and the Christian Democrats

²⁷⁸ Sweden's Integrated National Energy and Climate Plan, 2020, p-13-16

²⁷⁹ Ibid

²⁸⁰ Ibid

from activities in Sweden must be at least 85% lower than in 1990.²⁸¹ When it comes to the intermediate targets,

- I. “by 2020, GHG emissions from activities covered by the EU Effort Sharing Regulation in Sweden must be 40% lower than in 1990.
- II. Lower GHG emissions in sectors covered by EU Effort Sharing Regulation by at least 63% by 2030 compared to 1990.
- III. Reduce carbon output from the domestic transport sector (excluding aviation) by at least 70% by 2030 compared to 1990.
- IV. Reduce GHG emissions in the sectors covered by EU Effort Sharing Regulation by at least 75% by 2040 compared to 1990.”^{282 283}

Two Government Bills adopted the above mentioned 2020 targets in Sweden: Government Bill 2008/09:162 and Government Bill 2008/09:163 in 2009 by Riksdag.²⁸⁴

In 2017, the Government adopted a Bill (Government Bill 2017/18:228)²⁸⁵ based on the Energy Agreement. In 2018, the Government decided on this energy bill.²⁸⁶ There are three pillars of Sweden’s energy policy: sustainability, security of supply and competitiveness. Interestingly, they are based on the same three pillars in the EU. Concretely, Sweden’s energy policy makes the roadmap for effective use of sustainable energy and cost-effective energy supply while reducing harm to the environment, climate and health while enabling a carbon neutral society. The Energy Bill established two targets.²⁸⁷ Energy efficiency target in

²⁸¹ Ibid

²⁸² Regeringens proposition 2016/17:146.

²⁸³ Sweden’s Integrated National Energy and Climate Plan, 2020, p.16.

²⁸⁴ Sweden’s draft integrated national energy and climate plan: According to Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action, p.10.

²⁸⁵ Regeringens proposition 2017/18:228.

²⁸⁶ Sweden’s draft integrated national energy and climate plan: According to Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action, p.4-5.

²⁸⁷ Regeringens proposition 2017/18:228, Government Bill 2017/18:228.

2030 is to be 50% more efficient than in 2005 and 100% renewable electricity generation in 2040.²⁸⁸

In 2018, the Regulation 2018/1999 (EU) entered into force, and the Regulation requires that every ten years, the Member States must inform their integrated national energy and climate plan according to the components established in the Regulation.²⁸⁹ Sweden has adopted Integrated National Energy and Climate Plan in line with Regulation measures.²⁹⁰

As demonstrated in the introduction chapter, in 2012, Sweden had already achieved their 2020 renewable energy target.²⁹¹

In 2003, Sweden introduced the electricity certificate system to promote renewable electricity production in Sweden.²⁹² The Government Bill 2005/06: 154 on Renewable electricity with green certificates²⁹³ was submitted to Riksdag. It entered into force in 2007. This objective was to cost-effectively promote electricity production through renewable energy sources.²⁹⁴²⁹⁵ In January 2012, Sweden and Norway entered into a common renewable electricity production agreement.²⁹⁶ Nevertheless, in 2020, the Riksdag issued a Government bill to stop the electrical certificate and quota obligation in 2035 not to continuing as agreed until 2045. Because it was not seen to be needed anymore.²⁹⁷

After the oil crisis in 1973, wind farms were recognized as an upcoming energy source in Sweden. In early 1990, the climate change issue raised a big question about fossil and non-

²⁸⁸ Regeringens proposition 2017/18:228, Government Bill 2017/18:228, p.17-19.

²⁸⁹ Sweden's Integrated National Energy and Climate Plan, 2020, p 4.

²⁹⁰ Ibid.

²⁹¹ Flanders Investment and trade, "The Energy Sector in Sweden: introduction to the market, 2020, p.4.

²⁹² Ministry of Sustainable Development, "Renewable electricity with green certificates" 2016, p.1-2.

²⁹³ Proposition 2005/06: 154 on Renewable electricity with green certificates.

²⁹⁴ Chapter 1 of Proposition 2005/06: 154 on Renewable electricity with green certificates.

²⁹⁵ 1 kap: Regeringens proposition 2005/06:154 translated Proposition 2005/06: 154 on Renewable electricity with green certificates.

²⁹⁶ SÖ 2012: 5: Sveriges internationella överenskommelser: Nr 5 Avtal med Norge om en gemensam marknad för elcertifikat Stockholm den 29 juni 2011.

