European Green DLT Bond

Regulatory Report

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In collaboration with industry partners *Agreena Aps, BEC Financial Technologies A/S, Deon Digital Denmark A/S & ZTLment ApS (hereinafter referred as "Project Participants")*

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Executive Summary

Financing green transition through green investments and financial instruments has proliferated in recent years. Financial instruments contributing to environmental sustainability have become a priority for many issuers. Green finance became an industry that includes many financial products and services, such as green bonds, green investment funds, carbon markets, and energy trading. With the continuous development and advancement of distributed ledger technology (DLT), researchers and entrepreneurs can imagine professional and retail projects with increased security, transparency, audibility and traceability. Such an approach would perfectly serve assets such as green bonds. This Report provides a legal analysis of four possible set-ups in which a green bond could be developed using DLT technology. The first two scenarios are built around the forthcoming DLT Pilot Regime and its application for creating, trading and settling a DLT-based green bond or share. This part of the report analyses the complementarity between the DLT Pilot Regime and the applicable EU financial regulatory framework. The findings of this part are slightly disappointing as the DLT Pilot Regime set-up limits the typology of financial instruments that can be designed. Thus, the possible innovation regarding the possible settlement process is negatively affected. The third and fourth scenarios are built around the premise of technological neutrality and, as such, do not rely on the forthcoming DLT Pilot Regime. Nonetheless, they could benefit from the DLT Pilot Regime, if the supervisory authorities were to interpret DLT Pilot Regime Regulation more broadly. The third scenario is built around the existing Project Genesis 2.0., developed by the BIS Innovation Hub and analyses whether such a DLT bond could be designed and developed. The fourth scenario investigates the possibility of developing a DLT-based carbon emission platform, which would be able to connect end-users, such as farmers and investors or those seeking to purchase carbon credits.

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Abbreviations

BIS	Bank for International Settlements
CCP	Central Counterparties
CSD	Central Securities Depositories
DLT	Distributed Ledger Technology
DLT MI	DLT Market Infrastructure
DLT MTF	DLT Multilateral Trading Facility
DLT OTF	DLT Organised Trading Facility
DLT SS	DLT Settlement System
DLT TSS	DLT Trading and Settlement System
DLTR	DLT Pilot Regime
EBA	European Banking Authority
ESMA	European Securities and Markets Authority
EU	European Union
ICMA	International Capital Markets Association
OTF	Organised Trading Facility
MiFID	Directive 2014/65/EU on Markets in Financial Instruments
MiFIR	Regulation 600/2014/EU on Markets in Financial Instruments
MOI	Mitigation Outcome Interest
MOU	Mitigation Outcome Unit
MTF	Multilateral Trading Facility
SPV	Special Purpose Vehicle
UCITS	Units of Collective Investment Undertakings
VCM	Voluntary Carbon Market

Project Participants

Agreena Aps - emission measurement, reporting and verification
BEC Financial Technologies A/S - IT company for financial intermediaries
Deon Digital Denmark A/S - DLT asset management
ZTLment ApS - DLT settlement technology company

Purpose of this Report

The Report aims to provide a legal analysis of the applicability of DLT Pilot Regime (DLTR) for the potential project between the Project Participants. The Report serves as a legal analysis of the forthcoming DLTR and its overlap with the existing EU financial law for a collaborative project of Green DLT Bonds. The original aim of this Report was to design a DLT Green Bond in light of the DLTR and the existing EU financial law. However, during the legal analysis, we uncovered the major limitations of the DLTR, which unfortunately eliminated some of the

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potential innovative aspects of the collaboration. Therefore, we have expanded the original scope of this Report also to include an alternative legal construct through which the foreseen project could materialise. Thus, this Report ultimately consists of four scenarios. This Report has been developed over several months of research and numerous discussions and workshops with the Project Participants.

A. INITIAL CONSIDERATIONS & LIMITATIONS

When drafting the research proposal, the research focused on the forthcoming DLTR. The aim was to analyse how the DLTR could be used for designing an innovative financial instrument that would, on the one hand, provide sufficient capital for farmers that wish to transition into a sustainable form of farming and, on the other hand, create a desirable financial instrument for a variety of investors. In the initial stage of this Report, it was necessary to map the applicable law with a focus on the European Union (EU) financial regulatory framework. A brief overview is offered in the below table. Subsequently, this Report provides a deep dive into the DLTR and its application for this project. The analysis did not take into consideration the proposed Markets in Crypto-Assets Regulation (MiCA), given that at the time of finalising this Report, the final wording of MiCA was not adopted by the European Parliament.

