

Financing Wind Energy under the EU Green Bond Standard

What Counts as an Environmentally Sustainable Investment?

Property Law and International Economy
Master's Thesis

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This thesis examines the upcoming EU green bond standard and especially its connections to the EU taxonomy's criteria relating to environmental sustainability in the context of wind energy. The aim is to interpret, systematize and apply the taxonomy criteria in wind energy projects and thus draw practical interpretation recommendations for green bond issuers and reviewers. By considering the taxonomy criteria in practice, certain conclusions can be made about the sustainability framing that the EU taxonomy has adopted.

The thesis belongs to the practical doctrinal study of law and applies a methodological pluralism approach because of the instrumentalist rationality of the research subject. The pluralism approach also contributes to the applied doctrine of source of law, which here is dynamic. Further, using wind energy as the context of the thesis allows a deeper legal scrutiny and generates more concrete and sharpened conclusions about environmental sustainability. Hence, there are some connections also to the law in context approach.

It was found that the taxonomy criteria relating to environmental sustainability must be interpreted in a context and process-based approach. Thus, individual circumstances must be considered which leaves discretion to the taxonomy users and may weaken the consistent use of EU taxonomy. The thesis identifies certain legal principles relevant to the EU taxonomy which could be used as interpretation tools to increase consistency, especially in tricky cases. Further, the main principle is that the taxonomy criteria must be met only on the activity or project level. This could allow green bond issuers to cherry-pick between different projects and create a falsely sustainable image. When considering the taxonomy criteria in practice, it was also noticed that sustainability framing of the EU taxonomy is rather economical, which, however, in the case of wind energy seems justifiable.

Keywords: sustainable finance, green bonds, EU green bond standard, EU taxonomy, environmental sustainability, wind energy

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Abbreviations

CBI	Climate Bonds Initiative
CSR	Corporate Social Responsibility
DNSH	Do No Significant Harm
EGD	European Green Deal
ESG	Environmental, Social and Governance
ESMA	European Securities and Markets Authority
EU	European Union
GBPs	Green Bond Principles
GHG	Greenhouse Gas
HLEG	High-Level Expert Group on Sustainable Finance
ICCPR	International Covenant on Civil and Political Rights
ICMA	International Capital Market Association
IEA	International Energy Agency
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change
MiFID	Markets in Financial Instruments Directive
NCPs	National Contact Points
OECD	Organisation for Economic Cooperation and Development
RED II	Renewable Energy Directive II
SDGs	Sustainable Development Goals
SFRD	Sustainable Finance Disclosure Regulation
SME	Small and Medium-sized Enterprises
SRI	Socially Responsible Investing
TEG	Technical Expert Group on Sustainable Finance
TEU	Treaty on European Union
TFEU	Treaty on Functioning of European Union
UN	United Nations
UNFCCC	United Nations' Framework Convention on Climate Change
UNPRI	UN Principles of Responsible Investment

1 Introduction

1.1 Background

The gravity of the implications of climate change to humankind is nothing new. A myriad of studies has implicated how serious its consequences will be. In its landmark report from 2018, the Intergovernmental Panel on Climate Change (IPCC) warned that global warming of 1.5 °C above pre-industrial levels would bring along many adverse impacts, such as extremely hot temperatures, droughts, forest fires, heavy precipitation (meaning floods and tropical cyclones), sea-level rise, and species loss and extinction. The impacts of climate change cause risks to health, livelihoods, food security, water supply, human security, and economic growth while impacting disproportionately poor and vulnerable regions to a greater extent. Climate-related risks are more probable and severe if global warming reaches 2 °C, therefore IPCC encourages nations to take different mitigation strategies to limit global warming to 1.5 °C.¹ In its recent report published in February 2022, IPCC states that climate change has already had irreversible impacts on the Earth and taking worldwide action is more urgent than ever.²

As a highly complex issue, climate change will have impacts also on world economies. It has been estimated that global warming of 2 °C will slow the rate of global economic growth and endanger economic well-being. Sustainability of economic systems is no longer viewed as ‘a nice to have’, but rather as a necessity to make sure that our economies continue functioning in the long run.³ Corporate involvement in climate change action is an important part of transitioning our economies sustainable. According to a fairly recent report from 2017, just 100 companies are the source of 71 % of industrial greenhouse gas (GHG) emissions since 1988.⁴ Thus, the blame for environmental pollution can be largely placed on businesses, but also on the financial system that has provided funding for these business operations.⁵

¹ IPCC 2018, p. 7-9, 12.

² IPCC 2022 (Accessed on 13 March 2022).

³ Trippel 2020, p. 155-156, 158. According to D. Wallace-Wells in *The Uninhabitable Earth* (2019), the sustainability shift, that occurred after the IPCC’s report in 2018, has also influenced EU policymakers and the way sustainable finance has been approached in the EU after 2018.

⁴ Carbon Disclosure Project 2017 (Accessed on 14 March 2022). These companies consist of active fossil fuel producers, such as ExxonMobil, Shell, BHP Billiton, and Gazprom.

⁵ Yeow – Ng 2021, p. 1486.

Although the corporate response to climate change has been slow and not without its resistance, businesses and investors cannot stay silent on climate change matters anymore. Recent phenomena, such as corporate social responsibility (CSR)⁶, socially responsible investing (SRI)⁷, and impact investing⁸, illustrate this change. Environmental, social, and governance (ESG) factors are becoming more and more important factors to consider when making investments. Environmental factors refer to climate impact, energy consumption, biodiversity, waste management, and natural resource use, social factors to employee engagement and development, labour and human rights, and consumer matters (e.g. protecting consumers and producing safe products), and governance factors to management structure (e.g. diversity), board accountability, compensation, internal control, and shareholder rights.⁹ The very core of sustainable finance means embedding ESG factors to the consideration when investment decisions are made. In the European Union (EU), sustainable finance also aims to support economic growth while considering ESG factors at the same time.¹⁰

Sustainable finance is seen as a major facilitator in the transition into a sustainable economy as it encourages allocating funds to low-carbon projects.¹¹ The sustainability transition will require enormous amounts of investments and especially private investments play a critical role due to the public sector's insufficient resources.¹² By estimates, an additional investments of EUR 350 billion are needed annually in the EU so that the Union will to reach its emissions reduction goals in energy for 2030, without even mentioning the EUR 130 billion that are

⁶ CSR refers to a company's efforts to assess the effect of its operations and processes on communities and to set policies that maximize the positive impact of its activities.

⁷ SRI consist of investment strategies in which ESG concerns of the companies prevail for investors in their investment decision-making process. Green bonds are part of SRI strategies that seek to consider both financial returns and social good.

⁸ Impact investing refers to investments that aim to generate social and environmental impact alongside financial returns.

⁹ Deschryver – de Mariz 2020, p. 79.

¹⁰ European Commission. Overview of Sustainable Finance (Accessed on 22 March 2022).

¹¹ However, there are also conflicting views that hold sustainable finance as an oxymoron and see financial institutions with their famous short-termism as a major contributor to the current environmental disaster. See e.g. Lagoarde-Segot, Thomas, 'Sustainable finance. A critical realist perspective' in *Research in International Business and Finance* Vol. 47 2019, p. 1-9.

¹² Brinkman 2009, p. 136; Trippel 2020, p. 160. It has been estimated that the private sector accounts for 86 % of global financial flows, which shows that private investments must finance most of the transition to low-carbon economies. See Wolf 2013, p. 163.

needed for other environmental goals.¹³ The International Energy Agency (IEA) has announced that to reach net-zero emissions by 2050, annual clean energy investments worldwide will need to more than triple by 2030 to around USD 4 trillion.¹⁴ These numbers underline the massive need of private investments into sustainable purposes.

Green bonds have been labelled as “one of the most prominent financial innovations in the area of sustainable finance”¹⁵. They are considered a key piece of filling the investment gap and financing the transitioning costs into a low-carbon economy.¹⁶ Nicholas Pfaff, the head of sustainable finance at the International Capital Markets Association (ICMA), has described green bonds followingly: “The miracle of the green bond market has been to take the debate around green [issues] and the environment and turn it into something practical that you can evaluate for investment”¹⁷. In essence, sustainable finance alters the way investors evaluate their investments emphasising the significance of climate risk.

Recently, green bonds have gained prominence along with the other positive developments surrounding sustainable finance. European policy efforts are also striving to further facilitate the prominence of sustainable finance and green bonds. Indeed, the European Commission has introduced a Regulation on the Establishment of a Framework to Facilitate Sustainable Investment (2020/852, i.e., ‘Taxonomy Regulation’)¹⁸ and a Proposal for a Regulation on European Green Bonds (2021/391, i.e., ‘Proposal on the EU Green Bond Standard’)¹⁹. These two legislative measures form the main theme of the thesis, which will be specified in the next chapter.

¹³ COM(2021) 390 final, p. 2.

¹⁴ IEA 2021 (Accessed on 14 March 2022).

¹⁵ Maltais – Nykvist 2021, p. 233.

¹⁶ Freeburn – Ramsay 2020, p. 419.

¹⁷ Laidlaw 2020.

¹⁸ Regulation (EU) of the European Parliament and of the Council of 18 June 2020 on the Establishment of a Framework to Facilitate Sustainable Investment and amending Regulation (EU) 2019/2088 (*OJEU L 198/13, 22.6.2020*).

¹⁹ COM(2021) 391 final. Proposal for a Regulation of the European Parliament and of the Council on European green bonds, on 6 July 2021.

Before turning into the objective and scope of the thesis, it is also relevant to consider the energy sector's role in climate change. The energy sector, taking into account that is still largely based on fossil-fuel-based systems, generates 75 % of the GHG emissions in the EU27.²⁰ Thus, it is clear that the transition into a sustainable economy is impossible without sufficient investments into low-carbon energy, such as wind and solar power. This energy transition can be defined as a shift to move away from fossil-fuel-based systems of energy production and consumption into renewable energy sources²¹. As energy demand is also estimated to grow in the future due to population growth and income increase, it is crucial to deploy renewable energy technologies to mitigate the climate impact of increased energy demand.²²

Wind energy is one of the most prominent and mature technologies to curb the energy sector's GHG emissions. Unlike fossil-fuel-based systems of energy production, wind energy does not generate atmospheric contaminants or thermal pollution.²³ Wind energy harnesses the power of moving air and, through the aerodynamic wind turbine blades connected to an electrical generator, it produces renewable energy. Wind turbines can be placed either on land (onshore wind) or in water (offshore wind).²⁴ Wind energy has witnessed staggering growth figures and in 2020, 93 GW of new capacity was installed making it the record year of the global wind industry with a 53 % year-on-year increase. Although these numbers are imposing, more investments are still needed to reach net-zero by 2050.²⁵ Mainly for these and research-economic reasons, green bonds are studied in the context of wind energy.

²⁰ SWD(2021) 152 final, p. 146.

²¹ Siddi 2021, p. 3. Recently, it has also become clear that abandoning fossil fuels is important also for political reasons. Russia started its attack on Ukraine on 24 February 2022, and its military operations are mainly financed by the revenues accrued from the sale of natural gas and oil. Condemning Russia's actions is likely to reduce Europe's dependence on Russian energy and accelerate the deployment of renewable energy.

²² Bhashyam – Hindle et al. 2020, p. 31-32.

²³ National Research Council (U.S.) Committee on Environmental Impacts of Wind-Energy Projects 2007, p. 1.

²⁴ Fräss-Ehrfeld 2009, p. 117.

²⁵ Global Wind Energy Council 2021 (Accessed on 20 April 2022).

1.2 Objective and scope

The greatest issue related to green bonds is the unclarity of the definition of ‘greenness’.²⁶ This issue gives rise to another problem, greenwashing. Greenwashing means here that projects that have little or no environmental value receive funding through green bonds.²⁷ An example of this would be using green bonds to fund coal and other fossil fuel-based technologies.²⁸ This is problematic to green bond investors as it misleads them and gives them a wrong impression about the sustainability level of the investment. Greenwashing creates problems for the entire green bond market because it undermines the confidence in green bonds as being part of the solution, not a problem, which is of great importance to a market based on sustainability.²⁹ Different interpretations of green projects and assets may also lead to legal disputes between bondholders and issuers.

Recent efforts have strived to alleviate the unclarity surrounding the concept of truly green bonds. The EU has published the Proposal on the EU Green Bond Standard which is closely connected to the Taxonomy Regulation. Together they formulate the criteria for the sustainability level required from green bonds that will be financed under the upcoming EU Green Bond Standard. In practice, the EU Green Bond Standard’s link to the Taxonomy Regulation means that receiving a green bond label under the EU standard requires fulfilling the requirements of the Taxonomy Regulation too. The Taxonomy Regulation sets out general criteria for investments that can be considered green - or ‘environmentally sustainable’, as the Taxonomy Regulation formulates it – and only such investments may be financed under the EU Green Bond Standard.

²⁶ Freeburn – Ramsay 2020, p. 420.

²⁷ Yeow – Ng 2021, p. 1488. Green bond market’s significant demand-supply imbalance also leads to concerns about issuing green bonds for greenwashing incentives. The demand for green bonds keeps on increasing as more and more investors are keen on environmental issues, yet green bonds issuances remain scarce. This results to green bond issues are being oversubscribed. See Ehlers et al. 2020, p. 31 and Agliardi – Agliardi 2021, p. 261.

²⁸ In fact, according to the Climate Bond Initiative’s (CBI) report on the Chinese green bond market (2018), in 2017, 38 % of Chinese green bonds failed to meet the international standards, which exclude coal and other fossil fuel-based technologies from eligible projects. The exclusion group consisting of, i.a., ‘clean’ coal, retrofits of petroleum stations, and coal efficiency enhancements which represented 83 % of Chinese green bonds in 2016, with the number dropping to 50 % in 2018.

²⁹ Freeburn – Ramsay 2020, p. 433.

In order to bring clarity and practicality to the legal definition of the required greenness of an EU green bond, this thesis aims to answer the following main question: *1) How can the taxonomy criteria relating to environmental sustainability be interpreted in the context of wind energy?* Based on the assessment of the taxonomy requirements, the thesis will also consider them in practice and answer the following additional question: *2) What kind of framing of sustainability is adopted in the taxonomy requirements?* Sustainability framing is understood here as the underlying logic or idea that has been reflected in the EU taxonomy's requirements and which shapes the EU taxonomy's notion of how sustainability is understood and how it should be approached. To build a better picture of the regulatory environment of EU green bonds, a profound look is taken also at the other requirements that apply to green bond issuers under the EU Green Bond Standard.

The main contribution that this thesis makes is the increased understanding of how greenness is defined in the EU Green Bond Standard. In practice, this question is of extreme importance as the green bond issuers must fulfil the Taxonomy Regulation's requirements so that they may receive funding under the EU standard. Because of its practical and targeted nature thanks to the special focus on wind energy, this thesis is able to give more precise interpretation recommendations. By clarifying the legal definition of an environmentally sustainable wind energy project, green bond issuers would receive more certainty which, at best, could increase the confidence to utilise EU green bonds in wind energy investments as the risk of non-eligibility would diminish. At the same time, the reputational and monetary risks of EU green bond issuers would decrease. These questions are relevant also for external reviewers who assess the alignment of a green bond with a green bond framework or standard. Also, by suggesting a more general framing of the taxonomy and its concept of sustainability, broader conceptions, and principles behind the taxonomy requirements can be recognized.

As the EU Taxonomy has many different uses, the thesis would not be useful only for green bond issuers and external reviewers, but also for any other taxonomy users who may have to evaluate whether a certain wind energy project aligns with the Taxonomy Regulation. Because the study analyses the basic criteria of environmental sustainability, it may also be useful to other economic actors besides wind energy developers when they are assessing whether their business operations are taxonomy-aligned, for example, when it comes to fulfilling minimum safeguards. Therefore, the research results can be applied in different contexts.

The perspective of the thesis is limited mainly to corporate green bonds as its objective is to provide interpretation recommendations specifically for wind energy developers. Therefore, the research perspective is focused on corporations as this approach suits the research objectives better. It must also be noted that the legislation under examination is fairly recent and still misses some key points at the time of writing, so creating a fully comprehensive picture of the topic is challenging. Rather, this thesis aims to provide a reasonable starting point and open a discussion on the EU taxonomy's nature and application.

1.3 Research approaches and methods

As the research question of the thesis is to define and elaborate on the legal definition of environmental sustainability in wind energy as understood in the Taxonomy Regulation, the doctrinal study of law is the most natural research method. The goal is to interpret, explain and systematise the legal rules and apply them to the context of a wind energy project. The thesis belongs to the *de lege lata* studies as it aims to review existing law. In this regard, it must be noted that the Proposal for a Regulation on European Green Bonds may still change prior to its adoption.

The research objective supports instrumentalist rationality to private law in which private law is used as a means to achieve extra-legal goals³⁰, which is typical in the EU private law.³¹ Thus, answering the research questions inherently involves a methodological pluralism approach as the assessment is not limited only to one area or concept of law. Methodological pluralism refers to methodological openness and diversity and is illustrated, for instance, by combining different research perspectives, approaches, materials, and methods.³²

The methods of the thesis must be specified owing to the pluralism approach. The doctrine of source of law that is applied is dynamic. In dynamic approach, the weight of legal sources is determined on a case-by-case basis, with criteria such as legal principles becoming more important alongside legal rules³³. Soft law has also been given a strong role because of its centrality shown by the vast amount of self-regulation in capital market law, as well as by the

³⁰ Michaels 2011, p. 142.

³¹ *Ibid*, p. 144.

³² Määttä 2016, p. 135.

³³ Kolehmainen 2016, p. 117.

multiple declarations and political strategies in climate policy and human rights law. The research material consists of official sources, legal literature, and soft law materials which are used in a flexible manner that best seeks to answer to the research question at hand, of course giving due recognition to the priority of statutory law. Despite the central role of case law in EU law, this thesis does not provide an overview of case law mainly due to the novelty of the research topic.

Interpretation methods applied in the thesis are mainly historic, systematic, and teleological interpretation. As preparative materials are relevant in the EU private law³⁴, the historic interpretation method is used to borrow interpretation recommendations and meaning from the preparative material. Systematic and teleological interpretation methods are also relevant because the Taxonomy Regulation and Proposal on the Green Bond Standard are products of the EU. By using the systematic interpretation method, the somewhat complex relationship of the Taxonomy Regulation, Proposal on the Green Bond Standard, and the delegated acts shall be clarified, which is important when studying a recent topic.