²⁹⁷ Regeringens proposition 2020/21:16: Elcertifikat – stoppregel och kontrollstation 2019.

renewable energy sources. Therefore, again the attention to the wind farm was raised in Sweden. In 1991, the Swedish Government presented investment support for the wind turbine projects.²⁹⁸ As indicated in chapter 1, in 2000, Sweden's wind power production was 0.5 TWh. In 2020, it reached 27.6 TWh.²⁹⁹ According to the report published by the Swedish Wind Energy Association, wind power generation will be expanded by about 60 TWh by 2030 and 120 TWh by 2040.³⁰⁰ Thus, Sweden's wind energy sector is growing drastically. Nowadays, 54% of Sweden's total energy consumption is from renewable sources. According to the International Energy Agency, Sweden achieved one of the highest energy per capita consumptions globally.³⁰¹

4.2 Biodiversity policy in the Kingdom of Sweden

Sweden was one of the leading countries to adopt overarching environmental goals. The Riksdag adopted its first environmental quality goals as early as 1999. Interestingly, seven goals primarily were based on biodiversity.³⁰²

In 2010 the CBD Member States adopted a strategic plan for biodiversity from 2011 to 2020 in 2010. Interestingly, Sweden participated and worked strongly on this strategic plan. The vision was “living in harmony with nature”. Furthermore, this is a ten-year framework plan containing 20 Aichi targets.^{303 304} Furthermore, Sweden has reported to CBD how they are

²⁹⁸ Vattenfall “ The evolution of wind power” <<https://history.vattenfall.com/stories/from-hydro-power-to-solar-cells/the-evolution-of-wind-power>> (last accessed 06.05.2022).

²⁹⁹ “Energy use in Sweden Swedes use a lot of energy – yet, emissions are low. The key? Renewable energy”.<<https://sweden.se/climate/sustainability/energy-use-in-sweden>> (last accessed 19.02.2022).

³⁰⁰ Swedish wind energy Agency (2021). “Roadmap 2040 wind power: combating climate change and improving competitiveness, p.6.

³⁰¹ Flanders Investment and trade, “ The Energy Sector in Sweden: introduction to the market, 2020,p.4.

³⁰² Regeringskansliet: Miljö- och energidepartementet, A Strategy for Biodiversity and Ecosystem Services a translation of relevant parts of Government bill on biodiversity and ecosystem services A Swedish strategy for biodiversity and ecosystem services Gov. Bill 2013/14:141, p.3.

³⁰³ CBD, UNEP, “Strategic Plan for Biodiversity 2011–2020 and the Aichi Targets”.

³⁰⁴ Regeringskansliet: Miljö- och energidepartementet, A Strategy for Biodiversity and Ecosystem Services a translation of relevant parts of the Government bill on biodiversity and ecosystem services A Swedish strategy for biodiversity and ecosystem services Gov. Bill 2013/14:141, p.4-5.

going to implement conventions provisions through national strategies, plans and programmes.³⁰⁵

The Government established the targets for outdoor recreation policy in 2010.^{306 307} In 2012, the Swedish Government adopted five milestone targets for biodiversity. They were based on the significance of biodiversity and the importance of ecosystem services, threatened species and habitats, invasive alien species, awareness of genetic diversity and ecosystem services and resilience.³⁰⁸

As mentioned in the previous chapter, EU adopted the EU Biodiversity Strategy in 2020, focusing on six targets. This Strategy is demonstrated as one of the targets for the development of European ecological areas: Natura 2000.³⁰⁹ Significantly, Sweden has 4087 Natura 2000 sites which are considerable highest amount of sites.³¹⁰ Concretely, the Strategy adopted by Riksdag also contributes to achieve EU Biodiversity Strategy in 2020.³¹¹

Swedish environmental goals are based on action in the EU and globally. Reducing negative emissions can be mentioned as "an ambitious environmental policy" in Sweden.³¹² Sweden has three different environmental objectives: generational goal, 16 environmental quality, and milestone targets. The overarching objective of Swedish environmental policy is described under generational goal as to pass to the following era a society where the major natural issues have been tackled without expanding ecological and medical conditions outside

³⁰⁵ Ibid

³⁰⁶ Govt Bill 2009/10:238, bet. 2010/11:KrU3, Riksdag Comm. 2010/11:37 and 2010/11:38

³⁰⁷ Regeringskansliet: Miljö- och energidepartementet, A Strategy for Biodiversity and Ecosystem Services a translation of relevant parts of Government bill on biodiversity and ecosystem services A Swedish strategy for biodiversity and ecosystem services Gov. Bill 2013/14:141, p.4-5.

³⁰⁸ Ibid, p.3-5

³⁰⁹ Ibid, p.4.