Regulatory Overview

The chart below provides an overview of the relevant Regulations, Directives (Table 1) and other materials, such as guidelines or reporting principles (Table 2), that proved essential for this Report. Both tables provide the relevance of the material for the project at hand.

Table 1 EU financial regulatory framework

EU Legal Acts	Relevance
EU Directive on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms 2013/36 (link)	● Lays down rules concerning access to the activity of credit institutions and investment firms ○ Under which circumstances the credit institutions can obtain various licences/authorisations ● The requirements applicable to shareholders and members with qualifying holdings. ● All the requirements for establishing a financial institution are laid down in this Directive. ○ Concentration risk, securitisation risk, operational risk, market risk, and others. ○ Governance arrangements

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EU Regulation on improving securities settlement in the European Union No 909/2014 **CSDR** (link)	• Regulation applies to the settlement of transactions in all financial instruments and activities of CSDs unless specified otherwise
EU Capital Requirement Regulation 575/2013 (link) **CRR**	• CRD IV represent a comprehensive framework based on the recommendations of the Basel Committee (December 2010) • According to CRD IV/the CRR, financial institutions must hold enough liquid assets to maintain appropriate liquidity buffers and thus meet certain liquidity requirements. One requirement is the liquidity coverage ratio (LCR), intended to cover imbalances between incoming and outgoing cash flows in severely stressed situations over 30 days. • Governs ***credit institutions*** = an undertaking the business of which is to take deposits or other repayable funds from the public and to grant credits for its own account; • Governs ***investment firms*** = any legal persons whose regular occupation or business is the provision of one or more investment services to third parties and/or the performance of one or more investment activities on a professional basis

EU Directive on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, 2013/36/EU
CRD IV
(link)
	• CRD IV applies to:
	  ○ Credit institutions and investment firms;
	  ○ Supervisory and competent authorities;
	• It lays down the rules regarding the access to the activity of credit institutions and various assessment criteria for the supervisory and competent authorities when reviewing credit institutions' and investment firms' applications;

Directive 2014/65/EU on markets in financial instruments **MiFID II** (link)	• MiFID II applies to DLT financial instruments admitted to trading on DLT MTF and DLT TSS; • Governs investment firms = any legal persons whose regular occupation or business is the provision of one or more investment services to third parties and/or the performance of one or more investment activities;

EU Regulation on Markets in Financial Instruments 600/2014
MiFIR
(link)
	• MiFIR establishes uniform requirements in relation to the following:
	  ○ Disclosure of trade data to the public;
	  ○ Reporting of transactions to the competent authorities;

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	○ Trading of derivatives on organised venues; ○ Non-discriminatory access to clearing and non-discriminatory access to trading in benchmarks; ● Stipulates the transparency for trading platforms
Market Abuse Regulation **MAR** 596/2014 (link)	● MAR establishes a common regulatory framework on unlawful disclosure of inside information and market manipulation as well as measures to prevent market abuse to ensure the integrity of financial markets; ● MAR applies to financial instruments admitted to trading on regulated market, MTFs, OTFs or which price or value of which depends on or has an effect on the price or value of a financial instrument that has been admitted to trading; ● This Regulation has its relevance for designing the information flows between the various project participants regarding the financial instrument.
Regulation (EU) 2022/858 **DLT Pilot Regime** (link) *Effective from 23rd March 2023*	● Aims to allow experimentation in the financial services sector; ● Aims to develop both primary and secondary markets; ● Derogation from MiFID II and CSDR - in the trading and post-trading of crypto assets that qualify as financial instruments.
EU Prospectus Regulation 2017/1129 (link)	● Lays down requirements for the drawing up, approval and distribution of the prospectus to be published when financial instruments are offered to the public or admitted to trading on a regulated market situated or operating within a Member State; ● It provides a list of exemptions for which types of securities a prospectus does not apply (i.e. addressed solely to qualified investors; to fewer than 150 natural/legal persons, and others).
Taxonomy Regulation (EU) 2020/852 (link)	● Establishes a classification system for environmentally sustainable economic activities; ● Aims to protect private investors from greenwashing, help companies to become more climate-friendly, mitigate market fragmentation and help shift investments where they are most needed; ● Provides definitions for **environmentally sustainable investment** - *as an investment in one or several economic activities that qualify as environmentally sustainable under the Regulation* ● The definition of environmentally sustainable economic *activity* consists of four criteria: 1. Contributes substantially to one or more of 6 environmental objectives, such as a. Climate change mitigation