Choosing wind energy as the context of the thesis could also be seen as a methodological choice. Although it is firstly and foremostly a research-economic choice, it also increases the practical and legal value of the study. As sustainability is a broad concept, the conclusions about it could otherwise remain abstract in meaning, unless they are linked to a practical context. Considering the environmental sustainability in the context of wind energy thus allows a deeper legal scrutiny.³⁵ Thus, methodologically there are some connections to the law in context approach, although the research approach in itself is strictly doctrinal. Law in context approach is useful also to non-legal professions and contributes to the whole society³⁶, which is the purpose of this thesis as well.

In conclusion, this thesis aims to create a functional ensemble that considers various legal issues together.³⁷ It strongly links to the practical doctrinal study of law as it aims to provide

³⁴ Riesenhuber 2017, p. 246.

³⁵ See example of a similar contextual approach used in Katja Perätalo's doctoral dissertation (2020) *Vastuumuotoerottelu ja rakennusurakka: velvoiteoikeudellinen tutkimus sopimuksen ja deliktin väliselle rajapinnalle sijoittuvista vahingonkorvauskysymyksistä rakennusurakan vastuusetelmien kontekstissa*, p. 15–16.

³⁶ Minkkinen 2017, p. 914–915.

³⁷ For more information about this methodological approach, see Karhu, Juha (2003) *Uusi varallisuus oikeus*.

contextual legal interpretation recommendations and answers to practical legal questions which could arise, for example, in the wind energy or banking sectors. Thus, the scientific information it provides is normative in its nature.

1.4 Structure

In an effort to create a primed and thorough picture of the research topic, this thesis has been divided into five chapters. Chapter 2 provides the introduction to the theme and begins with studying different instruments used in climate change governance, such as green bonds. After that, the legal framework of sustainable finance is examined both on the international and European level, and the Taxonomy Regulation and Proposal for the EU Green Bond Standard are introduced from a historical-political perspective. This is followed by an overlook of the requirements of green bonds under the EU Green Bond Standard, after which the requirements of environmental sustainability in the Taxonomy Regulation are presented. The purpose of Chapter 3 is to discuss some general aspects relating to the interpretation of EU taxonomy and environmental sustainability, and also introduce tools for interpretation, before the criteria of environmental sustainability are interpreted and applied in the context of wind energy in Chapter 4. Finally, Chapter 5 consists of conclusions.

2 Legislative framework of sustainable finance

2.1 Market-based instruments in climate change governance

2.1.1 Law and economics considerations

This chapter aims to discuss shortly some law and economics aspects that are related to climate change governance, particularly when it comes to market-based instruments. After reading this chapter, the reader should have a better picture of why environmental problems are regulated, what sort of instruments are used for this, why market-based instruments have been seen as a suitable regulatory option, and how green bonds are related to this discussion. After this introductory section, green bonds are presented more elaborately.

The regulation theory is perhaps the most famous theory of law and economics approach. In the regulation theory, the concept of market failure is crucial as market failures justify different government actions so that market failures can be regulated.³⁸ Climate change is understood as a market failure that causes environmental degradation as a negative externality and leads to an inefficient allocation of goods and services.³⁹ In the current situation, market participants, such as corporations, have no incentives to reduce their emissions because emissions are not priced correctly and thus, capital goes to carbon-intensive options. Had emissions a price, emitters would be more motivated to reduce their emissions. The regulator is ultimately responsible for putting a price on emissions.⁴⁰

The regulation theory emphasises the instrumental nature of law. Legislation is used to further certain social policy objectives, such as mitigating climate change. In climate change mitigation, the legal instrument selection includes command-and-control instruments, market-based instruments, and suasive instruments.⁴¹ Environmental effectiveness, cost-effectiveness, distributional consideration, and political and administrative feasibility (so-called ‘real-life constraints’) affect the instrument choice process in climate governance.⁴² Market-based

³⁸ Määttä – Pulliainen 2003, p. 122.

³⁹ Mehling 2020, p. 31.

⁴⁰ Wolf 2013, p. 211, 159.

⁴¹ Määttä 1999, p. 31.

⁴² Mehling 2020, p. 14–16.

instruments, such as green bonds, have recently been increasingly adopted to achieve climate goals.⁴³ The effectiveness of market-based instruments, that are based on quantity control, lies in adequate enforcement: if markets embrace these instruments to a satisfying degree, it will guarantee the desired outcomes. The demand for the instruments sends a pricing signal for environmental harm and reflects the social cost of environmental degradation. This mechanism helps to correct the market failure.⁴⁴

The introduction of market-based instruments in environmental policy is often justified on the basis of cost-effectiveness.⁴⁵ Cost-effectiveness is a key regulatory standard especially in the context of growing environmental ambition. In this case, the marginal cost of achieving the environmental policy targets increases, and therefore, it becomes even more important to achieve the targets as cheaply as possible.⁴⁶ Market-based instruments have also said to foster innovation unlike traditional command-and-control instruments (meaning conventional legislation that sets boundaries, prohibitions and/or obligations).⁴⁷ In addition, market-based instruments are also credited for directing costs to the sources where the emissions are generated according to the polluter-pays principle.⁴⁸ However, market-based instruments have also received criticism, for instance, because of possible design and implementation failures which undermine the functionality of the markets, as well as because of theoretical shortcomings and ideological flaws.⁴⁹

The criticism of command-and-control mechanisms can also explain market-based instruments' popularity. Command-and-control mechanisms are seen as cost-inefficient mainly due to the problem of asymmetric information⁵⁰: public authorities are much less aware of the marginal cost of reducing emissions than the emitters themselves. Because of

⁴³ Gehring 2016, p. 157.

⁴⁴ Mehling 2020, p. 33.

⁴⁵ Määttä 1998, p. 223–224.

⁴⁶ Määttä – Pulliainen 2003, p. 116. Marginal costs refer to the increase in costs that is caused by reducing emissions by one unit more.

⁴⁷ Mehling 2020, p. 31

⁴⁸ *Ibid*, p. 34.

⁴⁹ *Ibid*, p. 43-44.

⁵⁰ Information asymmetry is seen as a justification ground for governmental interventions. See e.g. Määttä 1999, p. 28.

this, the authorities are not able to direct pollution reduction measures to the emission sources where these measures would be the most cost-effective. Because the emitters do not have any incentives to disclose their marginal costs, but rather tend to exaggerate their costs in hopes of avoiding strict regulations, the problem exacerbates.⁵¹

Information asymmetry is a central problem in the governance of green bonds too. For investors, it is difficult to evaluate a company's environmental commitment because this sort of information is usually not available to the masses. Companies have more knowledge about their environmental performance than investors. This information asymmetry issue increases transaction costs as investors must perform extensive environmental due diligence in order to make environmental-friendly investment decisions.⁵² Furthermore, by steering where funds go, green bonds may enhance the effective management of environmental risk and the optimal utilisation of environmental and social resources given that the market mechanisms of green finance are reasonable.⁵³ Same dynamics of information asymmetry affect capital markets also more broadly. Regulation and disclosure obligations are a key to increasing investor confidence and market efficiency as wrong or incomplete information allows opportunistic behaviour and pricing issues.⁵⁴

2.1.2 Green bonds as a financial instrument

Before assessing green bonds more closely, it is beneficial to define a conventional or so-called 'plain vanilla bond'. Bonds are debt instruments in which bond investors essentially become creditors of the issuing entity. The entire debt of the issuer is divided into smaller, equal parts ranked *pari passu* among investors⁵⁵. Investors get a fixed rate of interest, a coupon interest, usually periodically during the maturity of the bond. The amount of each coupon payment is decided according to a coupon rate. Zero-coupon bonds, in which no coupon payments are made, are also possible. The term of the bond defines the time remaining until the maturity date. Upon maturity, the initial investment that the investor borrowed to the issuing entity is returned. When making a bond investment, investors usually

⁵¹ Määttä – Pulliainen 2003, p. 163.

⁵² Flammer 2021, p. 502.

⁵³ Wang – Zhi 2016, p. 315.

⁵⁴ Lauriala 2008, p. 388-389.

⁵⁵ Freeburn – Ramsay 2020, p. 428 footnote 73.

pay attention to the risk profile of the issuer and the coupon interest, because in the event of bankruptcy the investor does not receive the initial investment back.⁵⁶

Public corporate bonds which can be traded on the market may be classified as notes, debentures, mortgage bonds, and asset-backed bonds. Notes and debentures are unsecured debt, whereas mortgage bonds and asset-backed bonds are secured, to say, in a case of bankruptcy, bondholders can claim specific assets which have been pledged as collateral. If a mortgage bond is in question, the collateral is real property and with asset-backed bonds, the asset may belong to any asset class.⁵⁷ Asset-backed bonds may be backed by cash flows that are accrued from operational projects and used for refinancing purposes.⁵⁸ It is also typical that asset-backed bonds used for refinancing are backed by the issuer's entire balance sheet.⁵⁹

Bonds are one option for companies to finance various projects.⁶⁰ Typically only well-known companies with good creditworthiness are able to issue bonds. In corporate debt finance, the other main option instead of bonds is a syndicated loan⁶¹. Bonds may offer more affordable financing for renewable energy projects than commercial loans and also refinancing possibilities for construction capital.⁶²

As a matter of fact, the only remarkable difference between them and plain vanilla bonds lies in the use of proceeds. In conventional bonds, raised funds are not earmarked for any specific purposes, whereas green bonds' funds are directed to sustainable projects, assets, or other

⁵⁶ Freeburn – Ramsay 2020, p. 419; Berk – DeMarzo 2017, p. 206.

⁵⁷ Berk – DeMarzo 2017, 898-900.

⁵⁸ Lam – Law 2017, p. 938. In the post-completion stage of projects, refinancing allows recycling of capital for new projects.

⁵⁹ Usability Guide: EU Green Bond Standard, p. 12.

⁶⁰ Tepora – Kaisto et al. 2016, p. 499.

⁶¹ A syndicated loan is a loan extended by a group of lenders (a syndicate) to a single borrower. Syndicates often include both banks and non-bank financial institutions, such as insurance companies and pension funds. Unlike syndicated loans, bonds are securities that are often listed on a stock exchange or other marketplace. Listing broadens the potential investor base, as otherwise the trading of bonds usually takes place over-the-counter. On the last note, see Heinonen, Mikko – Saarela, Erika, 'Joukkovelkakirjanhaltijoiden edustajan asema Suomen oikeuden mukaan' in *Liikejuridiikka* 1/2015, p. 30, 33.

⁶² Lam – Law 2018, p. 938.

business activities that contribute to climate change mitigation and adaptation⁶³. A ‘use of proceeds’ clause in the green bond makes sure that the financing will be allocated only towards sustainable purposes⁶⁴.

Renewable energy projects are one of the most typical use of funds that green bonds have. Renewable energies are very capital intensive and require high upfront payments and capital expenses, but very low operational expenses.⁶⁵ As such, renewable energy projects, such as constructing a wind park, often require borrowing.⁶⁶ Measured by allocation volume, almost half of total allocations are directed to renewable energy, which makes it the biggest allocation category.⁶⁷ As the renewable energy financing gap remains big and new investments into renewable energy are critical, green bonds have a key role in facilitating the energy transition⁶⁸. In wind energy, green bonds have been used, for instance, in securitisation.⁶⁹

⁶³ Green bonds are not the only specific purpose bonds; there are also: 1) social bonds that intend to improve social welfare or help disadvantaged groups, 2) sustainability bonds that address both environmental and social issues, 3) blue bonds that address ocean and water issues, and 4) climate bonds which are a subcategory of green bonds. See Freeburn – Ramsay 2020, p. 420.

⁶⁴ The use of proceeds approach is used also in the EU Green Bond Standard. It allows transparency that facilitates financial flows to sustainable economies. Thanks to the use of proceeds approach, green bonds may be issued by any company on any sector and the only requirement is that they finance green projects. See Usability Guide: EU Green Bond Standard, p. 13

⁶⁵ Helms – Salm et al. 2020, p. 99.

⁶⁶ Freeburn – Ramsay 2020, p. 427.

⁶⁷ Yeow – Ng 2021, p. 1499. Other typical categories are energy efficiency, clean transportation, eco-efficient products, and climate adaptation. (p. 1488).

⁶⁸ In general, in renewable energy finance, specific attention must be paid to natural resources availability, technical maturity, financial viability, and supportive government measures. Projects with more mature technology might receive funding via private equity and in the commercialization stage, commercial loans, bond issuances (e.g. green bonds), initial public offering, or securitization are possible financing choices. Compared to other renewable energy technologies, wind technology is well-developed and mature. In comparison to onshore wind, offshore wind farms have newer technology and they are more costly to build due to special marine installation conditions, as well as higher costs of transportation and maintenance of offshore wind turbines. See Lam – Law 2018, p. 938, 942.

⁶⁹ Lam – Law 2018, p. 941. Breeze Two onshore wind farms in Germany and France provide one example of using bond finance in wind energy. After the project sponsor sold the wind farm portfolio to a special purpose vehicle (SPV) company, the SPV company issued EUR 470 million of asset-backed securities in the securitisation of the whole business. The bond was issued in three tranches: two Eurobonds were placed in the capital market and one private investment of EUR 120 million was offered to investors.

Green bonds may be either labelled or unlabelled; unlabelled green bonds are vanilla bonds that are issued by environmental-friendly and sustainable companies whereas labelled green bonds are specifically designed to be green and usually issued under a green bond framework or standard.⁷⁰ Renewable energy producers whose operations are often already climate-aligned, may want to avoid the additional costs arising from green labelling and thus opt to issue rather conventional, unlabelled climate-aligned bonds.⁷¹ Nevertheless, this thesis focuses on labelled green bonds.

The scientific literature has found several reasons why companies issue green bonds. The first reason, signalling argument, holds that a company might issue green bonds to give a credible signal of its environmental commitment. As the information about companies' environmental commitment is often limited, this signal may be valuable to investors. The second reason is the greenwashing argument, according to which companies issue green bonds to build an environmentally responsible image of themselves without taking any concrete actions⁷². The third reason is the cost of capital argument which argues that companies may issue green bonds to obtain cheaper financing. This requires that investors are willing to trade off financial returns for environmental-societal benefits.⁷³

Some studies have found that green bonds have financial benefits compared to vanilla bonds, such as positive stock market responses, diversification benefits, less volatility, and lower risks.⁷⁴ Especially green bonds' yield curve (which indicates its riskiness and pricing and

⁷⁰ Björkholm – Lehner 2021, p. 227.

⁷¹ Breen – Campbell 2017, p. 16-17. It has been estimated that only 17 % of the climate-aligned bond issuance of USD 694 billion are labelled green bonds and others are unlabelled climate-aligned bonds whose proceeds are also directed to finance climate solutions but without the official green bond label.

⁷² Yeow – Ng 2021, p. 1500. Green bond issuers have been found to improve their environmental performance post-issuance. Although green bonds alone are most likely too small to bring remarkable improvements, the environmental commitment of the company materializes in eco-friendly behaviour, e.g. in sustainable projects financed by green bonds, and cumulative actions lead to improved environmental performance. On this note, see Flammer 2021, p. 500–501. See also Fatica, Serena – Panzica, Roberto (2021), Green bonds as a tool against climate change? in *Business strategy and the environment* Vol. 30 (5) 2021, p. 2688-2701, who found a bigger decrease in emissions when green bonds used for refinancing purposes were excluded. When green bonds are issued for new green investments, emissions reductions are bigger as there are more environmental-friendly projects. This implies that green bonds act as a credible sign of firms' environmental engagement. Nonetheless, if green bonds have not been subject to external review, they have not been found to improve firms' environmental performance.

⁷³ Flammer 2021, p. 500.

⁷⁴ Freeburn – Ramsay 2020, p. 426–427.

thus, relates to the cost of capital argument) has been subject to much research. The green bond premium or so-called ‘greenium’ refers to the yield differential between a green bond and an identical vanilla bond. Basically, the greenium is the difference that bond investors are willing to pay more for investing in green bonds instead of conventional ones.⁷⁵ However, the literature on the greenium is mixed, although most studies have found a small negative premium⁷⁶. It has been suggested that the negative premium, which leads to a lower cost of capital, is based on better risk management and intangible asset creation as companies that issue green bonds pay more attention to environmental issues and risks.⁷⁷ Nonetheless, issuing green bonds is often run by business-case incentives, such as signalling sustainability commitments, rather than by financial incentives.⁷⁸ Green bonds’ additional costs, such as costs relating to the alignment to the standard criteria, reporting, and external certification, must be also taken into account.⁷⁹ These costs might trump the financial benefits so that the situation between vanilla bonds and green bonds is largely the same.

It seems that if the company’s core business operations benefit directly from the adoption of the green project, the greenium is larger.⁸⁰ This would implicate that the greenium varies between different sectors and that the wind energy industry could potentially have a larger greenium and thus, lower financing costs by issuing green bonds⁸¹. It has been found that green energy companies’ bonds have had significant sustainability premiums compared to

⁷⁵ Zerbib 2019, p. 40; Agliardi – Agliardi 2021, p. 257.

⁷⁶ For instance, See Hachenberg, Britta – Schiereck, Dirk, Are green bonds priced differently from conventional bonds? *Journal of Asset Management* Vol. 19 (8) 2018, p. 371-383, who found that green bonds on average trade 1.18 basis points tighter than comparable conventional bonds. Similarly, Zerbib (2019) has found a negative premium which was on average -2 basis points and increased along with the rating class. However, for example, Flammer (2021) finds no statistically significant pricing differential between corporate green bonds and matching vanilla bonds which would render the cost of capital argument empty. On this note, see also Larcker, David – Watts, Edward, Where’s the greenium? in *Journal of Accounting and Economics* Vol. 69 (2-3) 2020. They conclude that methodological design misspecifications have caused the miscellaneous results about the greenium. According to Larcker and Watts, the green bond premium is basically zero as sustainable projects are able to produce competitive profits.

⁷⁷ Zerbib 2019, p. 40.

⁷⁸ Maltais – Nykvist 2021, p. 246.

⁷⁹ Tuhkanen – Vulturius 2020, p. 4–5.

⁸⁰ Agliardi – Agliardi 2021, p. 275.

⁸¹ See, e.g., Gianfrate, Gianfranco – Peri, Mattia, Green advantage: Exploring the convenience of issuing green bonds in *Journal of Cleaner Production* Vol. 219 2019 who have found that the greenium was more pronounced for corporate issuers in the utility and power sector.

non-green energy companies. The sustainability premium was about 23 basis points for investment-grade bonds and about 261 basis points for speculative-grade points⁸². This implies that young green energy companies which are perceived as risky should issue junk bonds to obtain financing at a remarkably lower cost.⁸³ On the whole, it seems that the pricing differentials between green bonds and conventional bonds are larger in the energy sector than in other sectors and that green energy companies, such as wind energy companies, might benefit financially from issuing green bonds more than other companies. Next, the recent developments in international and EU climate policy will be examined as they are central to the development of sustainable finance.