³¹⁰ Swedish Environmental Protection Agency, Prioritised Action Framework (PAF) for Natura 2000 in Sweden, 2021, p.8

³¹¹ Regeringskansliet: Miljö- och energidepartementet, A Strategy for Biodiversity and Ecosystem Services a translation of relevant parts of Government bill on biodiversity and ecosystem services A Swedish strategy for biodiversity and ecosystem services Gov. Bill 2013/14:141, p.5.

³¹² Swedish Nature Protection Agency (2016), "Sweden's Environmental Objectives – An introduction" p.1.

Sweden's boundaries.³¹³ Especially the generational goals aim to achieve a clean, healthy environment with a focus on good human health, biodiversity conservation, sustainable use of natural resources, efficient use of energy, good human health etc.³¹⁴

Environmental quality objectives define the quality of the environment human beings wish to obtain. The objectives are broad and address several parts of the environment. Two main environmental objectives are directly relevant to this thesis's objective: "Reduced climate impact and A Rich Diversity of Plant and Animal Life". The reduced climate impact objective facilitates the climate and energy policy. Renewable energy production shall not adversely impact biodiversity protection.³¹⁵ As indicated previously, the Riksdag adopted milestone targets in priority areas where there is a need for serious action. Furthermore, these targets assist in achieving the generational and environmental quality objectives.³¹⁶

4.3 Swedish Legal Framework for wind energy activities

4.3.1 Environmental Code

The aim of the Environmental Code is described in Chapter 1, section 1 as: "to promote sustainable development [...] that current and future generations are assured of a healthy and good environment".³¹⁷

According to the Environmental Code, wind energy activity is considered as a hazardous activity.³¹⁸ Under Chapter 9, section 6 of the Environmental Code, obtaining a permit for wind farm projects is based on the size of the project. In terms of permit requirements, there are two types of wind farms in Sweden that need to be permitted. They are large wind and mid-size wind farms.³¹⁹ Large wind turbines consist of the following criteria,

³¹³ Ibid, p.1-3.

³¹⁴ Ibid, p.2.

³¹⁵ Ibid, p.24.

³¹⁶ Ibid, p.3.

³¹⁷ Chapter 1, section 1 of Environmental Code (1998: 808)

³¹⁸ Ibid, Chapter 9, section 6.

³¹⁹ Alanko et al. 2012.

1. “Two or more wind turbines that stand together [...] if each of the wind turbines including rotor blades is higher than 150 meters”.³²⁰

2. “Seven or more wind turbines that stand together [...] if each wind turbine includes rotor blades are higher than 120 meters”.³²¹

Both wind installations must take permits.³²² The wind farm developer must adopt an EIA. The competent national authorities have to ensure whether EIA is carried out properly.³²³ Wind energy should comply with General Rules of Consideration under Chapter 2 of the Environmental Code.³²⁴ The wind farm installations developer needs to prove that fulfilled the adopted rules.³²⁵ Wind farm operator also needs to ensure that they have taken protective and³²⁶ precautionary measures, the best available technology³²⁷ and product choice principle to prevent causing harm to people and the environment.^{328 329} When it comes to the location for the wind farm installations sites shall always be chosen so that it is possible to achieve the objective with minimum damage or detriment to human health and the environment.³³⁰

The mid-size wind turbine is “a wind turbine that, including rotor blades, is higher than 50 meters”. These types of installations should be notified to the authority.³³¹

Apart from the permitting process, Environmental Code consists of a supervision control system under chapter 26. According to chapter 9, section 6 (a), even though there is no legal obligation to get a permit for some wind installations, the supervisory authority may order an

³²⁰ Chapter 21, section 13 (1) of Environmental Assessment Ordinance (2013: 251).

³²¹ Ibid, section 14 (1).

³²² Ibid, Chapter 21, sections 13 and 14.

³²³ Chapter 6, sections 3 and 7 of Environmental Code (1998: 808).

³²⁴ Chapter 2 of Environmental Code (1998: 808).

³²⁵ Ibid, Chapter 2, section 1.

³²⁶ Ibid, Chapter 2, section 2.

³²⁷ Ibid, Chapter 2, section 3

³²⁸ Ibid, Chapter 2, section 4

³²⁹ Malafry 2016, p.122

³³⁰ English translation in DO 2000:61, section 4.