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	b. Climate change adaptation c. Sustainable use and protection of water and marine resources d. Transition to a circular economy, e. Pollution prevention and control, and f. Protection and restoration of biodiversity and ecosystem. 2. Does not significantly harm any environmental objectives; and 3. It is carried out in compliance with the minimum safeguards, and 4. Complies with technical screening criteria that the Commission has established.
Regulation on the Establishment of a Framework to Facilitate Sustainable Investment (EU) 2019/2088 (link)	• Relevant for understanding whether an economic activity qualifies as environmentally sustainable • Transparency requirements of financial products that promote environmental characteristics
Regulation 2019/2088 on sustainability-related disclosures in the financial services sector (link)	• This Regulation lays down harmonised rules for financial market participants and financial advisers on transparency concerning the integration of sustainability risks and the consideration of adverse sustainability impacts in their processes and the provision of sustainability-related information concerning financial products. (This regulation itself does not require any additional licence.) • Applicable to diverse financial market participants (Art. 2(1)) - from investment advisors and credit institutions to pension funds; • One should consider that any platform that would be selling financial products, whether or not having a specific financial licence would be subject to this Regulation; This regulation does not require an additional licence; • The main purpose of this Regulation is to share information on the financial product (sustainable investment) in pre-contractual disclosures with future investors, website, periodic reports, and marketing communications.
Directive 2014/95/EU of disclosure of non-financial and diversity information by certain large undertakings (link)	• This Directive outlines the obligation of large undertakings (500 employees and more + some financial thresholds) to **report** on the undertaking's development, performance, position and impact of its activity, relating to, as a minimum, environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters.

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	• It is important to have this Directive in mind from the perspective that larger undertakings that might be interested in purchasing the Green Bonds will have an obligation to comply with this Directive and issue relevant reports - and thus have access to the necessary data and information.
European Green Bonds Regulation (EU) *(Proposal & Not applicable)* (link)	• Requirements for the issuance of European Green Bonds • Requirements for an obligatory review by external reviewers registered with ESMA; • Prospectus of such a bond must comply with the existing Prospectus Regulation (EU) 2017/1129; • Governance obligations (Chapter II of the Proposal);
Directive 2003/87/EC establishing a system for greenhouse gas emission allowance trading within the Union 2003/87 (link)	• Establishes a system for greenhouse gas emission allowance trading within the EU

Table 2

Soft Law/Guidelines	Relevance
ICMA Green Bond Principles (link)	• The core components and key recommendations for issuers. • The four core components for alignment with the GBP are 1. Use of Proceeds 2. Process for Project Evaluation and Selection 3. Management of Proceeds 4. Reporting • The key recommendations for heightened transparency are: (i) Green Bond Frameworks (ii) External Reviews
Green Bond Handbook (link)	• Provides a step-by-step guide to issuing a green bond • Provides a good insight into the traditional market step-by-step
ICMA Harmonised Framework for Impact Reporting (link)	• Outlines the Core Principles and Recommendations for Reporting on green bonds

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	• The Framework also indicates sector-specific guidance and reporting metrics - indicators that should be collected and reported • Would be beneficial to keep in mind when setting up the reporting framework
ESMA Q&A to DLT Pilot Regime (link)	• Reporting under MiFIR Art 26 and RTS 22 apply to DLT financial instruments unless an exemption from MiFIR Article 26 and RTS 22 have been granted. If the exemption is not in place, the reporting obligation applies as soon as the DLT-MTF/TTS is granted permission to operate (no implementation lead time is envisaged).
ESMA, Guidelines on standard forms, formats and templates to apply for permission to operate a DLT Market Infrastructure 15/12/2023 (ESMA Guidelines) (link)	• ESMA published Guidelines that provide further help and interpretation for some of the concepts and rules indicated in the DLTR;
ESMA, Report on the DLT Pilot Regime 27/9/2022 (ESMA Report) (link)	• Additional insights and interpretations of the DLT Pilot Regime

Literature Review

Green finance is essential in financing renewable and green energy projects to reduce carbon emissions and its negative health impacts, develop resilient climate infrastructure and ensure sustainability. Green finance denoted private and public financing related to banking, investment, and insurance that aims to support building biodiversity, climate mitigation and adaptation. Public and private entities have developed various-size projects and focus on investigating possible green finance solutions. Multiple governments and entities have focused on developing large-scale carbon credit markets or voluntary carbon markets (VCMs), such as Singapore's Climate Impact X, South Pole or Wren, and many others. However, the latest IPCC Report shows numerous problems with credits traded on VCMs, including their calculation and integrity or transparency, as shown by the latest IPCC Report. Thus, more recent projects have recognised the potential technological features of DLT technology to increase transparency and reduce

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risks (Schloesser & Schulz, 2022), such as SDG Exchange, Climate Trade or Carbonex.[1] This section aims to introduce the variety of green finance projects that could serve as an inspiration for the project at hand. Some of the below-described projects are, at this point, only theoretical, but numerous have already been initiated into practice (*see* Table 3 in Annex).