2.2 International climate policy

The United Nations Framework Convention on Climate Change (UNFCCC) is the building block of current international climate policy, establishing a specific international legal regime to reduce GHG emissions. It was created at the Earth Summit in Rio de Janeiro in 1992 and became effective in 1994. In 1997, the first treaty under the UNFCCC, the Kyoto Protocol, was adopted. It set out obligations for reducing GHG emissions compared to pre-industrial levels for the period between 2008 and 2012. The current treaty in force is the Paris Agreement. It was adopted in 2015 after years of political disagreement. The collective objective of the Paris Agreement is to limit global warming preferably to 1.5 °C, and well below 2 °C.⁸⁴ The approach of the Paris Agreement differs remarkably from the Kyoto Protocol as it has no burden-sharing of the collective objective.⁸⁵

The Paris Agreement emphasised the importance of sustainable finance in achieving its collective objective⁸⁶, particularly Article 2.1 (c) shows this intention:

⁸² Bonds may be categorized based on their creditworthiness which is indicated by the rating class; investment-grade bonds have a low credit risk and junk bonds or high-yield bonds have a high credit risk. Credit risk of the bond refers to the risk that the issuer may default and consequently, the initial investment is not returned to the investor. See Berk – DeMarzo 2017, p. 220–221.

⁸³ Díaz – Escribano 2021, p. 11-12. However, it must be noted that Díaz' and Escribano's study did not compare green bonds to vanilla bonds, although the bonds that the green energy companies had issued were more likely green bonds than non-green energy companies' bonds.

⁸⁴ Brosset – Maljean-Dubois 2020, p. 413.

⁸⁵ *Ibid*, p. 413–414.

⁸⁶ *Ibid*, p. 413.

This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by: [...]

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

In December 2015, a group of institutional investors managing a total of assets over USD 11.2 trillion approved the Paris Green Bond Statement.⁸⁷ It endorses green bonds as a suitable mechanism to finance climate solutions and demands clear, independent, and transparent industry standards which benefit bond-financed projects and clarify some ambiguous questions regarding the use of proceeds and their impact.⁸⁸ The Paris Green Bond Statement aims to facilitate the utilisation of green bonds in climate change mitigation.⁸⁹ Besides the Paris Green Bond Statement, there is a host of initiatives in the area of international sustainable finance, such as the United Nations' Principles for Responsible Investment (UNPRI). UNPRI is a set of investment principles that ensure sustainable development and environmental protection.⁹⁰ If a company signs them, they commit to applying the ESG principles in their investment practice.⁹¹

Sustainable development is another key focus of international climate policy. In the Earth Summit in 1992, the international community established, in addition to the UNFCCC, the Agenda 21 which seeks to prioritise sustainable development.⁹² In September 2015, UN General Assembly adopted another policy framework focused on sustainable development, the 2030 Agenda with its 17 sustainable development goals (SDGs). SDGs reflect the greatest

⁸⁷ Rose 2018, 62.

⁸⁸ Breen – Campbell 2017, p. 18.

⁸⁹ Brosset – Maljean-Dubois 2020, p. 413.

⁹⁰ Bhattacharyya 2021, p. 6.

⁹¹ Deschryver – de Mariz 2020, p. 19–20.

⁹² Bhattacharyya 2021, p. 6-8.

challenges that face societies, environments, and economies currently globally.⁹³ SDGs include, for example, sustainable finance (SDG15) and next-generation energy (SDG7).⁹⁴

2.3 EU climate policy and sustainable finance

The international treaty regime is in the background of the EU climate policy. The Union is committed to many international treaties and initiatives, for example, the Paris Agreement⁹⁵ and the 2030 Agenda's SDGs⁹⁶. Many of the EU's climate policies are in line with the objectives and terms used in the international climate treaties.

Sustainable development and environmental protection are core values and goals for the EU, and they are also mentioned in the EU's primary law.⁹⁷ For example, by Lisbon Treaty, it was added to Article 191(1) of The Treaty on Functioning of the European Union (TFEU) that the EU intends to promote international cooperation measures to handle regional or worldwide environmental problems, especially when it comes to climate change. In addition to international cooperation, the EU also has its own internal environmental objectives which include preserving, protecting, and improving the quality of the environment and prudent and rational utilisation of natural resources. Lisbon Treaty added also new objectives for the shared competence in the energy sector that seek to promote energy efficiency and saving, as well as the development of new and renewable energy forms (Article 194(1) TFEU). The Directive (EU) 2018/2001 on the Promotion of the Use of Energy from Renewable Sources (2018/2001; RED II)⁹⁸, sets out to achieve the objectives mentioned in Article 194(1) TFEU.⁹⁹

In December 2019, the EU turned a new page on its climate policy as the Commission introduced the European Green Deal (EGD). The EGD seeks to align the EU climate policy

⁹³ Drastichová 2020, p. 100.

⁹⁴ United Nations. The 17 Goals (Accessed on 7 April 2022).

⁹⁵ Brosset – Maljean-Dubois 2020, p. 413.

⁹⁶ Drastichová 2020, p. 99–100.

⁹⁷ Taxonomy Technical Report, p. 11.

⁹⁸ Directive (EU) 2018/2001 of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Sources (*OJEU L 328/82, 21.12.2018*).

⁹⁹ Brosset – Maljean-Dubois 2020, p. 413.

with the goals of the Paris Agreement. It also states the EU's current climate targets: to be climate neutral by 2050 and reduce GHG emissions to at least 50 % (preferably to 55 %) compared to 1990 levels by 2030. The target of climate neutrality by 2050 will be implemented into the EU legislation through the new European Climate Law (2021/1119)¹⁰⁰.

¹⁰¹ Other policy initiatives that have been given under the EGD include, for example, the EU offshore wind strategy¹⁰².

The EGD is based on previous climate policies, but it is much more far-reaching. The EGD holds that the climate neutrality objective is at the centre of EU policies, as “all EU actions and policies will have to contribute to the European Green Deal objectives”¹⁰³. Above all, the EGD is a growth strategy that emphasises the transition into a sustainable economy in which economic growth and resource use are separate concepts.¹⁰⁴ It emphasises the private sector's key role in financing the sustainability transition and introduces the EU taxonomy and the EU Green Bond Standard as potential instruments.¹⁰⁵ The EGD also calls for a just and inclusive sustainability transition which leaves no one behind.¹⁰⁶

As evident from the discussion above, sustainable finance links naturally to EU climate policy and is an important part of reaching the Union's climate targets. In December 2016, the High-Level Expert Group (HLEG) on Sustainable Finance was established by the Commission. HLEG's task was to develop an overarching and comprehensive EU roadmap on sustainable finance. HLEG's final report from January 2018 recommended, among other, setting up a

¹⁰⁰ Regulation (EU) of the European Parliament and of the Council of 30 June 2021 establishing a framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 (*OJEU L 243/1, 9.7.2021*).

¹⁰¹ COM(2019) 640 final, p. 4.

¹⁰² COM(2020) 741 final. Communication from the Commission to the European Parliament, the Council, The European Economic and Social Committee and the Committee of the Regions: An EU strategy to harness the potential of offshore renewable energy for a climate neutral future, on 19 November 2020.

¹⁰³ COM(2019) 640 final, p. 3.

¹⁰⁴ COM(2019) 640 final, p. 2.

¹⁰⁵ Usability Guide: EU Green Bond Standard, p. 3.

¹⁰⁶ COM(2019) 640 final, p. 16.

common sustainability taxonomy and a sustainability finance standard for green bonds at the EU level.¹⁰⁷

Consequently, the EU Action Plan on Financing Sustainable Growth was introduced in March 2018 by the European Commission.¹⁰⁸ It intended to create a plan for financing the EGD and strengthen sustainable finance's role. It had three purposes: 1) reorienting capital flows towards sustainable investments, 2) managing financial risks caused by environmental and social issues, and 3) fostering transparency and long-termism in finance and business worlds.¹⁰⁹ The Action Plan held ten different actions which would form the EU's strategy for sustainable finance. These actions included, for example, setting up a classification system for sustainable activities, as well as standards and labels for green financial products.¹¹⁰

In July 2018, the Commission established the Technical Expert Group on Sustainable Finance (TEG). It consisted of 35 members who represented the third sector, as well as academic, business and finance worlds, and operated via formal plenaries and subgroup meetings¹¹¹. TEG's mission was to assist the Commission in the implementation of the Action Plan by developing the plan's legislative proposals and measures.¹¹² TEG began its work in July 2018 and has since published many reports on the proposed legislative measures.¹¹³ The successor of the TEG's work is Platform on Sustainable Finance, a permanent advisory body which began operating in October 2020^{114, 115}.

¹⁰⁷ Final Report 2018: Financing a Sustainable European Economy, p. 5-6.

¹⁰⁸ Taxonomy Technical Report, p. 13.

¹⁰⁹ COM(2018) 97 final, p. 2.

¹¹⁰ *Ibid*, p. 4-5.

¹¹¹ SWD(2021) 152 final, p. 61.

¹¹² Report on EU Green Bond Standard, p. 8.

¹¹³ European Commission 2020 (Accessed on 22 March 2022).

¹¹⁴ SWD(2021) 152 final, p. 4.

¹¹⁵ European Commission. Platform on Sustainable Finance (Accessed on 3 April 2022). The Platform will advise the Commission on sustainable finance policy; for example, in reviewing the Taxonomy Regulation, in monitoring and reporting on the development of sustainable finance and in completing the remaining technical screening criteria for the rest of the environmental objectives. The Platform will also review the technical screening criteria in the future and advise the Commission on possible measures to improve them.

The Union's measures to promote sustainable finance began to show concrete results in 2019-2021. In November 2019, two legislative measures, the Sustainable Finance Disclosure Regulation (2019/2088; 'SFRD')¹¹⁶ and the Benchmarks Regulation (2019/2089)¹¹⁷, were published. In June 2020, the Taxonomy Regulation was published. Together, these regulations create the main legislative framework for sustainable finance in the EU. In July 2021, a Strategy for Financing the Transition to a Sustainable Economy, which updated the Action Plan of 2018, was given.¹¹⁸ At the same time, the Commission also gave the Proposal on the EU Green Bond Standard. The Taxonomy Regulation and the Proposal for the European Green Bond Standard, as other securities market laws, have been proposed in the Lamfalussy II process¹¹⁹.

Before diving into the Taxonomy Regulation and the Proposal on the EU Green Bond Standard, a brief look is taken at the future developments of sustainable finance in the EU. So far, the EU's uptake on sustainable finance has focused on environmental factors.¹²⁰ Other ESG factors have not received adequate attention, even though this was originally the

¹¹⁶ Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (*OJEU L 317/1, 9.12.2019*). Pursuant to the SFRD, financial market participants must publish sustainability-related information to the investors. It introduces additional disclosure requirements in addition to previous requirements in, e.g., MiFID II. It applies currently only to large companies.

¹¹⁷ Regulation (EU) 2019/2089 of the European Parliament and of the Council of 27 November 2019 amending Regulation (EU) 2016/1011 as regards EU Climate Transition Benchmarks, EU Paris-aligned Benchmarks and sustainability-related disclosures for benchmarks (*OJEU L 317/1, 9.12.2019*).

¹¹⁸ COM(2021) 390 final. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Strategy for Financing the Transition to a Sustainable Economy, on 6 July 2021.

¹¹⁹ The Lamfalussy II process consists of four levels. Firstly, the Commission or Council gives a framework directive or regulation which defines the basic principles and regulatory solutions for the legislative measure in question. It often also includes delegations of legislative power to the Commission. Secondly, the Commission gives delegated or implementing acts that specify the framework legislation on the first level. Delegated acts are based on Article 290 TFEU, and they are often very technical. European Securities and Markets Authority (ESMA) may draft these also, after which the Commission shall adopt them. The Commission should no longer amend the technical standards developed by ESMA. Thirdly, ESMA or national authorities may issue recommendations, guidelines, and other non-binding measures to financial market participants. They must comply with the recommendations, or otherwise, they must explain reasons for deviating from them ('comply-or-explain principle'). This level also includes cooperation between supervisors. Fourthly, the Commission and ESMA are involved in the enhanced implementation which includes, e.g., control and sanction measures. For more information, see Häyrynen – Kajala 2013, p. 24-26 or Kalss, Susanne, European Capital Market Law in Riesenhuber, Karl, European Legal Methodology (2017).

¹²⁰ Ahlström – Monciardini 2021, p. 204.

purpose.¹²¹ This is about to change as the EU will release a draft social taxonomy later in 2022. It will be structured similarly to the current EU Taxonomy and thus, it will provide standards as to what is socially sustainable.¹²² There have also been discussions about ‘brown’ criteria which define economic activities that are significantly harmful to environmental objectives. They would be incorporated into the current EU Taxonomy to effectively distinguish between companies’ environmental performance levels.¹²³ Next, the backgrounds of the Taxonomy Regulation and the Proposal on the EU Green Bond Standard are assessed more elaborately.

2.3.1 The Taxonomy Regulation

The Taxonomy Regulation’s purpose is to give uniform requirements which define when an economic activity is environmentally sustainable and thus, consistent with the low-carbon transition. The EU taxonomy acts as a common language for investors, issuers, policymakers, and regulators, translates the Paris Agreement and SDGs for use by capital markets, puts environmental data in the economic context, saves time and money for investors and issuers, helps to avoid companies’ reputational risks, and facilitates environmental-friendly companies’ rewarding.¹²⁴ The Taxonomy Regulation is recognized as the most important action on sustainable finance in the EU.¹²⁵ As the Taxonomy Regulation aims to facilitate cross-border green investments and protect consumers from greenwashing by harmonising the definition of environmentally sustainable investment, it is legally based on Article 114 TFEU.¹²⁶

¹²¹ Finanssiala 2022 (Accessed on 3 April 2022).

¹²² Bradford 2022, p. 3.

¹²³ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 51. Thus, three categories of environmental performance would exist: 1) substantial contribution to an environmental objective (‘green activity’), 2) significant harm to an environmental objective (‘brown activity’), and 3) a category that neither substantially contributes nor significantly harms.

¹²⁴ Presentation on EU Taxonomy, slide 5/24.

¹²⁵ Usability Guide: EU Green Bond Standard, p. 13.

¹²⁶ Trippel 2020, p. 163.

In May 2018, the Commission tabled the proposal for the Taxonomy Regulation.¹²⁷ The regulation's final wording was agreed in December 2019 and the TEG's final report on the Taxonomy was released in March 2020. The Taxonomy Regulation was accepted in June 2020 and its entry into force was in July 2020. The Taxonomy is scheduled to enter into force in stages. With regard to the first and second environmental objectives, the Taxonomy Regulation applies as of January 2022. As a regulation, it is directly applicable in the Member States (Article 288 TFEU).

The Taxonomy Regulation is supplemented by delegated acts that set out the technical screening criteria for different economic activities. The Taxonomy Regulation delegates power to delegated acts concerning all environmental objectives, for example, in Article 10(3) with respect to climate change mitigation and in Article 11(3) with respect to climate change adaptation. The Commission may adopt the delegated acts as stipulated in Article 23 of the Taxonomy Regulation.¹²⁸

TEG, established in 2018 by the Commission, was in charge of developing the technical screening criteria that act as performance thresholds for economic activities.¹²⁹ It published the final report on the technical screening criteria in March 2020. A draft delegated act, containing technical screening criteria for assessing the environmental objectives of climate change mitigation and adaptation and, at the same time, avoiding significant harm to the rest of the environmental objectives, was published in November 2020 for stakeholder feedback¹³⁰. On the basis of the final report and stakeholder feedback, the Commission published the Delegated Act¹³¹ on the technical screening criteria in June 2021. There are still four more environmental objectives for which technical screening criteria have not yet been

¹²⁷ Taxonomy Technical Report, p. 15.

¹²⁸ SWD(2021) 152 final, p. 11.

¹²⁹ Taxonomy Technical Report, p. 16.

¹³⁰ SWD(2021) 152 final, p. 8.

¹³¹ Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives (*OJEU L 442/1, 9.12.2021*).

published. They are expected to be released in the summer of 2022.¹³² They were originally supposed to be adopted by the end of 2021 and applied from January 2023 onwards, but this schedule has been stretched.

2.3.2 The Proposal on the EU Green Bond Standard

Before the Proposal on the EU Green Bond Standard is examined, few notes are presented on how green bonds are regulated. There is no specific hard legislation pertaining to the green bonds at the moment. For example, no legal definition of a green bond exists¹³³. Thus, green bonds are treated as regular bonds from a legal perspective. Bonds are subject to complex, multilevel, and overlapping financial market and securities regulation. In Europe, national securities regulation is mostly based on underlying European legislation¹³⁴. Relevant regulations include, inter alia, Markets in Financial Instrument Directives (MiFID I and II), the Regulation on Markets in Financial Instruments (MIFIR), Prospectus Directive, and Market Abuse Directive. For example, The MiFID II Directive includes obligations to provide information and prepare a prospectus.¹³⁵ Currently, there are no legal requirements on green bond issuers to publish information about the bond's greenness in the prospectus.¹³⁶

In addition to hard law, green bonds are subject to extensive self-regulation. As previously mentioned, one big barrier in the green bond market development is the unclear definition of a

¹³² Finnish Parliament 2022 (Accessed on 25 March 2022).

¹³³ Forsbacka – Vulturius 2019, p. 409.

¹³⁴ Parkkonen – Knuts 2014, p. 74. For example, the MiFID II Directive has been implemented to the Finnish legislation through the Securities Market Act (746/2012) which is the most relevant act pertaining to green bonds. The Securities Market Act entails many disclosure requirements and other provisions that are extremely important in bond issuances. The issuers must not, e.g., act contrary good practice in the securities market or give misleading information about securities. In addition, they have the obligation to publish a prospectus. The prospectus must be published every time a security, such as a bond, is offered to the public or listed on a regulated market for trading. The prospectus must contain information relevant to the issuer and the security in question in order to enable a reasoned investment decision to be made. There are few exemptions from the obligation to publish a prospectus that the bond issuer should be aware of.

¹³⁵ Parkkonen – Knuts 2014, p. 10–11.