³³¹ Chapter 21, section 15 (1) of Environmental Assessment Ordinance (2013: 251)

operator to obtain a permit if the activity causes significant pollution, inconvenience to human health or environment.³³²

According to chapter 12, section 6 of the Environmental Code, “if an activity or a measure that is not addressed by a permit or notification obligation [...] may significantly change the natural environment, notification for consultation shall be made [...]”.³³³ Concretely, the Swedish Government has a right to review the admissibility including wind power installation projects that are required a permit under Environmental Code.³³⁴

One of the significant rules is that the municipality has a veto power right for the wind power developments.³³⁵ More to the point, the permit for the wind farm installations may grant if only the municipality has positive feedback on it.³³⁶

4.3.2 The Planning and Building Act

The overarching aim of the Planning and Building Act is to promote sustainable development for the current and future generations.³³⁷ This Act regulates with Environmental Code. The overall aim of the Act complies with the primary aim of the Code.³³⁸ The main task of this Act is to deal with Swedish planning and building permits.³³⁹ The municipality is the main government body that has a planning monopoly.³⁴⁰

There are several different plans under the Planning and Building Act.³⁴¹ But primarily used³⁴² comprehensive plan³⁴³ (Overview plan)³⁴⁴ for the wind farm installations. The plan

³³² Chapter 9, section 6 (a) of Environmental Code (1998: 808)

³³³ Ibid, Chapter 12, section 6.

³³⁴ Ibid, Chapter 17, section 4 (a) (7).

³³⁵ Malafry 2016, p.121.

³³⁶ Chapter 16, section 4 of Environmental Code.

³³⁷ Chapter 1, section 1 of the Planning and Building Act (2010:900)

³³⁸ Pettersson 2008, p.57.

³³⁹ Malafry 2016, p.125.

³⁴⁰ Ibid

³⁴¹ Pettersson 2008, p 59.

³⁴² Malafry 2016, p.125.

³⁴³ Chapter 3 of the Plan and Building Act (2010:900)

must point out “the fundamental features of the envisaged usage of land and water areas”.³⁴⁵ Though this plan is not legally binding,³⁴⁶ a comprehensive plan plays a significant role while implementing the national wind power goal, given that locations appropriate for a wind farm.³⁴⁷ Furthermore, the overview plan needs to include the national interests according to Chapter 3 and 4 of Environmental Code.³⁴⁸

The regulations for the detailed plan are discussed in Chapter 4 of the Planning and Building Act, which has a legally binding effect. The municipality has a legal obligation to review the suitability of land or water area for a wind turbine and tower.³⁴⁹ Furthermore, the wind turbine and its tower are considered as requirements for a building permit after a notification that has been announced under Chapter 16, Section 7 or 8.³⁵⁰

In addition, Regional plans may also be used for the wind farm installations, which address the main criteria for using land and water area as a whole region.³⁵¹ Similar to the overview plan, these Regional plans are not legally binding.³⁵² Pettersson has mentioned in her doctoral thesis that when it comes to energy efficiency and environmental protection, suitable locations for large wind farm installations may provide areas beyond the municipal levels. In order to avoid the bird’s migration areas, the wind farm installations may essentially be sited through municipalities.³⁵³

Furthermore, if a wind turbine is not required a permit for the installation, it may be essential to a building permit under the Planning and Building Act and Planning and Building

³⁴⁴ Boverket, “Building in Sweden: Planning” (Last modifies 24.03.2021) <<https://www.boverket.se/en/start/building-in-sweden/developer/planning-process/>> (last accessed 22.04.2022).

³⁴⁵ Chapter 3, section 5 (1) of the Planning and Building Act (2010:900)

³⁴⁶ Ibid, Section 3.

³⁴⁷ Pettersson 2008, p 60.

³⁴⁸ Chapter 3, section 4 of the Planning and Building Act (2010:900)

³⁴⁹ Ibid, Chapter 4, section 3.

³⁵⁰ Chapter 4, section 3 (1) of the Planning and Building Act (2010:900)

³⁵¹ Ibid, Chapter 7, section 2 and 4.

³⁵² Ibid, Chapter 7, section 2.

³⁵³ Pettersson 2008, p.59.

Ordinance. According to Chapter 6, section 1 (6) a-b of the Planning and Building Ordinance, “ the wind turbines higher than 20 meters above the ground and located at a distance from the boundary that is less than the height of the power plant above the ground” are required to get a building permit. ³⁵⁴

4.3.3. The Electricity Act

The following part of this paper analyses a short overview of the Electricity Act, focusing on the most relevant sections for this current study. This Act is applied as a parallel legal instrument under Environmental Code. The Electricity Act requires a permit called concession to use and build transmission lines.³⁵⁵ The application of the Environmental Code has been stated in Chapter 2, section 17 of the Electricity Act. According to that, Chapter 2-4 and Chapter 5 sections 3-5 and 18 of the Environmental Code shall apply.³⁵⁶ The Electricity Act further provided that EIA must be made according to the Chapter 6, section 28-46 of Environmental Code.³⁵⁷

The location of the transmission line is aimed to be placed; one or several permits or dispensations according to the Environmental Code may be needed.³⁵⁸ More to the point, if those transmissions lines have an adverse negative impact on the Natura 2000 site, the developer should prove the derogation rule requirements.³⁵⁹ If the protected species would be impacted which provides illegal under Species Protection Regulation, dispensation must be ensured.^{360 361}

³⁵⁴ Chapter 6, section 1 (6) a-b of the Planning and Building Ordinance

³⁵⁵ Chapter 2, section 1 of the Electricity Act (Ellag (1997: 857)

³⁵⁶ Ibid, Chapter 2, section 17.

³⁵⁷ Ibid, Chapter 2 section 17 (2)

³⁵⁸ Chapter 7 of the Environmental Code

³⁵⁹ Chapter 7, sections 28(a)–29 of the Environmental Code.

³⁶⁰ Section 14 of the Species Protection Ordinance (2007:845) and Article 12 of the Habitats Directive and Article 9 of the Birds Directive.

³⁶¹ Malafry 2016, p.226.

4.4 Legislation on Habitats and Species Protection

As discussed in the previous chapter, the Birds and Habitats Directive are the main legislative framework for habitats and bird species protection at the EU level. Sweden has implemented these laws into their national legislative framework as an EU country. However, it is impossible to analyse these national laws in detail within several pages of this study. The following briefly describes Swedish legislation on habitats and bird species.

Chapter 7 of the Environmental Code provides the rules on specially protected areas. This study primarily discusses provisions on Natura 2000.³⁶² If a developer has planned the wind power developments to be placed in a Natura 2000 site or nearby the site and if the project is likely to have an adverse effect on a site, a permit is needed according to Chapter 7, section 28 (a) of the Environmental Code. The permit may only be issued if the wind farm activity does not damage the habitat or habitats in the area that are aimed to be protected; it entails that the species or the species that are wished for to be protected are showing a disturbance which causes adverse obstruct of the species protection in the specific area.³⁶³ The legal provisions on the EIA process has been discussed under Chapter 6 of the Environmental Code.³⁶⁴

Interestingly, Chapter 8 of the Environmental Code is based on species protection. Swedish Species Protection Ordinance was adopted based on Chapter 8 of the Environmental Code.³⁶⁵ It has transposed the EU nature legislations: Habitats and Birds Directive.³⁶⁶ The species protection provision is framed in section 4 of the Species Protection Ordinance. It can be mentioned as a reflection of the prohibitions in the Habitats Directive. Thus, it ensures prohibited to,

1. “intentionally capture or kill animals.”

³⁶² Chapter 7, section 27-29 b of the Environmental Code.

³⁶³ Ibid, Chapter 7, section 29 b.

³⁶⁴ Ibid, Chapter 6.

³⁶⁵ Section 1 of the Species Protection Ordinance.

³⁶⁶ Ibid, section 2.

2. “intentionally disturb animals, especially during animal mating , breeding, wintering and migration periods”,
3. “intentionally destroying or collecting eggs in the wild”
4. “damaging or destroying the animals' breeding grounds or resting places.”³⁶⁷

Using similar language and the rules of the Habitats Directive, section 14 of the Species Protection Ordinance mentions that the County Administrative Boards may be given dispensation. However, the permission may be granted only under limited circumstances as mentioned in Habitats Directive, such as,

1. “there is no other appropriate solution”,
2. “if the exemption does not impede the maintenance of a favorable conservation status of the species' population [...]”
3. “the exemption is required to preserve habitats [...]”
 - “to avoid serious damage [...]”
 - [...] public interest
 - For Reserach and training purposes
 - for the re-implantation or re-introduction of the species or for the rearing of an animal species or the artificial reproduction of a plant species required
 - to allow, under strictly controlled conditions, selective and small-scale collection and storage of certain specimens in small quantities.”³⁶⁸

Malafry, in her doctoral thesis, has mentioned that the Species Protection Ordinance might obstruct the wind energy development in Sweden due to the reason of adverse effect on protected species.³⁶⁹ Thus, when it comes to the permit process in terms of wind energy, the Species protection Regulation is the primary legislation while analyzing whether such plan or project complies the general rules of consideration adopted by Environmental Code.^{370 371}

³⁶⁷ Ibid, Section 4.