¹³⁶ Forsbacka – Vulturius 2019, p. 401. However, information about the green bond is typically included in the provision that handles the use of proceeds in the prospectus and/or in the final terms. The prospectus usually also includes information about the risks of green bonds. A green bond framework is a separate document and will be discussed later. It is a part of the green bond contract documentation which is prepared at the issuance along with the prospectus and the final terms.

green project¹³⁷, which causes issuers to fear reputational risks in case the project is not deemed green enough¹³⁸. In response to this problem, market-based voluntary guidelines have set standards for projects, such as Green Bond Principles (GBPs; developed by ICMA) and Climate Bond Initiative (CBI). If issuers' projects align sufficiently with the guidelines, the private institutions will grant the issuers a green label¹³⁹. GBPs consist of four elements which can also be found in the guidelines of CBI: 1) the use of proceeds, 2) the process of assessing and choosing eligible projects, 3) the management of proceeds, and 4) the reporting practices. The EU Green Bond Standard is also designed according to these four elements.¹⁴⁰

The EU Green Bond Standard aims to facilitate the issuance of green bonds by creating a uniform standard of green bonds and by clarifying how economic activities can be combined with positive environmental impacts. EU's long-term competitiveness is strengthened in the process along with its economic and environmental resilience.¹⁴¹ According to the TEG, EU green bonds address the two main concerns in the green bond market, namely the definition of what is green, and the various practices related to external reviews.¹⁴² Ultimately, the EU Green Bond Standard strives to direct more capital to green and sustainable projects.¹⁴³

HLEG recommended the Commission to establish a uniform green bond standard in the Union in its final report from 2018 and this goal was included also in the Action Plan.¹⁴⁴ TEG

¹³⁷ Green bond markets are also challenged by the lack of sustainable projects, complexity and potential costs of external reviews, burdensome reporting, and uncertainty about the issuers' financial benefits and the assets and expenditures which may be financed. See Report on EU Green Bond Standard, p. 21-23.

¹³⁸ Report on EU Green Bond Standard, p. 21. Reputational risks are especially relevant for green bond issuers that operate in key sectors for the transition to a sustainable economy, but where it is tricky to identify green projects.

¹³⁹ Ehlers – Mojon et al. 2020, p. 31.

¹⁴⁰ Tuhkanen – Vulturius 2020, p. 4. Market-based guidelines emphasise the process of how green bonds are issued and managed. They provide examples and simplifications of the kind of projects which could be financed and as there are no specific requirements to be fulfilled, issuers have a considerable amount of discretion when it comes to aligning their projects according to the guidelines. Because of this, and also because the definition of a green project might be different, e.g., based on the geographical location of the project, it can be claimed that market-based guidelines do not provide clear answers to what is deemed as green. On this note, see Hoven, Sophie, *It's Not That Easy Bein' Green: The New EU Green Bond Standard and Its Implications for the European Green Bond Market* (2021), p. 36.

¹⁴¹ Report on EU Green Bond Standard, p. 23.

¹⁴² *Ibid*, p. 53.

¹⁴³ *Ibid*, p. 26.

¹⁴⁴ European green bonds: A standard for Europe, open to the world, p. 1.

published an interim report on the EU Green Bond Standard in March 2019 and a final report in June 2019. In March 2020, TEG published a usability guide for the EU Green Bond Standard. In July 2021, the proposal for a regulation was presented by the Commission.¹⁴⁵ The proposal currently awaits comments and ratification from the Parliament and the Council.¹⁴⁶ Once the standard is adopted, it is predicted to grow into a *de facto* requirement in the green bond market in Europe.¹⁴⁷

The EU Green Bond Standard is envisioned to be open to all issuers, in Europe or elsewhere, including corporations, sovereigns, and financial institutions.¹⁴⁸ The standard could be applied to all sorts of bonds, also to covered bonds, asset-backed securities, and project bonds provided that they fulfil the requirements of the regulation.¹⁴⁹ Green bonds that have already been issued could also opt to align their bonds with the upcoming EU standard.¹⁵⁰

The proposal has broad support, but it has faced also criticism, especially concerning the standard's voluntariness, 100% taxonomy alignment, and partial grandfathering.¹⁵¹ The EU Green Bond Standard would be voluntary in its nature and applied only if the issuer has chosen the EU Green Bond Standard as the green bond's framework.¹⁵² The voluntariness of the standard has been seen as a problem as there would be no legal consequences in a case of non-compliance, but it is widely believed that the young green bond market is not equipped to product standardisation.¹⁵³

The proposal on the EU Green Bond Standard is built on existing market principles, especially on the ICMA's GBPs. Taken into account that the proposal is also voluntary, it

¹⁴⁵ *Ibid.*, p. 4-5.

¹⁴⁶ McKenzie 2021.

¹⁴⁷ Ehlers – Mojon et al. 2021, p. 33.

¹⁴⁸ European green bonds: A standard for Europe, open to the world, p. 5.

¹⁴⁹ European Commission 2021 (Accessed on 30 March 2022).

¹⁵⁰ Report on EU Green Bond Standard, p. 23-24.

¹⁵¹ European green bonds: A standard for Europe, open to the world, p. 7.

¹⁵² Report on EU Green Bond Standard, p. 23-24.

¹⁵³ Talbot 2017, p. 144.

does not signify remarkable changes to the market-based regulation of green bonds. However, if the issuer decides to follow the EU Green Bond Standard, the requirements of the regulation become obligatory, which differs from the GBPs as they provide merely recommendations. The EU Green Bond Standard's requirements for issuers are also more demanding, and they include, for instance, mandatory external verification and allocation and impact reporting which are not required in the GBPs.¹⁵⁴ With its harsher reporting and verification requirements, the EU Green Bond Standard improves information availability and transparency while reducing the risk of information asymmetry and greenwashing.¹⁵⁵

The EU Green Bond Standard links the Taxonomy Regulation to the green bond issuance and in this way, aims to overcome the concerns relating to greenwashing and reputational risks. The definition of a green asset or project would come from the EU taxonomy.¹⁵⁶ However, possible holes in the current environmental knowledge and political compromises could undermine the credibility of the taxonomy.¹⁵⁷ Although the taxonomy strives to create scientifically proven criteria for sustainable investments, it has also taken into account many political considerations concerning, for example, transitional activities which scientifically could not be considered sustainable and may even have negative impacts on the environment.

The 100% taxonomy alignment has also been criticised, most notably by ICMA, because it does not allow any flexibility for the issuer in case the green project is particularly innovative, complex, or situated outside Europe or if there are not yet technical screening criteria set for the economic activity. TEG originally recommended these flexibilities to be added to the EU taxonomy¹⁵⁸, and they could have encouraged technological innovations and allowed regional

¹⁵⁴ Report on EU Green Bond Standard, p. 13.

¹⁵⁵ Rose 2018, p. 70.

¹⁵⁶ Report on EU Green Bond Standard, p. 25.

¹⁵⁷ Paccess 2021, p. 11. The credibility of the EU taxonomy was greatly reduced in many peoples' eyes when the Commission decided to include natural gas and nuclear power in it. They have been labelled as transitional activities and, although they must fulfil additional specific requirements, this raised accusations of greenwashing. For more information, see Naschert, Camilla, *'Imperfect solution': EU seals green label for nuclear, gas despite pushback* in SNL Energy Power Daily (3 February 2022).

¹⁵⁸ Report on EU Green Bond Standard, p. 27–28.

differences to be noted. ICMA has argued that this decision will likely hinder the use of the EU Green Bond Standard, especially outside the Union¹⁵⁹.

One other criticised feature of the EU Green Bond Standard is partial grandfathering. It means that if there are any changes in the taxonomy criteria after the bond issuance, the bond issuer may use the previous criteria for another five years. After the five years have passed, the green bond must be aligned with the EU Taxonomy in force then.¹⁶⁰ Originally the TEG proposed that a full grandfathering approach would have been used instead of the partial grandfathering. For bond issuers, the partial grandfathering decision brings uncertainty and additional costs because, if the technical screening criteria is changed, issuers have to reallocate proceeds or adapt assets or projects that have already been funded according to the new technical screening criteria.¹⁶¹ According to ICMA, partial grandfathering is a real problem which may impede the success of the EU Green Bond Standard and cause various severe problems, such as unpredictability concerning the label designation, sudden devaluations, general mistrust and even reluctance to invest in transitioning activities.¹⁶²

2.4 Requirements of EU Green Bonds

After examining the legislative processes and purposes of the Taxonomy Regulation and Proposal on the EU Green Bond Standard, the requirements of these legislative measures for EU green bonds are presented. The examination of the EU green bond requirements is divided into two parts: firstly, the requirements in the EU Green Bond Standard, and secondly, the requirements in the Taxonomy Regulation are presented.

2.4.1 Requirements under the EU Green Bond Standard

The EU green bond label is reserved only for those bonds that comply with conditions of the upcoming EU Green Bond Standard. Title I of the Proposal on the EU Green Bond Standard includes subject matter and definitions. The EU green bond requirements are divided into two groups in the Proposal's Title II: bond-related requirements in Chapter I and transparency and

¹⁵⁹ Analysis of the Draft EuGB Regulation, p. 2.

¹⁶⁰ Report on EU Green Bond Standard, p. 59.

¹⁶¹ Maragopoulos 2021, p. 17.

¹⁶² Analysis of the Draft EuGB Regulation, p. 2–4.

external review requirements in Chapter II. These chapters form the main interest of the thesis. A large part of the proposal concerns external reviewers (Title III)¹⁶³, which underlines their importance for green bonds. Title IV deals with how external reviewers are supervised. For the purpose of the thesis, it is not relevant to assess external reviewers or their supervision.

The EU Green Bond Standard introduces uniform criteria for bond issuers that aim to label their bonds as EU green bonds. Article 3 of the Proposal stipulates that the EU green bond label shall be reserved only for bonds that fulfil the requirements in Title II until their maturity. These requirements concern: 1) taxonomy-alignment (Articles 6-7), 2) use of the proceeds (Articles 4-5), 3) green bond framework (or ‘factsheet’ as the Proposal calls it, Article 8), 4) external review (Article 8-9), and 5) allocation and impact reporting (Articles 9-10). First, a look is taken at the bond-related requirements in Chapter I which include taxonomy alignment and the use of proceeds.

The main requirement is that the proceeds of the bond must be allocated 100 % to taxonomy-aligned economic activities as defined in Articles 6 and 7. Taxonomy alignment should be achieved within five years from the bond’s issuance or, at maximum, within ten years if the specific features of the activity so require and the issuer can show this. If the taxonomy alignment cannot be achieved instantly, the necessary actions and costs for the activity to align with the taxonomy must be described in a taxonomy-alignment plan within the defined time period. Article 7 elaborates how on the application of the taxonomy requirements. The bond issuer must refer to the delegated acts that are in force when the bond is issued, and if they change subsequently, it is possible to apply the previous delegated acts still for five years under the partial grandfathering rule.

According to the TEG, the green bond market has suffered from uncertainty as to what assets and expenses it is possible to finance with green bonds. Thus, the green bond market could benefit from a more precise definition of eligible finances, and also, by expanding the range

¹⁶³ A registration system for external reviewers would be established under the proposal and this system would be supervised by ESMA. The task of registered external reviewers is to ensure that green bonds comply with the EU Green Bond Standard’s requirements and that the projects align with the EU taxonomy. Only external reviewers that have been formally accredited could provide verification services. See European green bonds: A standard for Europe, open to the world, p. 5.

of eligible finances, the green bond market could grow.¹⁶⁴ Following this rationale, the EU Green Bond Standard has announced that it wishes to expand the range of eligible finances.¹⁶⁵

Articles 4-5 of the Proposal define to which sorts of assets and expenses EU green bonds may be allocated to. The allocation must be entirely allocated to the defined assets and expenses or a combination thereof and be completed before the maturity of the bond. EU green bonds may be allocated to green assets and expenses contributing to the green assets' value improvement and/or maintenance. Green assets include both physical (Article 4(a)) and financial assets (Article 4(d), Article 5), such as loans. Tangible and intangible green assets, as well as working capital that can be sufficiently considered to be related to the green assets' operation, are accepted as eligible assets. For green assets, there are no timelines as to what assets qualify.¹⁶⁶ Green expenses may include capital expenses (Article 4(b)) and selected operating expenses (Article 4(c)). The lifetime or the value of the green assets should be increased by operating expenses, and this allows, for example, accepting maintenance costs, and relevant research and development costs. Purchasing or leasing costs may be eligible only in certain exceptional cases that will be specified later.¹⁶⁷

Wind farms are physical green assets that can be financed under the EU Green Bond Standard. It is also possible to finance, for example, grid connection costs.¹⁶⁸ In the past, renewable energy producers have issued green bonds as 'pure play' to finance general corporate expenses.¹⁶⁹ This would not be allowed under the EU Green Bond Standard save for specific cases. The EU Green Bond Standard does not differentiate between financing or refinancing¹⁷⁰, and thus refinancing, which is common in renewable energy projects, seems possible. For refinancing purposes, green operating expenses shall have been incurred at maximum three years before the bond issuance ('look-back period').¹⁷¹ Because the EU Green

¹⁶⁴ Report on EU Green Bond Standard, p. 23.

¹⁶⁵ *Ibid*, p. 26.

¹⁶⁶ *Ibid*, p. 28.

¹⁶⁷ *Ibid*, p. 26, 28.

¹⁶⁸ Usability Guide: EU Green Bond Standard, p. 15.

¹⁶⁹ Maltais – Nykvist 2021, p. 247.

¹⁷⁰ Report on EU Green Bond Standard, p. 29.

¹⁷¹ *Ibid*, p. 28.

Bond Standard is based on a bond-by-bond approach¹⁷², financing a portfolio of wind farms by EU green bond might be challenging.

Chapter II of the Title II of the Proposal relates to the green bond framework, external review, and allocation and impact reporting requirements. The EU Green Bond Standard intends to formalise the role of the green bond framework that the Proposal calls a European green bond factsheet (Article 8). Companies usually develop a green bond framework that provides information about the eligibility criteria, project selection process, and the use of proceeds before issuing a green bond¹⁷³. Although developing a green bond framework for informing investors and other market participants is common, there are currently no unified practices. The EU Green Bond Standard aims to settle this issue, as it provides clear instructions on what the green bond framework should include. In the green bond framework, the issuer's strategy and motive for the green bond's issuance, the bond's environmental objectives, alignment with the EU taxonomy and technical screening criteria, description of the projects, utilisation and management of the proceeds, approaches to determine the project's environmental impact, as well as the reporting practices, should be elaborated on.¹⁷⁴ Further, according to Article 12, if a prospectus must be published according to the Prospectus Regulation, it should be transparently stated in the prospectus that the green bond is issued according to the Regulation on the EU Green Bond Standard and the prospectus should also have all the information that has been states in the green bond's factsheet.

External review is also mandatory under the EU Green Bond Standard. The standard requires that 1) at initial verification, the alignment of the projects and the green bond framework and 2) post-issuance, the full allocation of the proceeds are reviewed so that they comply with the requirements, notably with the taxonomy alignment. Hence, two external reviews must take place and they must focus on specific elements of the standard.¹⁷⁵ Verification of the impact reports is not mandatory.¹⁷⁶

¹⁷² Takahuhta 2021, p. 45.

¹⁷³ Maltais – Nykvist 2021, p. 233; Tuhkanen – Vulturius 2020, p. 4.

¹⁷⁴ Report on EU Green Bond Standard, p. 28-29.

¹⁷⁵ Usability Guide: EU Green Bond Standard, p. 28.

¹⁷⁶ *Ibid*, p. 31.

In the initial verification, the green bond framework's alignment with the standard is reviewed. The green bond framework must be externally verified and published at the latest when the bond is issued. The second mandatory external review concerns the final allocation report. After all proceeds of the bond have been allocated to green projects, the allocation of proceeds must be verified so that it conforms to the requirements of the standard. The verification report must be ideally made public simultaneously with the final allocation report's publication, however, no later than one year after this. If there are several bonds issued under the same green bond framework, the verification of the green bond framework can be done for all of them at once. When the proceeds are entirely allocated at the issuance, the initial verification and final allocation report can be combined into one document (e.g. in refinancing).¹⁷⁷ The bond issuer must publish external verification reports on their internet site.¹⁷⁸ If there are any material changes, the previous external reviews must be replaced with up-to-date reviews.¹⁷⁹ Mandatory external reviews have been found important tools to reduce greenwashing and information asymmetries as they ensure that the proceeds of the bond are allocated to green projects¹⁸⁰, and thus, the external review requirements seem well-founded.

Another mandatory requirement under the EU Green Bond Standard is allocation and impact reporting. Allocation reporting must cover alignment with the EU standard, sector-level or closer breakdown of the green projects, as well as their geographical distribution preferably on a country-level. Impact reports shall describe the green projects, including their pursued environmental objectives, the share of financing, break down by the type of assets and/or expenses, and environmental impacts (ideally metrics) in accordance with the green bond framework. Further, if the issuer's green bond framework does not include information about how the environmental impact of the green projects is determined, this information should also be included in the impact report.

¹⁷⁷ *Ibid*, p. 61.

¹⁷⁸ *Ibid*, p. 31.

¹⁷⁹ *Ibid*, p. 30.

¹⁸⁰ However, external reviews may also be influenced. There might be conflicts of interest and the reviewer may give the client a more favorable rating to maintain the customer relationship. For example, in 2019, the four top bond reviewers gave only positive recommendations. See Freeburn – Ramsay 2020, p. 434-435.

The final allocation and impact reports shall be published at least once after all of the bond's proceeds have been allocated, and they shall be available until the bond's maturity.¹⁸¹ Before the full allocation, allocation reports must be published at least annually. If there are material changes, the reports must be revised and published again.¹⁸² The reports may cover several bonds if they have the same green bond framework, and allocation and impact reports may be combined into one report. It is also possible to publish impact reports for different project categories separately.¹⁸³ Similarly to the external review requirements, allocation and impact reporting requirements reduce information asymmetries and greenwashing. Investors, regulators, and other stakeholders may receive valuable information about the green projects to which proceeds have been allocated and can assess whether the projects produce positive effects on the environment.¹⁸⁴

In conclusion, the EU Green Bond Standard includes many requirements that the issuers must fulfil in order to label their bonds as EU green bonds. The standard is stricter than the market-based standards, as it requires that the green bonds must publish a green bond framework, as well as allocation and impacts reports. The compliance of the framework and reports must also be verified by external reviewers which are subject to an EU accreditation scheme. The role of external review is significant compared to the GBPs which only recommend it.¹⁸⁵ Allocation reporting, which is currently done by two-thirds of green bond issuers, is neither required in the GBPs. Furthermore, less than half of green bond issuers currently conduct impact reporting.¹⁸⁶ It is safe to say that the EU Green Bond Standard will be a forerunner in this regard. However, the strict requirements may also scare away some issuers because of the increased administrative burden and costs compared to other green bond standards. The European Parliament has also released its proposed amendments to the EU Green Bond Standard in December 2021, and the amendments would add remarkable new requirements to

¹⁸¹ Report on EU Green Bond Standard, p. 30.

¹⁸² Usability Guide: EU Green Bond Standard, p. 25.

¹⁸³ Report on EU Green Bond Standard, p. 60.

¹⁸⁴ Tuhkanen – Vulturius 2020, p. 5–6.

¹⁸⁵ Luís de Sousa – Moredo Santos 2022.

¹⁸⁶ Tuhkanen – Vulturius 2020, p. 6.

the issuers, such as making the standard mandatory for all European green bonds, thus greatly increasing the costs and liability of the issuers¹⁸⁷.

2.4.2 Requirements under the Taxonomy Regulation

The EU regime governing the definition of environmentally sustainable investment is based on a rather flexible and sophisticated approach.¹⁸⁸ For instance, there are no mechanistic lists of sustainable activities which could only qualify.¹⁸⁹ Instead, there are four criteria which all must be fulfilled so that investment could be considered as environmentally sustainable.

These ‘top-level criteria’ are specified in the delegated acts.

The criteria for environmentally sustainable economic activities have been stipulated in Article 3 of the Taxonomy Regulation. Firstly, the economic activity must contribute substantially to at least one environmental objective. The environmental objectives are set out in Article 9, and they are 1) climate change mitigation, 2) climate change adaptation, 3) the sustainable use and protection of water and marine resources, 4) the transition to a circular economy, 5) pollution prevention and control, and 6) protection and restoration of biodiversity and ecosystems. Articles 10-16 define substantial contribution to each environmental objective.

Secondly, the economic activity shall not significantly harm any of the environmental objectives (‘does not significantly harm’, so-called DNSH criteria) in accordance with Article 17. In practice, this means that if the economic activity contributes, say, to climate change mitigation, the DNSH criteria must be applied to the remaining five environmental objectives. The DNSH criteria are a sort of minimum requirements that ensure that the activity avoids significant harm to the environmental objectives that are relevant to it¹⁹⁰. This seeks to guarantee that the taxonomy does not include any activities that have the potential to undermine some of the environmental objectives. Progress to one environmental objective could not be made at the expense of others. Hence, the EU taxonomy recognises that

¹⁸⁷ Analysis of the Amendments to the EuGB Regulation Proposed by the Rapporteur of the EU Parliament, p. 1. Other proposed amendments include regulating all types of sustainable bonds, incorporating an extended green bond factsheet into prospectuses, and reviewing taxonomy alignment plans and impacts reports.

¹⁸⁸ Trippel 2020, p. 164.

¹⁸⁹ Dusik – Bond 2022, p. 92.

¹⁹⁰ Taxonomy Report: Technical Annex, p. 31.

activities' relationships between different environmental objectives must be taken into account.¹⁹¹

Thirdly, the economic activity shall be carried out in compliance with the minimum safeguards as stipulated in Article 18. The minimum safeguards include OECD Guidelines for Multinational Enterprises, UN Guiding Principles on Business and Human Rights, and the principles and rights set out in the eight fundamental conventions identified in the Declaration of the International Labour Organisation (ILO) on Fundamental Principles and Rights at Work and in the International Bill of Human Rights. By including the minimum safeguards, the EU taxonomy criteria are not limited just to environmental factors.

Fourthly, the economic activity must comply with the technical screening criteria specified in the delegated acts. The technical screening criteria govern in which situations economic activity: 1) contributes substantially to a certain environmental objective and 2) avoids significant harm to other environmental objectives.¹⁹² Therefore, it could be said that the fourth requirement is already embedded in the substantial contribution and DNSH criteria as the technical screening criteria in practice set the thresholds for them. Thus, if the activity meets the technical screening criteria, it also meets the substantial contribution and DNSH criteria. At the moment of writing, only the technical screening criteria concerning climate change mitigation and climate change adaptation have been released and the technical screening criteria for the other environmental objectives will be released later. As a consequence, the number of taxonomy-aligned economic activities will grow in the future as activities could contribute substantially, for example, to the transition to a circular economy.

Article 19(1) sets specific requirements for the technical screening criteria. These requirements reflect four main themes: 1) policy coherence across the EU, 2) environmental integrity, 3) level-playing field, and 4) usability. The technical screening criteria must be coherent with the existing EU legislation and based on scientific evidence, as well as reflect the environmental impact of the activity and also consider the activities' life cycle. In addition, the principle of technological neutrality and the economic activity's nature and scale must be taken into notice when considering the activity's potential market impact. Usability requirements state that the technical screening criteria should be easily applied and

¹⁹¹ Taxonomy Technical Report, p. 45.

¹⁹² Dusík – Bond 2022, p. 92.

provable.¹⁹³ For example, the technical screening criteria should ideally be quantitative and contain thresholds. If this is impossible, the technical screening criteria shall include qualitative criteria or specify which actions should be taken.¹⁹⁴ The technical screening criteria will be assessed regularly at the minimum every five years and, for transitional activities, at the minimum every three years by the Commission so that the criteria remain dynamic and respond to the latest science, technology, and market developments.¹⁹⁵ Because the technical screening criteria are updated regularly, the taxonomy users must always be aware of the recent changes so that their activities are still eligible.

When all the different taxonomy criteria are assessed, conclusions about environmental sustainability of a project can be made. The EU taxonomy seems to take on a holistic approach under which no trade-offs between environmental, social, and economic motives are made¹⁹⁶. For green bond issuers, the taxonomy alignment requires a three-step checking process: 1) identifying possibly eligible projects and use of proceeds, 2) verifying activity's alignment with the relevant technical screening criteria, and 4) verifying activity's alignment with the minimum safeguards. Green bond issuers are expected to conduct due diligence processes to ensure the activity's alignment with the taxonomy, especially in relation to the DNSH criteria and minimum safeguards. Due diligence should be risk-based and prioritised in accordance with the severity and likelihood of the adverse impacts that the activities might have.¹⁹⁷ It has been estimated that the current taxonomy alignment of economic activities is low, and the significance of DNSH criteria to the taxonomy alignment seems to be pronounced. Of otherwise taxonomy-relevant and complaint revenues, only half were compliant also with the DNSH criteria. The biggest taxonomy alignment (more than a third of companies) has been found in the energy sector.¹⁹⁸

¹⁹³ SWD(2021) 152 final, p. 12.

¹⁹⁴ Taxonomy Report: Technical Annex, p. 32.

¹⁹⁵ SWD(2021) 152 final, p. 5.

¹⁹⁶ *Ibid*, p. 4.

¹⁹⁷ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 34–35. To identify, prevent and mitigate possible breaches of the qualitative substantial contribution and DNSH criteria, the same due diligence process may be used.

¹⁹⁸ SWD(2021) 152 final, p. 53.

2.5 Conclusive remarks

The EU Green Bond Standard with its rather strict requirements brings legal risks to the green bond market. As green bond issuers must now, for example, make sure that their projects align with the EU taxonomy and publish impact reports, there is a possibility that the green bond does not meet its supposed features stated in the green bond framework. For example, if the impact report states that the project has overall very positive environmental impacts and this proves out not to be true, the green bond issuer could face legal consequences. Also, if the green bond framework or ‘factsheet’ (as in the Proposal) misses certain required points, this could also be a problem. External review requirements, on the other hand, have a significant role in ensuring that green bonds follow the proposed regulation¹⁹⁹.

Before 2017, there have been no known lawsuits against green bond issuers for their projects being not green enough. This has been at least partly due to the lack of legal definition for greenness²⁰⁰, which the upcoming EU standard will change. Even though there would be no lawsuits or other legal sanctions against the green bond issuer, his reputation could be tarnished if the standard’s criteria have not been followed.²⁰¹

If the law provides no remedies for non-alignment with the green bond standard, the issuer could be engaged to follow the standard’s criteria by including ESG or reporting covenants in the offering documents which would bind him to the standard’s criteria. This way, if the issuer fails to meet the criteria, he could be sanctioned, for example, with injunctive relief, repayment of the investment plus interest, a put option, or a green default²⁰². Including such covenants also mean that the issuer most likely requires a higher premium. Such covenants or provisions are not common, partly because of green bonds’ high demand. Issuers are not motivated to include any covenants or provisions safeguarding the alignment with the standard because they already have enough investors. However, without specific covenants, the bondholder could have a hard time receiving remedy for untrue statements or omissions in the green bond offering materials as he would have to show loss under most national

¹⁹⁹ Luís de Sousa – Moredo Santos 2022.

²⁰⁰ Breen – Campbell 2017, p. 20.

²⁰¹ Tripathy 2017, p. 242.

²⁰² Some action or circumstance in the offering documents that triggers the investor’s right to demand a full repayment before its original due date is called a green default. See Breen – Campbell 2017, p. 20.

securities laws, which could be hard if he has received coupon payments and the market price of the green bond in question is similar to regular bonds.²⁰³

²⁰³ Breen – Campbell 2017, p. 20.

3 Interpreting the EU taxonomy and environmental sustainability

3.1 Introductory remarks

This chapter includes some preliminary aspects that should be considered when interpreting taxonomy's requirements about environmental sustainability, thus this chapter prepares the reader before the research questions are answered in Chapter 4. First of all, TEG has stated that a degree of interpretation will be necessary for bond issuers and external reviewers when applying the taxonomy requirements. It is also probable that the Platform on Sustainable Finance will provide more guidance to market participants.²⁰⁴ Therefore, the interpretation's significance is heightened especially in the transition and build-up phase of the taxonomy, before there are established market practices. Interpretation's significance is also extremely important in projects that could not be deemed sustainable straightforwardly. Although wind energy is an example of renewable energy and thus, it could be deemed sustainable rather straightforwardly, the interpretation of the taxonomy requirements in the context of wind energy may reveal something important about the taxonomy and contribute also to the more difficult cases.

The EU Taxonomy distinguishes two categories of taxonomy-aligned economic activities: 1) activities that substantially contribute to an environmental objective based on their own performance (called earlier 'green activities') and 2) enabling activities that enable a substantial contribution in other activities with their products or services.²⁰⁵ There are also 'transitional activities' which may qualify as taxonomy-aligned under certain conditions.²⁰⁶ The first sustainability category could also be called as activities that are already low-carbon. An example of an already low-carbon activity could be wind energy and an example of an enabling activity could be manufacturing wind turbines.²⁰⁷ The technical screening criteria for already low-carbon activities have been described as likely being stable and long-term.²⁰⁸

²⁰⁴ Report on EU Green Bond Standard, p. 27.

²⁰⁵ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 14.

²⁰⁶ SWD(2021) 152 final, p. 3.

²⁰⁷ Taxonomy Report: Technical Annex, p. 16.

²⁰⁸ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 20.

The starting point for interpreting the EU taxonomy is that projects or proceeds must align 100% with it²⁰⁹. Therefore, if a wind energy project fulfils all the other criteria but runs short on human rights issues (ergo minimum safeguards), it would not align with the EU taxonomy. Certain legal principles could also be useful in interpreting environmental sustainability under the Taxonomy Regulation. These stem from the purposes of the legislation and/or from the preparative materials. Such principles include the principle of sustainable development, the precautionary principle, and the proportionality principle. In addition to these principles, it would be important to consider the entire framework of EU sustainable finance in a bigger picture which may give rise to systematic interpretation recommendations. Next, the relevant legal principles to the EU Taxonomy are discussed.

3.2 Interpretation tools

3.2.1 The principle of sustainable development

The principle of sustainable development is often described as vague and broad. Its openness to interpretation can make it seem like a bunch of empty words that can refer to many different, more or less defined, matters depending on the emphasis. Although the concept of sustainable development often overlaps with other concepts, even its opposites, it has proved to be important and useful.²¹⁰

The principle became known by the Brundtland Commission in 1987, and, according to its definition, sustainable development is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”²¹¹. Thus, at the core, sustainable development concerns the rights of future generations to lead a good life and requires that current generations do not exceed the carrying capacity of ecosystems. Therefore, sustainable development could be described as human-centered rather than nature-centered.²¹²

²⁰⁹ However, there are two flexibilities that apply only to sovereigns. See, e.g., Analysis of the Draft EuGB Regulation, p. 4.

²¹⁰ Määttä – Pulliainen 2003, p. 39-40.

²¹¹ Our Common Future: Report of the World Commission on Environment and Development, Chapter 2: Towards Sustainable Development.

²¹² Kuusiniemi – Vihervuori et al. > I. Perusteet > 1. Ympäristöoikeus oikeudenalana > Ympäristöoikeuden periaatteista > Yleiset ympäristöperiaatteet > Kestävä kehitys.

At first sight, the principle of sustainable development may seem conflicting and its goals to be cancelling each other out, but according to Merkouris, this is not the case. Sustainable development is a meta-principle that is able to clarify other legal rules and principles, and for this reason, the notion of sustainable development has real normative force. Sustainable development contains many elements and some of them are even included in the legislation, such as the obligation to conduct an environmental impact assessment. Thus, even if the principle of sustainable development could not in itself be seen as hard law, other principles, norms, and notions should be understood in a way that supports the effectuation of sustainable development.²¹³

The principle of sustainable development is almost invariably featured in international environmental treaties and declarations. For example, Article 3(4) of the UN Framework Convention on Climate Change refers to the right to sustainable development, and the principle is also enshrined in the Rio Declaration and in the Agenda21 which implements the Rio Declaration.²¹⁴ In the Agenda 21, sustainable development can be interpreted as balancing the economic, social, and environmental dimensions ('pillars').²¹⁵ In the EU level, Article 3 TEU refers to sustainable development and the protection and improvement of environment's quality as some of the fundamental objectives of the Union.

The fact that sustainable development can also be seen as a political goal does not undermine its legal relevance.²¹⁶ For instance, the Finnish Land Use and Construction Act's general goal is sustainable development (1 §). In the provision, sustainable development in land use and construction is divided into four dimensions: ecological, economic, social, and cultural. Ecologically sustainable development means, for example, preserving biological diversity, using energy and natural resources sustainably, adapting environmental load to the resilience of nature, and using materials sustainably (e.g., recyclable building parts). Economically sustainable development refers to efficient and economically, as well as ecologically, sensible decisions and solutions. Socially sustainable development is related to socially just

²¹³ Merkouris 2012, p. 42.

²¹⁴ Määttä – Pulliainen 2003, p. 40.

²¹⁵ Drastichová 2020, p. 100.

²¹⁶ Kuusiniemi – Vihervuori et al. > I. Perusteet > 1. Ympäristöoikeus oikeudenalana > Ympäristöoikeuden periaatteista > Yleiset ympäristöperiaatteet > Kestävä kehitys.

development where, for instance, the basic needs of the people, their health conditions, and living environments should be considered so that they meet the needs of different sections of the population. Culturally sustainable development is related to preserving the cultural values of society and local communities.²¹⁷ These different dimensions reflect the holistic notion of sustainable development in land use and construction and apply naturally also to the construction and operation phases of wind farms.

3.2.2 The precautionary principle

For ecological sustainability, which is one dimension of sustainable development, the precautionary principle is central.²¹⁸ According to the precautionary principle, a lack of full scientific certainty about a certain measure's consequences should not prevent its adoption to protect the environment. Thus, the so-called 'grey area' should be interpreted in favour of the environment.²¹⁹ The principle has become especially important in climate change action, and it means, for example, that pollution should be prevented before it can be scientifically proven that certain activities cause environmental damage.²²⁰ The EU environmental law recognises the precautionary principle at the level of primary law (TFEU 191(2)), and the principle has also been carved into many international environmental treaties and national laws.

The precautionary principle has been taken into account in the EU taxonomy especially in the development of the technical screening criteria. Environmental integrity, which was one of the specific requirements given to the technical screening criteria, means that the technical screening criteria must be based on scientific evidence. The precautionary principle was applied if the scientific evidence was not available or conclusive.²²¹ Although the principle was mainly used in developing the technical screening criteria, it should also bear a remarkable significance when interpreting the EU taxonomy – especially in tricky cases where the activity's environmental consequences are not known for sure.

²¹⁷ HE 101/1998 vp, p. 61.

²¹⁸ Hallberg – Haapanala et al. 2020, p. 27.

²¹⁹ Kuusiniemi – Vihervuori et al. > I. Perusteet > 1. Ympäristöoikeus oikeudenalana > Ympäristöoikeuden periaatteista > Yleiset ympäristöperiaatteet > Varovaisuusperiaate.

²²⁰ Määttä – Pulliainen 2003, p. 133.

²²¹ SWD(2021) 152 final, p. 12.

3.2.3 The proportionality principle

As the principle of sustainable development includes economic, social, and environmental – and, according to some views, cultural – dimensions, they should all have some influence. To give each dimension due recognition, the dimensions need to be balanced against each other similarly to a proportionality analysis.²²² The proportionality principle was originally developed to protect citizens from unjustified governmental intrusions. A governmental intrusion was allowed only if the measure taken had a justifiable objective, it was effective to serve a public interest, necessary (could not be replaced by an equally effective but less intrusive alternative) and balanced against the public interest's importance and the intrusiveness of the measure.²²³ The proportionality principle has also served as a fundamental principle in the EU, especially in the case law.

The proportionality principle has also been suggested as a concrete tool for balancing the different dimensions of sustainable development. Winter has proposed 'ecological proportionality' which could ensure that ecological aspects have a special place in decision-making. Ecological proportionality would be applied to societal activities that clash with nature, limiting the societal power over nature similarly to the proportionality principle as traditionally understood (so-called 'sociological proportionality') limits state power over society. Under ecological proportionality, nature would be a valuable resource that should be consumed only if there was a well-justified reason for it. Winter has also proposed an eco-proportionality test which is structured similarly to the traditional proportionality test, but with a focus on nature and its resources. To be justified, an activity that is intrusive over nature should pursue a justifiable societal objective. In addition, the intrusive activity should be effective in serving the societal objective, necessary (not replaceable by a less intrusive alternative on natural resources) and balanced (not excessively intrusive towards nature when compared with the societal objective's importance).²²⁴

Environmental laws, even though protecting the environment, are usually characterised by sociological proportionality. Environmental protection is seen as a public interest, and it should be limited in order to protect individual rights. Traditionally, in environmental law,

²²² Gehring 2016, p. 143.

²²³ Winter 2013, p. 112.

²²⁴ *Ibid*, p. 111-115.

societal interests are not questioned, for example, whether and how the activity at hand serves the society in reality.²²⁵ Based on this discussion and the interpretation of the EU taxonomy in the next chapter, it seems that the taxonomy relies on sociological proportionality. The DNSH criteria of the EU taxonomy include many references to the Union's environmental laws, for example when it comes to the environmental objectives of sustainable use and protection of water and marine resources and protection and restoration of biodiversity and ecosystems. The DNSH criteria to climate change adaptation and minimum safeguards also take into account the proportionality principle, although in these cases the proportionality refers more to the characteristics or the context of the economic activity or enterprise at hand which should be given due recognition.