³⁶⁸ Section 14 of the Species Protection Ordinance.

³⁶⁹ Malafry 2016 , p.137.

³⁷⁰ Ibid

The decisions on the capture or killing of birds are governed under the Hunting Act³⁷² rather than the Species Protection Ordinance in Sweden.³⁷³ Section 2 of the Hunting Ordinance states general hunting time. However, the provision expressly mentions that the birds' nests and their eggs must not be destroyed or taken.³⁷⁴ Under section 15 (d) of the Hunting Ordinance may grant the derogation rule for wild birds by the County Administrative Boards under exceptions such as no satisfactory solution, to maintenance favourable conservation status and reasons specified in section 23 or 31 first paragraph of this Ordinance.^{375 376}

Epstein has mentioned that capturing bats and hindering bats' holes accounted for the hunting definition. However, these are not amounted to hunting in the ordinary meaning. Nevertheless, other forms of disturbance caused for bats need to be informed to European Commission that may not consider under the hunting definition. Thus, the decisions relating to bats would be given according to Species Protection Ordinance.³⁷⁷ Epstein has further reported that the dispensation decision in Sweden had been drastically grown between 2013-2014 and 2015-2016. According to the reported dispensation cases to the European Commission, the cases were from 326 to 530. According to Swedish Environmental Protection Agency (SEPA), several dispensations were granted between 2015-2016 in bat study. Significantly, if SEPA's bat dispensations decisions are excluded 315 between 2015-2016.³⁷⁸

The impact of an onshore wind farm on bats and birds has been discussed in the previous chapters. Therefore, this chapter does not aim to discuss this in detail again. However, there is much literature that discusses this issue in terms of Sweden. The report published by the Swedish Environmental protection Agency addressed the effect of wind farming on bats and

³⁷¹ Chapter 2 of the Environmental Code.

³⁷² Hunting Ordinance (1987:905)

³⁷³ Epstein 2019, p.78.

³⁷⁴ Section 2 of Hunting Ordinance (1987:905)

³⁷⁵ Ibid, Section 15 (d).

³⁷⁶ Malafry 2016, p.135.

³⁷⁷ Epstein 2019, p.79.

³⁷⁸ Ibid, p.78.

birds in a comprehensive manner.³⁷⁹ Furthermore, the report suggested some important pre-construction and post-construction measures to minimize the risk, such as avoiding the dangerous sites and mitigation methods as discussed above chapters.³⁸⁰

4.5 Swedish cases

The following section of the study discusses the Swedish cases. It is noteworthy to be aware of the practical conflict between wind farms and biodiversity and how the courts have ruled the cases.

The Swedish Land and Environmental Court delivered a milestone judgment in the *Mästermyr* case. The court held that the planned location is a bird sanctuary used as a resting place. The court further declared that this area is used especially by the sea and golden eagles. Thus, the wind farm installations may cause disturbances to the bird's life. The court held that the planned location is not suitable and denied the permit under Chapter 2, Section 6 of the Environmental Code.³⁸¹

MÖD 2009:48 case was about offshore wind power projects and biodiversity. The location was an important area spawning place for cod. The court declared that the location identified as sensitive from the ecological point of view. Thus, the area should be protected from the things that can damage the environment. The Land and Environment Court of Appeal court denied the permission on the basis that ‘ [the applicant was failed show that the objective of the wind farms project] can be achieved with least encroachment and inconvenience to the human health and environment.’^{382 383}

³⁷⁹ Rydell et.al. 2012.

³⁸⁰ Rydell et.al. 2012, p.125-129.

³⁸¹ M 8344-11, translated from the original source, p.6-7.

³⁸² MÖD 2009:48.

³⁸³ Malafry 2016, p.134

In the M 6960-14 case, the Supreme Land and Environment Court has granted permission for the same applicant discussed above. Especially, in this case, the court has given a permit with the conditions to take mitigation measures for the protection of cod and porpoises.^{384 385}

It is noteworthy to examine the Swedish court decisions regarding EIA requirements and species protection. In the *Gullberget* case, the court pointed out that both Guidance Document from the Commission and the Swedish Environmental Protection Agency handbook on Species protection emphasized minimizing the disturbance to species by finding a suitable location for disruptive projects. The Supreme Land and Environmental Court concluded that the applicant company has not shown that the site meets the requirements for a suitable location. Further, the court held that the Environmental impact statement also has some shortcomings on how to comply with Species Protection Ordinance and alternative locations.³⁸⁶

The Supreme Land and Environmental Court have granted a similar Judgment in *Sällstorp Case*. The court concluded that the applicant had not met the suitable location requirement on the basis that the area was an important as a bird sanctuary and the risks to birds of prey and other protected bird species.³⁸⁷

4.6. Discussion

This chapter has attempted to provide a case study on Sweden regarding the implementation of EU wind energy and biodiversity legislation relevant to this study. To conclude this chapter, the literature identifies that the kingdom of Sweden's energy policy is in line with EU energy policies. However, when it comes to Sweden's national energy targets, it aims to achieve no net emissions of GHG by 2045 and 100% renewable electricity generation by

³⁸⁴ M 6960-14.