3.2.4 Other relevant legislation

How sustainability has been viewed in other recent sustainable finance legislative measures could also be important when considering the EU taxonomy's interpretation of environmental sustainability. Directive 2014/95/EU on the Disclosure of Non-financial and Diversity Information was the first EU measure to regulate sustainability-related matters in the financial markets. It required large companies to disclose information on how ESG matters are handled, e.g., pointing to matters such as environmental performance, human rights compliance, anti-corruption, and diversity.²²⁶ In Article 2(17) of Sustainable Finance Disclosure Regulation ('SFRD'), it is stated that sustainable investment should contribute to an environmental objective. Contribution to an environmental objective could be measured, inter alia, by indicators that measure the use of energy, raw materials, or water, or the production of waste and GHG emissions.

According to the same article, sustainable investment could also mean an investment that contributes to social objectives, such as tackling inequality or fostering social cohesion and integration, or labour relations. Investments could be sustainable also if investments in human capital or economically or socially disadvantaged communities are made, and these investments do not either cause significant harm to any of the social objectives above and that good governance practices have been adopted in the invested companies. The definition of sustainable investment in the SFRD seems to pronounce the social and governance dimension

²²⁵ *Ibid*, p. 127-128.

²²⁶ Siri – Zhu 2019, p. 5.

more than the taxonomy criteria do, and it could have implications on how the minimum safeguards are interpreted in the EU taxonomy. However, in April 2022, the Commission adopted regulatory technical standards pursuant to the SFRD which bring the SFDR and the taxonomy criteria closer together and elaborate on the do no significant harm to the minimum safeguards²²⁷.

3.3 Conclusive remarks

This chapter provided some preliminary aspects to interpreting the EU taxonomy and environmental sustainability, and in particular, introduced some principles that could be useful. In the context of wind energy, the principle of sustainable development could be seen as supporting the use of renewable energy technologies, but at the same time, it requires that wind energy's environmental, economic, social, and cultural impacts are considered. As wind energy contributes significantly to environmental sustainability by cutting GHG emissions, this should be reflected proportionately with regard to the other dimensions of sustainable development. Thus, the proportionality principle should not only assess the different dimensions of sustainable development but also their weight against each other should be taken into account. The precautionary principle could be reflected, for example, when assessing offshore wind's environmental impacts as the scientific evidence about offshore wind's impacts on marine wildlife have not yet been set in stone²²⁸. In the next chapter, the focus is on interpreting the taxonomy requirements on environmental sustainability in the context of wind energy projects and thus, answering the research questions of the thesis.

²²⁷ Kirkland & Ellis 2022 (Accessed on 22 April 2022).

²²⁸ See, e.g., Bergström – Kautsky et al. 2014.

4 Environmental sustainability in wind energy

4.1 Technical screening criteria

Before interpreting taxonomy requirements, the functions of the technical screening criteria must be presented briefly so that the reader understands why they are interpreted simultaneously with the substantial contribution and DNSH criteria. According to Recital 40 of the Taxonomy Regulation, “an economic activity shall not qualify as environmentally sustainable if it causes more harm to the environment than the benefits it brings”. The task of technical screening criteria is to establish these boundaries. They define when an economic activity makes a substantial contribution to an environmental objective and also when the economic activity does not significantly harm any environmental objectives. Therefore, a sensible solution is to assess the technical screening criteria in connection with the substantial contribution and DNSH criteria.

4.2 Substantial contribution to climate change mitigation

According to Article 3 of the Taxonomy Regulation, economic activity should contribute substantially to one or more of the environmental objectives. Where wind energy is concerned, the category ‘climate change mitigation’ is the most relevant environmental objective. Although wind energy could make a substantial contribution to other environmental objectives as well, climate change mitigation is the most natural environmental objective for wind energy for reasons which are stated below. Thus, there is no need to consider other environmental objectives. Final technical screening criteria for substantial contribution criteria have not either been released to the other four environmental objectives 3-6, so it would not be possible to assess all environmental objectives in relation to wind energy. The technical screening criteria for substantial contribution criteria to climate change adaptation have been established for wind energy, but they have more requirements that are also much more complex than the substantial contribution criteria to climate change mitigation. If the economic activity wishes to contribute to more than one environmental objective, it should demonstrate that it fulfils two sets of the substantial contribution criteria.

According to Article 2(5) of the Taxonomy Regulation, climate change mitigation refers to “the process of holding the increase in the global average temperature to well below 2 °C and pursuing efforts to limit it to 1,5 °C above pre-industrial levels, as laid down in the Paris Agreement”. The guiding principle of climate change mitigation is to facilitate the transition

to an emission-free economy and thus, the economic activity should be compatible with the net-zero emissions target. According to Article 10(1) of the Taxonomy Regulation, an economic activity contributes substantially to climate change mitigation “where that activity contributes substantially to the stabilisation of greenhouse gas concentrations in the atmosphere at a level which prevents dangerous anthropogenic interference with the climate system -- through the avoidance or reduction of greenhouse gas emissions or the increase of greenhouse gas removals”. The ways how to avoid or reduce GHG emissions or enhance GHG removals are then listed (a) to (i), and (a) includes generating, transmitting, storing, distributing, or using renewable energy in line with RED II. Thus, wind energy as renewable energy meets this requirement rather straightforwardly, supporting the conclusion that climate change mitigation is the most suitable environmental objective for wind energy.

Low-carbon activities, such as wind energy, make a substantial contribution to climate change mitigation because they have the potential to substitute activities that cause higher levels of GHG emissions (e.g. fossil-fuel-based electricity generation).²²⁹ Because wind energy is an already low-carbon activity, it is not necessary to consider whether the activity provides significant emissions reductions compared to industry or sector average, restricts developing or using low-carbon alternatives or causes a lock-in-effect of carbon-intensive assets as required in Article 10(2) of the Taxonomy Regulation²³⁰.

Substantial contribution to an environmental objective means significant improvements to the industrial average. If the ambition level would be the same as the existing EU law, whole sectors would be defined as environmentally sustainable which is not the EU taxonomy’s purpose. In order to reach the Union’s environmental targets, top environmental performance must be identified. Thus, the technical screening criteria, which also must be fulfilled to satisfy the substantial contribution criteria, reflect best practices and are more ambitious than the existing EU law.²³¹ In developing the technical screening criteria for climate change

²²⁹ SWD(2021) 152 final, p. 101.

²³⁰ Taxonomy Technical Report, p. 31-32.

²³¹ SWD(2021) 152 final, p. 20.

mitigation, the EU's climate neutrality objective by 2050 and 50-55 % reduction goal by 2030 were taken into account as guiding principles.²³²

The technical screening criteria in Annex 1²³³ of the Delegated Act define substantial contribution to climate change mitigation more closely. All forms of electricity generation, heat production, and the co-generation of heat and electricity must adhere to a life-cycle emissions threshold of 100g CO₂ e/kWh. The threshold is going to be lowered every fifth year in line with the net-zero emissions goal, thus it would be 0g CO₂ e/kWh by 2050. The threshold should be fulfilled at the time when the taxonomy eligibility is pursued. If the activities extend over 2050, technically feasible solutions to achieve zero emissions must be available. The threshold will be assessed according to the activity's average emissions during its lifetime or 40 years, whichever is shorter²³⁴. In addition to the life-cycle emissions threshold, there is a requirement to perform PCF or GHG life-cycle assessments. However, wind energy and some other electricity generation technologies have been exempted from performing life-cycle assessments, because based on evidence, these technologies already perform below the 100g CO₂ e/kWh threshold on a life-cycle basis. The installation, maintenance and repair of wind turbines and the related equipment also contributes substantially to climate change mitigation according to Section 7.6 of the Annex.

What these substantial contribution criteria essentially mean is that wind energy only needs to comply with legal obligations under the RED II, thus adhering to the substantial contribution requirements would not bring any additional costs for wind energy developers.²³⁵ Wind energy releases only small amounts of CO₂ emissions during its construction and maintenance phases, and this amount of emissions can be absorbed by using the process of photosynthesis.²³⁶ Therefore, the declining threshold of 0g CO₂/kWh by 2050 can be already achieved. Renewable energy generation is also mentioned as an activity that contributes to a

²³² *Ibid*, p. 107.

²³³ C(2021) 2800 final. Annex to the Commission Delegated Regulation (EU) supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives, on 4 June 2021.

²³⁴ Taxonomy Report: Technical Annex, p. 206.

²³⁵ SWD(2021) 152 final, p. 154.

²³⁶ Saidur – Rahim et al. 2011, p. 2425.

zero-carbon economy in its own right. The substantial contribution criteria “reflect the need to expand investment in sectors where technical solution on the market are already at near-zero carbon levels”.²³⁷ Wind energy fulfils the substantial contribution criteria *de facto*, and the EU taxonomy essentially wants to encourage investments into wind energy. Therefore, in practice, it seems that the substantial contribution criteria to climate change mitigation can be achieved without any additional measures and that the other taxonomy criteria, such as DNSH criteria and minimum safeguards, are more relevant for wind energy.

4.3 Does not significantly harm

The DNSH criteria are the second taxonomy requirement, and they are also defined by the technical screening criteria. Because wind energy contributes substantially to climate change mitigation, there is no need to fulfil the DNSH criteria to climate change mitigation as well. The pollution prevention and control category is not relevant either, and no technical screening criteria regarding it have been set for wind energy. This is because wind energy leads to the reduction of pollutants and therefore, it could not cause significant harm or risks where pollution is concerned.

According to Recital 40 of the Taxonomy Regulation, “the technical screening criteria should identify the minimum requirements necessary to avoid *significant* harm to other [environmental] objectives” [italics added]. The DNSH criteria provide specific guidelines on how to avoid significant adverse environmental impacts at the same time while taking into account the activity’s nature.²³⁸ The starting point for technical screening criteria is compliance with existing legal requirements or mandatory practices which is seen to have similar goals as preventing significant harms.²³⁹ Separate thresholds from the EU legislation were created only if they were deemed necessary.²⁴⁰ Compared to the substantial contribution criteria, the DNSH criteria have a lower ambition level. When economic activity is assessed against the DNSH criteria, its environmental impacts, also for the products and services it

²³⁷ SWD(2021) 152 final, p. 26.

²³⁸ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 34.

²³⁹ SWD(2021) 152 final, p. 20.

²⁴⁰ Taxonomy Technical Report, p. 48.

provides, shall be considered, especially when it comes to their life cycle, production, and use (Article 17(2) of the Taxonomy Regulation).

The DNSH criteria are quantitative or qualitative, often process-based performance criteria. Where metrics and thresholds are provided, the appropriate way to show alignment is to analyse the project at hand against the provided quantitative criteria by using e.g. ex ante estimations.²⁴¹ Qualitative criteria have often been defined through legislation.²⁴² Compliance with legislation is seen to be verified if three conditions are met on a project level: 1) required environmental frameworks and permits are obtained, 2) risk analysis to evaluate possible harming effects is completed, and 3) if material controversies turn out, mitigation plans are adopted²⁴³. Risk analysis of the potentially harming effects is not needed if the green bond issuer has a comprehensive due diligence system and environmental impact reports have been made in the permitting process.²⁴⁴

Compliance with EU environmental legislation is the minimum requirement for all economic activities and includes compliance with national laws as well, for example, relating to environmental permits. A reference to relevant EU or national legislation was made only if the environmental impact of the activity was considered significant and more specific requirements were not deemed necessary.²⁴⁵ Referring to compliance with relevant legislation is seen to facilitate the verification of compliance of the technical screening criteria.

A procedural approach to DNSH assessment is recommended for the green bond issuers and verifiers. Environmental due diligence systems are recommended as they could smoothen the eligible project decision process and make compliance assessment easier for verifiers. The existence of an established environmental due diligence system is a sign of alignment with the DNSH criteria. If such a system is missing, the issuer should evaluate the DNSH criteria on a project level and report the findings to the investors and verifiers. This requires also, inter alia, that impact assessment methodologies are designed and implemented, relevant key

²⁴¹ Usability Guide: EU Green Bond Standard, p. 18-19.

²⁴² SWD(2021) 152 final, p. 121.

²⁴³ In case material controversies turn out, the green bond issuer should also describe the mitigation plans in the green bond framework.

²⁴⁴ Usability Guide: EU Green Bond Standard, p. 19.

²⁴⁵ Taxonomy Report: Technical Annex, p. 32-33.

performance indicators are clarified, existing and likely controversies are analysed, taxonomy-compatible selection criteria for projects are applied, and the whole process is subjected to external review and the conclusions are published.²⁴⁶ Next, all the other environmental objective categories are assessed in relation to the DNSH criteria except for climate change mitigation and pollution prevention and control.

4.3.1 Climate change adaptation

According to Article 2(6) of the Taxonomy Regulation, climate change adaptation means the process of adjustment to the actual and expected climate change impacts. Significant harm to climate change adaptation indicates that the activity brings about an increased negative impact on the current or expected climate, on the activity itself, or on people, nature, or assets (Article 17(b) of the Taxonomy Regulation). The DNSH criteria to climate change adaptation emphasise that the activity needs to be climate-proof so that possible impacts on business continuity are minimised or avoided.²⁴⁷ In wind power, for example, storm surge impacts (abnormal rises in water levels) could leave offshore wind farms vulnerable.²⁴⁸ Other typical climate risks in energy utilities and assets are flooding, extreme weather events, increasing temperatures and sea-level rise.²⁴⁹

The DNSH criteria to adaptation have originated from current legislative approaches and practices.²⁵⁰ They are qualitative and process-based criteria that are the same for all sectors and activities. Also, if useful tools, methodologies, or other guidance available for a specific economic activity were detected, they have been added to the activity's DNSH criteria.²⁵¹ Climate-related hazards and necessary adaptation measures depend, for example, on the

²⁴⁶ Usability Guide: EU Green Bond Standard, p. 19-20.

²⁴⁷ SWD(2021) 152 final, p. 40.

²⁴⁸ Adaptation Challenges and Opportunities for the European Energy System: Building a Climate-Resilient Low-Carbon Energy System, p. 43. In the generic criteria, Section II includes a list from climate-related hazards which should be checked against the economic activity whether such hazards may affect it.

²⁴⁹ *Ibid*, p. 73, 82.

²⁵⁰ SWD(2021) 152 final, p. 42.

²⁵¹ Taxonomy Report: Technical Annex, p. 30.

activity and location.²⁵² These factors should be noted in the climate risk assessment.²⁵³ Thus, the assessment should be context-specific and determined by the case at hand.²⁵⁴

The DNSH criteria that the TEG originally proposed to climate change adaptation were changed because they were modelled after the substantial contribution to climate change adaptation and were not deemed to respect the proportionality principle. The Commission was also concerned that the TEG's proposal would hinder investments to climate change mitigation.²⁵⁵ The market also saw the TEG's DNSH criteria to climate change adaptation as strict.²⁵⁶ Thus, the criteria now have a lower ambition level compared to substantial contribution criteria which include additional requirements compared to the DNSH criteria.²⁵⁷ The Commission also argued that this decision supports the taxonomy's integrity better as the DNSH criteria should prevent only significant harm.²⁵⁸

According to the technical screening criteria, wind energy must fulfil the generic criteria for DNSH to climate change adaptation which are included in Appendix A of Annex 1 of the Delegated Act. The generic criteria differ between investments into new activities and activities that upgrade or alter existing assets or processes. This was seen more proportionate as, if serious climate risks emerge, new investments should consider changing the location or plan adaptation measures straight from the onset, whereas when existing projects are being upgraded or altered, the locations cannot be changed anymore but adaptation measures may be put in place. The assessment of the criteria must thus be context-specific: the activity's scale and expected lifespan must be taken into account. The DNSH criteria also distinguish between investments into activities that are expected to last under 10 years and other activities. Wind energy belongs to other activities because its lifespan is usually longer than 10 years.

²⁵² Taxonomy Technical Report, p. 53.

²⁵³ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 34.

²⁵⁴ Taxonomy Report: Technical Annex, p. 30.

²⁵⁵ SWD(2021) 152 final, p. 40.

²⁵⁶ *Ibid*, p. 43.

²⁵⁷ *Ibid*, p. 42.

²⁵⁸ *Ibid*, p. 43.

New activity with a lifespan over 10 years must complete a climate risk assessment that is suitable for its expected lifetime. The assessment should be made by using the latest and most advanced climate projections and the most recent scientific research. For major investments, climate projections scenarios must extend at minimum to 10 to 30 years. If the activity lasts less than 10 years, the smallest suitable time scale may be used for the climate risk assessment. For both types of investments, an implementation plan for adaptation solutions that reduce the activity's material climate risks should be prepared. In addition, the adaptation solutions may not have negative implications on how other actors can adapt or prepare their resilience to physical climate risks, considering such matters also from the nature's and cultural heritage's perspective. The adaptation solutions must also resemble adaptation measures in the local, sectoral, regional, or national levels and use nature-based and blue or green infrastructure solutions when possible.

The activities altering or upgrading existing assets or processes must follow otherwise the same criteria, but in addition, the implementation plan for adaptation solutions reducing climate risks must be implemented in less than five years from the beginning of the activity. Further, climate risk assessments and progress on the implementation plan must be disclosed in the non-financial statements according to Directive 2013/34/EU²⁵⁹.²⁶⁰

4.3.2 Sustainable use and protection of water and marine resources

The DNSH criteria to water and marine resources, as well as for biodiversity and ecosystems, are process-based and suggested for all economic activities that may risk the effectuation of water and biodiversity objectives. For activities that have particular risks to the water and biodiversity objectives, additional criteria have been put forward. The generic criteria indicate how economic activities have different risk profiles to the water and biodiversity objectives and therefore, the context and particularly the location is extremely important here.²⁶¹ This

²⁵⁹ Directive (EU) 2013/34 of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (*OJEU L 182/1, 29.6.2013*).

²⁶⁰ *Ibid*, p. 40-41.

²⁶¹ *Ibid*, p. 44-45.

increases the criteria's usability for project developers because context-specific risks are factored in but makes it harder for external reviewers to check the criteria verification.²⁶²

According to Article 17(c) of the Taxonomy Regulation, significant harm to sustainable use and protection of water and marine resources means that the activity is detrimental either “to the good status or the good ecological potential of bodies of water, including surface and groundwater, or to the good environmental status of marine waters”. Article 2 of the Taxonomy Regulation includes definitions for many of these concepts and they often refer to the Directive 2000/60/EC (‘Water Framework Directive’)²⁶³ or to the Directive 2008/56/EC (‘Marine Strategy Framework Directive’)²⁶⁴. The DNSH criteria to water and marine resources aim that the physical, biological and hydro-morphological qualities of the waters would not be significantly harmed. The generic criteria in Appendix B of Annex 1 of the Delegated Act require that an environmental impact assessment which includes the assessment of the project's impact on water is carried out.

However, for wind energy, the generic criteria are not used in the technical screening criteria. Instead, there are specific criteria that apply only to offshore wind energy. The technical screening criteria require that constructing wind energy may not hamper achieving good environmental status as set out in the Marine Strategy Framework Directive. This entails that the underwater noise in the construction phase must be kept at check so that species are not negatively affected.²⁶⁵ Suitable measures that prevent or mitigate impacts according to the Directive's Descriptor 11 regarding underwater noise (Annex 1 to the Marine Strategy Framework Directive) should be taken²⁶⁶. These requirements seem justified because the

²⁶² *Ibid*, p. 47.

²⁶³ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (*OJEU L 327/1, 22.12.2000*).

²⁶⁴ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (*OJEU L 164/1, 25.6.2008*).

²⁶⁵ Taxonomy Technical Report, p. 64.

²⁶⁶ For more information on the relevant criteria and methodological standards for the Descriptor 11, see Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardised methods for monitoring and assessment, and repealing Decision 2010/477/EU (*OJEU L 125/1, 18.5.2017*).

underwater noise from offshore wind has been found to cause significant negative impacts on marine mammals during the construction phase, and also has moderate impacts on fish²⁶⁷.

In practice, according to Article 9(1) of the Marine Strategy Framework Directive, Member States have established a set of characteristics concerning the good environmental status in each marine region or subregion based on the qualitative descriptors in Annex 1 (e.g. Descriptor 11). Wind energy developers should adhere to the applicable set of characteristics to fulfil the DNSH criteria to water and marine resources. In practice, these requirements are reflected in the permitting processes, such as in the environmental impact assessments, and therefore, they are automatically a part of the legal requirements that some wind energy projects must fulfil. The permitting processes usually also have exceptions in which cases some derogations from the required underwater noise levels could be allowed²⁶⁸. These processes often reflect the sociological proportionality principle which takes into account different socio-economic needs and requires that alternative options have been considered.

4.3.3 Circular economy

According to Article 2(9) of the Taxonomy Regulation, a circular economy refers to “an economic system whereby the value of products, materials, and other resources in the economy is maintained for as long as possible, enhancing their efficient use in production and consumption, thereby reducing the environmental impact of their use, minimising waste and the release of hazardous substance at all stages of their life cycle, including through the application of the waste hierarchy”²⁶⁹.

According to Article 17(1.d) of the Taxonomy Regulation, significant harm to the circular economy could happen in three different ways. Firstly, the activity creates significant inefficiencies in the use of materials or natural resources during some stage(s) of the product’s life cycle. The product’s durability, reparability, upgradability, reusability, or recyclability are aspects that should especially be considered here. Further, the increase in the use of natural

²⁶⁷ Bergström – Kautsky et al. 2014, p. 5.

²⁶⁸ For example, according to Article 4(5) of the Water Framework Directive which is part of the general DNSH criteria to water and marine resources, Member States may derogate from the obligation to ensure good surface water quality if the environmental and socio-economic needs served by water uses cannot be achieved by a significantly better environmental option not entailing disproportionate costs.

²⁶⁹ As understood in Article 4 of Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

resources may happen directly or indirectly. Secondly, a significant harm to the circular economy is at hand if the activity significantly increases the generation, incineration, or disposal of waste except when non-recyclable hazardous waste is disposed of. Thirdly, the environment could be harmed by the long-term disposal of waste which would also denote a significant harm to the circular economy.

The DNSH criteria to the circular economy vary between macro-sectors and activities because different activities have different sources of harm. For majority of the activities, the criteria are qualitative process- or practice-based requirements that are customised to the activity's own special profile. There are not many quantitative thresholds for the circular economy because it has multiple dimensions or aspects and, thus, metrics and indicators that measure circularity are hard to develop.²⁷⁰

For wind energy, the technical screening criteria to DNSH to circular economy in Annex 1 of the Delegated Act stipulate that the availability of highly durable and recyclable equipment and components that are easy to dismantle and refurbish should be assessed. If such equipment and components are available and using them is feasible, this is required. Thus, it would be advisable that issuers and verifiers consider, for example, how much recyclable materials have been used and how the materials, such as the carbon and glass fibres used in the wind turbines, are handled²⁷¹.

In TEG's report from 2020, it was noted that the composite waste generated from wind turbine blades when they are at the end of their lifetime could cause significant harm to a circular economy.²⁷² This however did not end up in the current DNSH criteria. In practice, the DNSH criteria to the circular economy are not very ambitious, for example, there are no requirements in the construction phase where it could be required that all recyclable materials are recycled or that waste management plans are drawn up. As wind turbine blades have turned out to be non-recyclable²⁷³, it could have also been required that commitments to assess the possibility of developing such turbine blades would be taken.

²⁷⁰ SWD(2021) 152 final, p. 44.

²⁷¹ Taxonomy Technical Report, p. 64.

²⁷² Taxonomy Report: Technical Annex, p. 219.

²⁷³ Nysten-Haarala – Joonas et al. 2021, p. 2.

4.3.4 Protection and restoration of biodiversity and ecosystems

The DNSH criteria to biodiversity and ecosystems resemble the DNSH criteria to water and marine resources. As Section 6.3.2. already elaborated, the general DNSH criteria to biodiversity and ecosystems are the same for all activities and have been introduced only for those activities that may risk the biodiversity objectives. In addition, there are specific criteria for those activities that pose particular risks. The generic criteria imply that economic activities have different risk profiles to the biodiversity objectives and they depend highly on the context and in particular on the location, for instance, whether there are protected species in the area or not.²⁷⁴ Also, if there are existing EU guidance documents that help to implement the DNSH criteria, there is a reference to them in the criteria.²⁷⁵

Article 17(1.f) of the Taxonomy Regulation stipulates that significant harm to the protection and restoration of biodiversity and ecosystems is at hand when the activity is “significantly detrimental to the good condition and resilience of ecosystems or detrimental to the conservation status of habitats and species, including those of Union interest”. In Article 2(13) of the Taxonomy Regulation, an ecosystem is defined as “a dynamic complex of plant, animal, and micro-organism communities and their non-living environment interacting as a functional unit”. Biodiversity, on the other hand, means “the variability among living organisms arising from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part and includes also diversity within species, between species and of ecosystems” (Article 2(15) of the Taxonomy Regulation).

Wind energy affects ecosystems, especially birds and bats which may collide with wind turbine blades and consequently die. Larger turbines appear to cause fewer fatalities than smaller turbines. Additionally, bat fatalities appear more likely when turbines are placed on ridges. Wind energy’s construction and maintenance may also cause vegetation clearing, soil disruption, erosion, and noise. Forest clearing may be the most remarkable change through fragmentation and loss of habitat for some species.²⁷⁶ The installation of wind turbines also

²⁷⁴ SWD(2021) 152 final, p. 44-45.

²⁷⁵ *Ibid.*, p. 239.

²⁷⁶ National Research Council (U.S.) Committee on Environmental Impacts of Wind-Energy Projects 2007, p. 7-8.

causes landscape changes.²⁷⁷ Offshore wind has both positive and negative implications to the marine life, for example, the artificial reef effect supports biodiversity, whereas noise emissions may be especially harmful to marine mammals.²⁷⁸ Wind energy companies should consider how these impacts on ecosystems and biodiversity can be minimised.

The general DNSH criteria to biodiversity and ecosystems are qualitative, process-based criteria that are based on EU environmental laws and national laws implementing them. The general criteria are set out in Appendix D to Annex 1 of the Delegated Act. According to them, an environmental impact assessment or screening must be completed in accordance with Directive 2011/92/EU ('Environmental Impact Assessment Directive')²⁷⁹. When the environmental impact assessment has been completed, the necessary measures to protect the environment must be taken. The Environmental Impact Assessment Directive distinguishes between projects that require mandatory environmental impact assessment (Annex 1) and for which environmental impact assessment is decided individually or according to established thresholds (Annex II). Wind energy is listed in Annex II, according to which environmental impact assessment must be carried out if the project is likely to have significant effects, taking into account the characteristics, nature, size, and location of the project. Member States have some amount of discretion when deciding if a project has a significant impact or not.²⁸⁰ 'Guidance document on wind energy developments and EU nature legislation'²⁸¹ includes practical guidance for wind energy developers on the implementation of the general criteria. For activities outside Europe, equivalent national provisions or international standards related to environmental impact assessments should be followed²⁸².

For sites and operations situated in or within close proximity to biodiversity-sensitive areas, an appropriate assessment in accordance with Directive 2009/147/EC ('Birds

²⁷⁷ Taxonomy Report: Technical Annex, p. 219.

²⁷⁸ Walker – Swift 2015, p. 380.

²⁷⁹ Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (*OJEU L 26/1, 28.1.2012*).

²⁸⁰ Anker – Olsen et al. 2009 p. 159–160. However, the European Court of Justice has narrowed remarkably the amount of discretion left for the Member States. According to the case law, if a project is likely to have a significant impact on the environment, an impact assessment must be carried out.

²⁸¹ C(2020) 7730 final. European Commission, Commission notice, 'Guidance document on wind energy developments and EU nature legislation', on 18 November 2020.

²⁸² SWD(2021) 152 final, p. 236.

Directive')²⁸³ and Directive 92/43/EEC ('Habitats Directive')²⁸⁴, where applicable, must be conducted. For example, Natura 2000 protected areas, UNESCO World Heritage sites, and Key Biodiversity Areas are included in the list of biodiversity-sensitive areas along with other protected areas. Based on the assessment, the necessary mitigation measures must be implemented to ensure that the activity does not significantly affect the conservation of the biodiversity-sensitive area. Although the assessment is stricter in or near to biodiversity-sensitive areas, also projects that have significant adverse effects on a Natura 2000 site can be exceptionally allowed if there are no alternative solutions that have no or fewer adverse effects and the adverse effects are outweighed by an overriding public interest. According to Article 16(1.c) of the Habitats Directive, an overriding public interest can be of a social or economic nature²⁸⁵. The derogation must not be detrimental to maintaining a favourable conservation status within the natural range of species in question and compensatory measures shall also be taken to reduce the impact (Article 6(4)).

Compared to the TEG's report from 2020, the general DNSH criteria to biodiversity and ecosystems have been relaxed. Originally, the DNSH criteria included also strategic environmental assessment pursuant to the Directive 2001/42/EC and the assessment should have also included ancillary services, such as transport infrastructure and operations. Near biodiversity-sensitive areas, the appropriate assessment should have also complied with the EU biodiversity strategy. There were also additional criteria for economic activities situated outside the Union.²⁸⁶ In the current criteria, there are no mentions of these.

In addition to the general DNSH criteria, there are specific criteria for offshore wind energy. Offshore wind energy must not prevent achieving good environmental status as set out in Marine Strategy Framework Directive, including that suitable measures are taken to prevent or mitigate impacts in relation to biodiversity and seabed integrity. Marine Strategy Framework Directive's Descriptors 1 and 8 concern these matters, and Decision (EU)

²⁸³ Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (*OJEU L 20/1, 26.1.2010*).

²⁸⁴ Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (*OJEU L 206/1, 22.7.1992*).

²⁸⁵ In Case C-508/04 *Commission v Austria*, it was decided that the 'construction of installations' does not fall within the grounds listed in Article 16(1).

²⁸⁶ Taxonomy Report: Technical Annex, p. 219.

2017/848²⁸⁷ includes applicable criteria and methodologies for the descriptors. Again, these requirements are reflected in the permitting processes, and wind energy developers automatically take them into account when they oblige with environmental laws.

Even though the DNSH criteria state that there should be no significant harm to the biodiversity or ecosystems, in fact, when the DNSH criteria have been linked to the EU environmental laws, such adverse impact may be justified for overriding social or economic reasons even in a highly protected Natura 2000 site. Borrowing Winter's terms, this reflects the sociological proportionality principle in the EU taxonomy. Also, Article 9 of the Birds Directive includes specific exemptions from the general prohibition of deliberate killing, destruction, and disturbance of birds. In non-protected areas, environmental impact assessment processes are more lenient and exceptions to habitat or species protection are justified on a lighter basis.

4.4 Minimum safeguards

According to Article 18(1) of the Taxonomy Regulation, minimum safeguards refer to procedures that an undertaking performing the economic activity should implement to make sure they align with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights. Additionally, the principles and rights set out in the eight fundamental conventions in the Declaration of the International Labour Organisation (ILO) on Fundamental Principles and Rights at Work and in the International Bill of Human Rights should also be considered. If the issuer is subject to more stringent requirements, they apply in addition to the minimum safeguards.²⁸⁸

Minimum safeguards criteria are qualitative as they are based on international standards. TEG has suggested that green bond issuers and verifiers shall take a procedural approach when they are assessing minimum safeguards compliance. Thus, the minimum safeguards would be met if 1) the company is aligned with legally required social frameworks, 2) risk analysis on possible violations of minimum safeguards is completed, and 3) if material controversies turn out, mitigation action plans are made. If the issuer has a comprehensive due diligence system,

²⁸⁷ Commission Decision (EU) 2017/848 of 17 May 2017 laying down criteria and methodological standards on good environmental status of marine waters and specifications and standardized methods for monitoring and assessment, and repealing Decision 2010/477/EU (*OJEU L 125/1, 18.5.2017*).

²⁸⁸ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 17.

the risk analysis can be replaced by existing social impact reports. Internal and, if relevant, external databases may be used to detect possible controversies. Established due diligence systems are recommended to facilitate the process of choosing eligible projects and assessing compliance. Together with a solid track record of ESG management, human rights due diligence systems suggest that the undertaking is aligned with the minimum safeguards.²⁸⁹

The minimum requirement is that enterprises stop activities that have negative impacts on human and labour rights or that advance corruption. Developing and implementing plans to prevent and mitigate actual and/or potential adverse impacts is also required, especially where they are connected to the taxonomy-related operation, products, or services.²⁹⁰ The requirements must be met on an economic activity level. However, in reality, it may be necessary to assess the compliance also at the company level if it is not possible to get a complete picture of the compliance at the activity level. If the issuer is not able to provide necessary information on the minimum safeguards, investors and reviewers may have to form their own opinion.²⁹¹ To avoid this risk, issuers should offer information about the level of compliance with minimum safeguards.

The project-based approach, where the minimum safeguards are first and foremost assessed on the economic activity level, is suitable to green bonds as they are also based on the same approach. Issuers benefit from the project-based approach which is focused on the compliance of the specific activity at hand, as this would mean that, in most cases, all economic activities of the issuers would not be under investigation. However, from an ethical perspective, this might be suspicious and allow the issuers to conduct unethical behaviour elsewhere. Thus, this could lead to ‘cherry-picking’ where companies could choose which projects are to be implemented as sustainable.

The TEG’s general guidance on minimum safeguards applies to international standards, as no other indications have been given. Thus, the project-based approach and due diligence systems could be used with the OECD Guidelines for Multinational Enterprises, the UN Guiding Principles on Business and Human Rights, as well as with checking the compliance with other relevant principles and rights mentioned in the international standards. Next, the

²⁸⁹ Usability Guide: EU Green Bond Standard, p. 18-19.

²⁹⁰ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 35.

²⁹¹ *Ibid*, p. 33.

international standards referred to in the minimum safeguards are introduced, and, if relevant, specific guidelines for their interpretation are discussed. Guidelines include TEG's recommendations, but where such were not issued, interpretative assistance has been sought from documents and legal writings that handle international human rights standards.

4.4.1 OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are a collection of non-binding recommendations on responsible business conduct.²⁹² Although enterprises are not bound by the Guidelines, signatory countries must promote and implement them in the business sector. The Guidelines refer not only to multinational enterprises as their name suggests, but they represent the desired standard for all companies – big or small, multinational or domestic.²⁹³

The Guidelines cover many aspects of responsible business conduct. These include, inter alia, general compliance with laws and regulations, regular and transparent information disclosure on business activities and financial performance, respecting human rights and labour rights, combating bribery, taking into account consumer interests, using new technologies, contributing to science, refraining from competition restricting actions and paying taxes promptly and appropriately.²⁹⁴ Thus, the Guidelines refer to good corporate governance practices in addition to social issues. It is advisable to implement all recommendations as fully as possible, but for the purposes of taxonomy alignment, companies and investors should focus on respecting human and labour rights and combating bribery, bribery solicitation, and extortion. These focuses have been taken because the taxonomy applies at an activity level and assessing an undertaking's other activities or conduct altogether on a company level is outside the scope of the taxonomy.²⁹⁵ It has also been found that environmental compliance is already managed adequately if the substantial contribution and DNSH criteria are met, thus the minimum safeguards are not focused on environmental issues even though the Guidelines also include such issues.²⁹⁶

²⁹² OECD Guidelines for Multinational Enterprises – In Brief, p. 5.

²⁹³ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 17.

²⁹⁴ OECD Guidelines for Multinational Enterprises – In Brief, p. 7-8.

²⁹⁵ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 17.

²⁹⁶ *Ibid*, p. 18.

When assessing the compliance with minimum safeguards the company's size and local context must be considered. This is especially important when it comes to small and medium-sized enterprises (SMEs) because they may not have the same resources as larger enterprises. However, they should also strive to observe the Guidelines as fully as possible. Companies operating in non-signatory countries are also under special consideration.²⁹⁷ Thus, SMEs' human rights obligations are interpreted more narrowly than large companies, although they must also put their best foot forward.

National Contact Points (NCPs) are a domestically implemented complaint mechanism implemented through which the Guidelines are applied to individual cases. NCPs may assess whether a company has violated the Guidelines, although its conclusions and recommendation are not binding.²⁹⁸ For example, the NCP of the United Kingdom has found that companies have violated the Guidelines when an indigenous community has not been consulted before constructing a bauxite mine²⁹⁹, when supplier paid taxes to rebel forces that violated human rights in an ongoing conflict³⁰⁰, and when, after becoming a shareholder of local companies, the local companies had committed abuses³⁰¹. Because the TEG has not published any particular recommendations for interpreting the other international standards, the general recommendations given here, such as the context-specific assessment and general focus on human and labour rights and bribery, apply also to the UN Guiding Principles on Business and Human Rights, which are discussed next, as they are a similar set of non-binding recommendations.

4.4.2 UN Guiding Principles on Business and Human Rights

The UN Guiding Principles on Business and Human Rights are a soft law, non-binding mechanism established at a UN level. The comprehensive document refers to internationally recognized human rights obligations in hopes of encouraging businesses to respect them.³⁰²

²⁹⁷ *Ibid*, p. 17.