³⁸⁵ Malafry 2016, p.134 -138.

³⁸⁶ Judgment by the Land and Environmental Court of Appeal of 29 May 2012 in case M 7639-11 translated, p.11-13.

³⁸⁷ Judgment by the Land and Environmental Court of Appeal of 23 August 2013 in case M 10072-12 translated, p. 7.

2040.³⁸⁸ These overarching targets are beyond the Paris Agreements goals. Sweden has already achieved their renewable energy targets successfully; for an example, as explained above, in 2012, Sweden could achieve renewable energy targets in 2020.³⁸⁹ Thus, Swedish energy goals are leading to becoming the world's first fossil-free welfare country.³⁹⁰

Regarding Sweden's biodiversity goals, "Reduced climate impact and A Rich Diversity of Plant and Animal Life" have explicitly stated under Environmental quality objectives. The Environmental Code is the primary legislative instrument for wind energy projects. However, Swedish Wind Energy Association proposed that to "supplement the Environmental Code, thereby climate benefits are weighed in the environmental assessment". In Sweden, a wind farm projects must obtain two permits: a wind farm building permit (environmental permit) and a grid connection (concession). The finding of this study suggests that the permitting process delays the setting out of wind energy installations.³⁹¹

One of the remarkable findings from this study is that since 2009, the municipal has had veto power over new wind farm installations under Environmental Code. The Swedish Energy Agency demonstrated that this veto power drives against the demands for simplified and compressed permit procedures under the revised Renewable Energy Directive. Thereby adjusting municipal power to increase legal certainty under Environmental Code.³⁹²

Interestingly, Sweden's Species Protection Ordinance has directly transposed the EU nature legislations: Habitats and Birds Directive.³⁹³ At the same time, the protection of bats and birds is also strict and wide. Nevertheless, the study found that these species protection

³⁸⁸ Framework agreement between the Swedish Social Democratic Party, the Moderate Party, the Swedish Green Party, the Centre Party and the Christian Democrats

³⁸⁹ Flanders Investment and trade, "The Energy Sector in Sweden: introduction to the market, 2020, p.4.

³⁹⁰ United Nations "Sweden's goal – becoming the world's first fossil-free welfare state".<
<https://sustainabledevelopment.un.org/partnership/?p=33918>> (Last updated 15.09. 2021) (last accessed 06.05.2022).

³⁹¹ Swedish wind energy Agency, 2021. p.13.

³⁹² Swedish wind energy Agency, 2021. p.17.

³⁹³ Ibid, Section 2 of the

provisions are one of the reasons for the delay of wind farm projects. This study has shown that bats' recent dispensation decisions have been granted.³⁹⁴ Furthermore, bats and birds potentially negatively impact onshore wind energy projects in Sweden. A summary of the main findings suggests that Swedish energy goals achieve net zero emissions and a 100% renewable energy society in Sweden. As a renewable energy source, wind energy can be a principal source of this energy journey. Sweden aims to achieve these energy goals with overarching biodiversity goals; therefore, as explained before, it needs to follow pre and post construction measures with explained Swedish energy agency suggestions.

The Swedish case law explained how Sweden had resolved the practical conflicts. The author will be discussed this in the following chapter.

³⁹⁴ Epstein 2019, p.78-79.

Chapter 5

5. Conclusion

The purpose of the current study was to determine how biodiversity protection is taken into account in the building of wind farms. The study has pinpointed that recent climate change incidents have led to a rethink of the move to renewable energy sources, including wind energy. Thus, the EU's energy policy is more integrated with environmental concerns. The legal framework of wind is regularly updated to comply with the Paris Agreement goals. The research has also shown that the wind energy sector is expanding steadily, and the EU needs to be installed more to obtain the EU 2030 renewable energy goals.³⁹⁵ RED II is the leading legislation which promotes the renewable energy sources proposed to increase at least 38-40% of renewable energy by 2030.³⁹⁶

This investigation shows that the Habitats Directive and Birds Directive are the central legal instruments that protect habitats and species within and outside Natura 2000 sites. One of the more significant findings from this study is that onshore wind farm projects may harm bats species and birds. Furthermore, evidence demonstrates that bats species have amounted to priority protection. The species protection provisions explicitly prohibited deliberate killing/capture, disturbances, deterioration or destruction of breeding sites or resting places of birds and bats.³⁹⁷

The study confirmed that environmental assessment under EIA and SEA Directive plays a leading role in the EU. However, the most obvious finding of this study is that the environmental assessment is mandatory for wind energy projects under SEA Directive. However, EIA is not compulsory under EIA Directive. The competent national authority has the power to decide the need for EIA under the screening stage.³⁹⁸ As Pinho et al. 2010 has

³⁹⁵ WindEurope (2021). *Setting the course towards climate neutrality: WindEurope position on the 'Fit for 55' package*. p.3.

³⁹⁶ COM(2021) 557 final, p.1.

³⁹⁷ C (2020) 7730 final, p.24.

³⁹⁸ Annex II.3.i and Art. 4.2 of the EIA Directive

stated, this finding suggests that there is no systematic,³⁹⁹ certain approach for the Annex II projects, including wind energy, that leads to harm to birds and bats. There is, therefore, a definite need for a certain process for EIA concerning wind energy projects under EIA Directive. Since both renewable energy targets and halting biodiversity loss are key targets in the EU, greater efforts are needed to ensure the synergies between these sectors. The study suggests an important practical implication is to follow possible mitigation measures that are proposed to reduce the adverse impact of onshore wind farm projects on bats and birds by the European Commission and European Parliament.⁴⁰⁰

The present study was also designed to conduct a case study on Sweden to determine the practical implication of the EU wind energy and the biodiversity legislation. The evidence indicated that Swedish renewable energy targets align with EU renewable energy targets. However, the Swedish national overarching energy targets⁴⁰¹ are comprehensive and beyond the Paris Agreement goals. They will move towards the first fossil-free welfare country.⁴⁰² The Swedish biodiversity legislation is a direct transposition of the EU Birds and Habitats Directive.⁴⁰³ Furthermore, due to this strict protection, the onshore wind energy projects have a delayed process. The evidence suggests that, recently, bats dispensation decisions have been granted.⁴⁰⁴ Taken together, the results suggest that to use pre and post construction mitigation measures and adjusting municipal veto power to raise the legal certainty and compressed permit process under RED II.⁴⁰⁵

³⁹⁹ Pinho et al. 2010, p.91-93

⁴⁰⁰ C (2020) 7730 final, p.80-81.

⁴⁰¹ Framework agreement between the Swedish Social Democratic Party, the Moderate Party, the Swedish Green Party, the Centre Party and the Christian Democrats

⁴⁰² United Nations “Sweden’s goal – becoming the world’s first fossil-free welfare state”.<
<https://sustainabledevelopment.un.org/partnership/?p=33918>> (Last updated 15.09. 2021) (last accessed 06.05.2022).

⁴⁰³ Swedish wind energy Agency, 2021. Section 2

⁴⁰⁴ Epstein 2019, p.78-79.

⁴⁰⁵ Swedish wind energy Agency, 2021. p.17.

The study discussed several Swedish case laws. They demonstrated practically how Sweden's wind farms and biodiversity conflicts were resolved. The study discussed several Swedish case laws. They demonstrated practically how Sweden's wind farms and biodiversity conflicts were resolved. Choosing a suitable location is the most important requirement for wind farm developments. According to the discussed case laws, the court has denied the permission on the ground of disturbances to the birds' life in terms of the Environmental Code, Species Protection Ordinance and other relevant laws. Thus, the court always paid attention to the ecological point of view. According to the above-indicated judgments, the applicant must show that the purpose of the wind farm projects can be achieved with little impact on human health and the environment. Thus, EIA is a central part of this process.

It is important to mention that the court granted permission to the same applicant with conditions to take mitigations measures. Thus, as mentioned above, the principles such as mitigation can be considered when engaging with wind energy projects to prevent the impact on biodiversity. In doing so, both wind energy targets and biodiversity targets could be achieved. The court has considered all the relevant laws before granting the decisions. Significantly, EU Commission's Guidance Document's suggestions were also taken into account to resolve the conflicts between these two sectors.

In summary, many important changes need to be made for future practice. As the number of the literature suggests that a reasonable approach to tackle this issue is to synergies and trade-offs between wind energy and biodiversity conservation.^{406 407}

⁴⁰⁶ Santangeli et al. 2016, p.3-19.

⁴⁰⁷ Eichhorn and Drechsler 2010.

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