²⁹⁸ Palombo 2020, p. 53.

²⁹⁹ *Ibid*, p. 55. *Survival International v. Vedanta Resources plc*.

³⁰⁰ *Ibid*, p. 55. *Global Witness v. Afrimex Ltd*.

³⁰¹ *Ibid*, p. 56. *RAID v. ENRC*.

³⁰² *Ibid*, p. 51.

As a baseline, the rights set out in the International Bill of Human Rights and the ILO Declaration on Fundamental Principles and Rights at Work should be respected.³⁰³ These international recommendations are also included in the minimum guidelines; thus, the Guiding Principles are compatible with the approach chosen in the minimum guidelines. The Guiding Principles apply to all business enterprises and should be implemented in a non-discriminatory manner.³⁰⁴

The Guiding Principles revolve around three basic notions: 1) state's duty to protect human rights, 2) corporation's obligation to respect human rights, and 3) access to remedy which concerns both.³⁰⁵ Whereas states must protect human rights, companies have to respect them. The corporate responsibility to respect is independent and not linked to how the states fulfil their human rights duties.³⁰⁶ In essence, respecting human rights means that no harm should be done to the rights of others.³⁰⁷ It means addressing negative human rights impacts that are connected to the enterprise's activities and taking sufficient actions for preventing, mitigating and, where relevant, remediating the adverse impacts. Mere compliance with national laws and regulations concerning human rights has not been seen as sufficient. Both actions and omissions that cause human rights abuses are covered in the definition of business activity.³⁰⁸ An enterprise cannot either compensate for human rights abuses by doing good deeds somewhere else.³⁰⁹ TEG has also underlined the corporate responsibility to respect human rights, whereas governments, in the end, have the duty to realise and guarantee them³¹⁰.

Different necessary processes to respect human rights include giving out policy commitment to respect human rights, conducting human rights due diligence, and developing processes to

³⁰³ Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework, p. 13.

³⁰⁴ *Ibid*, p. 1.

³⁰⁵ Palombo 2020, p. 51.

³⁰⁶ Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework, p. 13

³⁰⁷ Protect, Respect and Remedy: A Framework for Business and Human Rights, p. 9.

³⁰⁸ Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework, p. 13.

³⁰⁹ Protect, Respect and Remedy: A Framework for Business and Human Rights, p. 17.

³¹⁰ Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance, p. 18.

enable remediating possible adverse human rights impacts.³¹¹ These processes include consulting with relevant stakeholders, integrating the findings from impact assessment across relevant internal units, following the response's effectiveness, reporting formally how human rights impacts are addressed, and cooperating in remediation through legitimate processes.³¹² The responsibility to respect human rights may also require the enterprise taking actions, such as specific recruitment or training programmes that implement the workplace anti-discrimination policy in practice.³¹³

Enterprise's business relationships are also relevant in fulfilling the responsibility to respect human rights. Business relationships have been defined as an enterprise's "business partners, entities in its value chain, and any other non-State or State entity directly linked to its business operations, products, and services"³¹⁴. Thus, the enterprise may not fulfil its corporate responsibility to human rights if there are serious human rights abuses in its supply chain and the company knows or should have known about it. Such problems can be avoided by conducting due diligence processes that apply also to the enterprise's business relationships.³¹⁵ This, along with the fact that enterprises are responsible also for their transnational operations, makes it possible to address problems that are due to long international supply chains, especially when it comes to large multinational companies.³¹⁶ For example, wind energy developers should assess their suppliers diligently because the metals that are needed for wind turbines may come from mines that have poor conditions and even child labour.

4.4.3 Other relevant principles and rights

According to Article 18(1) of the Taxonomy Regulation, the minimum safeguards also include the principles and rights in the eight fundamental conventions as determined in the

³¹¹ Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework, p. 15-16.

³¹² *Ibid*, p. 16-25.

³¹³ Protect, Respect and Remedy: A Framework for Business and Human Rights, p. 17.

³¹⁴ Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework, p. 15.

³¹⁵ Protect, Respect and Remedy: A Framework for Business and Human Rights, p. 21.

³¹⁶ Palombo 2020, p. 52.

Declaration of the ILO on Fundamental Principles and Rights at Work and the International Bill of Human Rights. Therefore, these international standards are also introduced here, as well as some relevant issues that may come up especially in the wind energy context.

The ILO Declaration on Fundamental Principles and Rights at Work identifies eight fundamental conventions which can be categorized into four core requirements: 1) joining employee associations and taking part in collective bargaining, 2) eliminating forced or compulsory labour, 3) eliminating child labour, and 4) eliminating discrimination.³¹⁷

Therefore, these requirements especially relevant for taxonomy users when it comes to labour rights and compliance with these principles and rights should be checked, also because labour rights were one of the main focuses when seeking alignment with the taxonomy.

The International Bill of Human Rights includes the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights and its optional protocol, and the International Covenant on Civil and Political Rights (ICCPR) and its two optional protocols. Thus, a wide range of human rights is included in the EU taxonomy. According to the UN Human Rights Committee, when implementing the Guiding Principles – which refer also to the International Bill of Human Rights – particular attention should be given to the rights, needs, and challenges of individuals from groups or populations that are in an increased risk of becoming vulnerable or marginalised, e.g., indigenous people, women, and ethnic, religious, and linguistic minorities. Human rights are also reflected differently in various industries, and thus, those human rights that are at greatest risk in the particular sector should be focused on.³¹⁸

In the wind energy context, the ICCPR and especially its Article 27 might be relevant. Article 27 states that: “In those States in which ethnic, religious or linguistic minorities exist, persons belonging to such minorities shall not be denied the right, in community with the other members of their group, to enjoy their own culture, to profess and practice their own religion, or to use their own language”. In the Nordic countries, reindeer herding traditionally practiced in the Sámi culture has been in conflict with wind energy development lately. Wind energy developers and reindeer herders compete for the same land and wind turbines may also

³¹⁷ The ILO Declaration on Fundamental Principles and Rights at Work: A Guide for Employers, p. 3.

³¹⁸ Guiding Principles on Business and Human Rights: Implementing the United Nations “Protect, Respect and Remedy” Framework, p. 14.

disturb reindeers.³¹⁹ Especially in Norway, there have been several successful oppositions to prevent wind farms in reindeer areas and arguments based on indigenous peoples' rights under the international regulation have turned out to be winning.³²⁰ One of these cases is *Fosen*³²¹ in which the Supreme Court of Norway found that reindeer herders' rights under Article 27 of the ICCPR would have been abused unless significant damages to the reindeer herders were paid by the wind energy developer. Even though the case concerned the state's duty to protect indigenous peoples' rights, it is interesting also when considering the wind power company's responsibility to respect indigenous peoples' rights.

The Supreme Court of Norway concluded in *Fosen* that Article 27 does not allow a proportionality assessment between the indigenous peoples' rights and other society interests³²², however, if the rights of indigenous peoples are in conflict with other rights in the ICCPR, they must be balanced against each other. The right to a good and healthy environment is included in the ICCPR, and if it was argued that this right conflicts with the indigenous peoples' rights, Article 27 could be interpreted strictly.³²³ This is something that

³¹⁹ Nysten-Haarala – Joonas et al. 2021, p. 1. Science shows that reindeers stay away from areas that have wind turbines regardless of whether they are under construction or operating. On this note, see, e.g., Skarin, Anna – Sandström, Per et al., Out of sight of wind turbines – Reindeer response to wind farms in operation in *Ecology and Evolution* Vol. 8 (19) 2018.

³²⁰ *Ibid.*, p. 10–11.

³²¹ The Supreme Court of Norway, Judgment 11 October 2021, HR-2021-1975-S. The *Fosen* case handled whether the license that the Ministry of Petroleum and Energy of Norway had issued to Fosen Vind DA was rendered void because Article 27 of ICCPR was violated. Drawing from the UN Human Right Committee's case law, it was concluded that "there will be a violation of the rights in Article 27 if the interference has a substantive, negative impact on the possibility of cultural enjoyment" (para 119). When assessing this, the economical situations of reindeer herders are relevant to the possible violation because reindeer husbandry is, besides a protected cultural practice, a way to make a living. Thus, it would probably not be practiced if it was not economically viable. The Supreme Court concluded that Article 27 is violated if the reindeer herders may not carry on the practice anymore because the pastures have been reduced (para 134). Finally, the Court concluded that because of the wind power development in the area, late winter pastures were lost in crucial areas and reindeer numbers will most likely be dramatically reduced. This dramatic reduction entailed that reindeer herders could no longer benefit financially from the trade or at least the profit was not proportionate to the efforts anymore. Thus, wind power development was seen as seriously threatening the trade and hence, also the cultural enjoyment (paras 136-137). Fosen Vind DA had to pay damages to the reindeer herder communities as remedy measures so that the interference would not equal a violation of Article 27, in which case also the license decision would have been rendered invalid.

³²² Para 129. Legal support was also drawn from the case *Angela Poma Poma v Peru*, where it was concluded that economic development may not undermine the rights protected by Article 27. On this note, see para 127.

³²³ Paras 130-131.

the wind energy developers should consider if they ever are in a conflict with indigenous peoples' rights.

However, because indigenous peoples' right to enjoy their own culture is protected under Article 27 of ICCPR, wind energy developers who plan to produce wind energy in the Sámi homeland area may have to consider changing location or taking other actions to respect the rights of the indigenous peoples. These include, for example, consulting the concerned Sámi communities before commencing any construction works and taking other adaptation measures, such as measures concerning the location of the project with respect to the migration routes or collection areas of reindeer³²⁴. However, in *Fosen*, the Court also stated that if the interference leads to serious consequences, it is not possible to prevent violation by consultation or adaptation measures³²⁵. All in all, it seems that altering the location is the safest way to ensure respecting the indigenous peoples' rights and aligning with the minimum safeguards. Because human rights compliance was one of the focus points of the minimum safeguards, the compliance should be assessed in the specific context of the industry, and particular consideration to vulnerable groups should also be given, wind energy developers should take the issue of indigenous peoples' rights seriously.

4.5 Conclusive remarks

Based on the previous discussion, certain remarks can be made relating to how the EU taxonomy should be interpreted and what sort of framing of sustainable development it has adopted. First of all, the taxonomy criteria must always be interpreted on a case-by-case basis as, for example, the location of the economic activity might have remarkable implications for the environmental sustainability of the project. Such context-specific considerations were relevant in DNSH criteria to climate change mitigation, water, and marine resources, and to biodiversity and ecosystems, as well as for the minimum safeguards. The context-specific approach allows the issuers and verifiers to take into account certain circumstances, such as location, sector, company size, and other contexts, allowing the taxonomy criteria to be applied proportionately to the specific matter at hand and ensure that different situations are not treated in the same way. On the other hand, the context-specific approach might leave too much discretion to the taxonomy users, essentially weakening the consistent use and thus,

³²⁴ Cambou 2020, p. 323.

³²⁵ Paras 121, 142.

legal certainty associated with the EU taxonomy. In situations where the context of the activity is especially relevant or the case otherwise is tricky, weight should be given to the legal principles, such as the precautionary principle, as they could ensure that some level of coherence is maintained.

Further, the minimum safeguards have to be met only on the activity level, not on the enterprise or institution level, underlying the context and process-based nature of the EU taxonomy. This could be problematic as the green bond issuers could choose to implement some projects ethically and issue green bonds for them, but not consider the human rights implications for some other projects for which green bonds are not issued. Nevertheless, they could still benefit from issuing green bonds to improve their reputation as an ethical and socially sustainable player, even though their operations somewhere else factually would not match this image.

The context and process-based approach could undermine the corporate's willingness to respect human rights. For example, where location is concerned, if corruption is more common in another country, are the minimum safeguard requirements relating to corruption no longer as stringent there as somewhere else? Could this lead to a certain 'race to the bottom' of human rights compliance where projects are launched in countries where human rights are not observed as rigorously and thus, savings could be made? In this regard, harmonisation could be a better option so no project that has received a green bond can be corrupt or indifferent to human rights.

Because the technical screening criteria often refer to existing EU legislation, the interpretation of the EU taxonomy essentially becomes interpreting these laws. The DNSH criteria especially referred to the EU environmental law that was seen as adequate to prevent significant harm to environmental objectives. As the current environmental laws often include derogations to the environmental protection which can be allowed on socio-economic grounds, thus reflecting the Winter's sociological proportionality, the sustainability framing that the EU taxonomy seems to have adopted is a one based on economy's needs.

The DNSH criteria to water and marine life, as well as for biodiversity and ecosystems, included environmental impact assessments. Environmental impact assessments have been seen to reflect the economic framing of sustainable development by allowing to trade

environmental losses against economic gains³²⁶. If the EU taxonomy would want to be serious about not significantly harming any species or habitats, it should adopt a more ecological framing of sustainability and, for example, use something similar to the eco-proportionality test introduced in Section 3.2.3, which would guarantee that interventions on nature would be under stricter control. Currently, the responsibility to ensure that the EU taxonomy takes into account environmental matters falls onto the hands of national authorities. This is somewhat worrisome because there might be different procedures and thresholds among the Member States, and thus the taxonomy criteria in reality are not uniform to all actors and might also lead to undertakings choosing to implement projects in countries where the environmental requirements are the most lenient. Therefore, it seems that though the EU taxonomy talks about ‘environmental sustainability’, in reality it refers to economical sustainability – at least where wind power is concerned. This economical framing is also seen to encourage further investments into wind energy.

However, it must be taken into account that the taxonomy criteria for wind energy are probably more lenient than for other sectors. To develop the technical screening criteria, seven different generic quantitative and qualitative approaches were used.³²⁷ Depending on the activity, the most suitable approach or mix of approaches was chosen.³²⁸ Where wind energy was concerned, the approach used was the nature of the activity criteria.³²⁹ Activities, for which criteria have been set according to this approach, are said to be “taxonomy-aligned without being subject to quantitative or qualitative requirements” provided that they do not significantly harm any environmental objectives and also fulfil the minimum safeguards.³³⁰ Although it seems that this approach has influenced also the DNSH criteria for wind energy, the nature of the activity must be an important factor as wind energy is one of the key technologies to mitigate climate change. Thus, as a whole, the EU taxonomy criteria are such that they do not impede the development of more wind energy – which could be assumed also

³²⁶ Dusík – Bond 2022, p. 93-95.

³²⁷ SWD(2021) 152 final, p. 107-109.

³²⁸ *Ibid*, p. 116.

³²⁹ *Ibid*, p. 266.

³³⁰ *Ibid*, p. 18.

for other activities that, despite some negative environmental effects, as a whole contribute to the fight against climate change³³¹.

³³¹ National Research Council (U.S.) Committee on Environmental Impacts of Wind-Energy Projects 2007, p. 14. Wind energy's environmental benefits, namely its ability to reduce GHG emissions, are enjoyed on wide spatial scales, whereas its environmental drawbacks are usually limited to a specific place and occur at much smaller spatial scales.

5 Conclusion

In this thesis, the taxonomy criteria relating to investment's environmental sustainability under the EU Green Bond Standard have been under examination. Chapter 2 provided the introduction to the theme, after which some general aspects relating to the interpretation of the EU taxonomy were discussed in Chapter 3 before the taxonomy criteria were interpreted and applied in the context of wind energy in Chapter 4. Through a case study, it was possible to learn more about the required level of greenness – a common definition of which has been lacking under the different green bond standards – under the EU Green Bond Standard, as well as about the interpretation of the EU taxonomy in this context. In addition, as the taxonomy criteria were interpreted, it was possible to learn also about the sustainability framing that the EU taxonomy has adopted.

It was found that the taxonomy criteria relating to environmental sustainability must be interpreted on a case-by-case basis where particular attention is paid to the context (e.g., location and sector) and different processes adopted in the economic activity (e.g., existence of due diligence systems). As the context and process-based approach may lead to inconsistent use of the taxonomy criteria, the principles mentioned in Section 3.2 could ensure that some level of coherence is maintained. When it comes to the sustainability framing, it seems that the framing is rather economic because of the centrality of the environmental impact assessments which allow environmental degradation on socio-economic grounds. However, it was also concluded that the economic framing might be justified for economic activities, such as wind energy, which, despite some negative environmental effects, as a whole contribute to the fight against climate change.

The findings also suggest that the taxonomy criteria – at least for wind energy – do not require much additional work from the green bond issuers, as the criteria often refer to the environmental laws. Most issuers would follow environmental legislation not because of the taxonomy alignment but for their wind energy projects to be approved in the first place. Therefore, in practice, it seems that the requirements of the Proposal on the EU Green Bond Standard related to reporting, external reviews, and so on might actually be more demanding than fulfilling the taxonomy criteria. For these reasons, it can be stated that the fears about the strictness of the EU taxonomy have not materialized, at least in the case of wind energy. It has been feared that too strict requirements would undermine the proliferation of sustainable finance and cause environmental-friendly projects no longer to receive funding, but this thesis

shows that the taxonomy requirements may in fact support additional investment in green projects. However, the minimum safeguards of the taxonomy criteria may impose rather strict requirements in certain situations.

The EU Green Bond Standard's link to the EU taxonomy will establish a common definition of a green – or environmentally sustainable – project which has been one of the issues in the green bond markets. However, it does not solve all problems in the green bond markets as there still remains a multitude of different green bond standards which govern green bonds in the international markets. In addition, many countries have or will have their own voluntary standards³³², so many different perceptions of the required level of greenness will continue to exist in the markets. This means that the issuers and verifiers must be very careful about the different requirements and criteria of the green bond standards. Further, this may cause confusion for investors, which issuers may exploit for greenwashing purposes.³³³ Compared to other green bond standards in the market, the EU Green Bond Standard's requirements come across as stricter and it will probably act as the golden standard in the future. Therefore, if issuers choose to issue green bonds under the EU Green Bond Standard, they will have to accept the increased workload – a price for increased transparency and reliability of the standard.

In the future, more research would be needed on both the EU taxonomy and the EU Green Bond Standard. Further research would be needed into how the taxonomy criteria are reflected in other economic activities so that more could be said about the interpretation and sustainability framing of the EU taxonomy as a whole. In addition, the use of EU green bonds outside Europe, in securitisation³³⁴, or in financing a portfolio of sustainable projects seems problematic and more research would be needed on these issues.

³³² Dusik – Bond 2022, p. 91. For example, there have been sustainability taxonomy efforts in France, Kazakhstan, Japan, India, Indonesia, and South Africa.

³³³ Freeburn – Ramsay 2020, p. 433.

³³⁴ See European Banking Authority's (EBA) report *Developing a framework for sustainable securitization* (2022).