In light of the need for innovative and trustworthy green finance, DLT applications are being used across various sectors, including climate mitigation and adaptation (Dorfleitner et al., 2021), the energy sector (Andoni et al., 2019), smart cities (Treiblmaier et al., 2020) as well as agriculture (van Wassenaer et al., 2021). DLT has been reviewed as a possible new technology that could improve efficiencies in the distribution of green bonds and facilitate more insightful reporting on the environmental impact of green bond proceeds. Conceptually, such efficient distribution and enhanced reporting will not only ensure greater transparency for green bond initiatives but could also improve public participation and engagement in green finance. As DLT technology, protocols, and interoperability continue to develop, we explore more and more applications of DLT in green finance (UNCTAD 2020). Furthermore, the evolution of the green bond market is also substantial. While at the end of 2015, the total value of globally issued green bonds amounted to US$ 105 billion, within five years, the market grew ten times to US$ 1050 billion (Climate Bonds Initiative 2021).

With the growing green finance market, many new projects, initiatives and companies are emerging, providing innovative FinTech solutions, tokenised green bond issuance, peer-to-peer renewable energy trading, carbon credit trading, and crowdfunding climate finance (Cao et al., 2021). The following are some prime DLT-based initiatives that aim to accelerate green finance and sustainable investments.

- ***Project Genesis*** is a green bond issuance prototype initiated by the Bank of International Settlements Innovation Hub and the Hong Kong Monetary Authority. It is a digital platform combining DLT to tokenise assets and infrastructure of governmental green bonds.It is based on a private DLT that offers a transparent secondary market for retail investors, where everyone can easily access safe green government bonds.(Project Genesis 2.0, 2022)
- ***Climate Change Coalition*** was formed in 2017 by various stakeholders focusing on utilising DLT for mobilising green finance. The coalition involves more than 170 members ranging from research institutions and other initiatives to private sector companies
- ***Stockholm Green FinTech*** is a non-profit organisation aiming to strengthen green finance and investment through various FinTech solutions.
- ***Green Asset Wallet*** is a DLT platform for validating and reporting financial impact. The platform intends to provide transparency and efficiency for the green market.
- ***WePower*** is a platform that established robust connections among energy suppliers, producers and corporate buyers to provide simple digital energy sourcing on a DLT. The platform offers a high degree of flexibility in signing direct energy contracts.

[1] For an overview of various FinTech operating in the carbon offset credit space, *see* Dharish D., et al., 'Developing FinTech Ecosystems for Voluntary Carbon Markets Through Nature-Based Solutions: Opportunities and Barriers in ASEAN' in Taghizadeh-Hesary, F., & Hyun, S. (eds.), *Green Digital Finance and Sustainable Development Goals,* Economics, Law, and Institutions in the Asia Pacific (Springer, 2022), pp.128-134.

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- ***Japan Green Guarantee Scheme*** envisions establishing a tax incentive system of green credit guarantee schemes, which could reduce the risk of green finance by utilising tax incentives to invest in green finance (Taghizadeh-Hesary & Yoshino, 2019).

B. **SCENARIOS**

I. SCENARIO 1 - DLT GREEN BOND UNDER DLTR

Scenario 1 focuses on the possibility of issuing corporate green bonds, where the issuer of a DLT-based Green Bond would be Agreena, whereas the platform, which would offer the DLT Green Bond would be a DLT based platform, operated by Deon Digital. The DLT Green Bond would have the classical legal and structural parameters of a traditional green bond while being designed for a DLT system and then utilised in a smart contract to trigger, sell/buy orders once specific thresholds are reached. Accordingly, the effective use of DLT depends on initial design choices, both on-chain and off-chain, including specific governance systems. These choices must be designed by all key participants and presuppose rigorous assessments for each application to select the most suitable DLT. It is also for consideration which specific tools, including smart contracts, will be used and for which particular purpose. DLT is a useful digital tool for tackling specific problems in green finance, such as the need for standardised and transparent monitoring and evaluation, but not a stand-alone technological solution for key political issues in the field of climate finance. The specifics of the DLT design are outside the scope of this Report.

It is for the consideration of Agreena, which type of green bonds they choose.

Green Bonds

Green bonds are fixed-income securities which finance investments with environmental or climate-related benefits. Green bonds aim to “internalise environmental externalities and adjust risk perceptions” for the sake of increasing environmentally friendly investments (G20 GFSG (2016)). Green bonds can help to alleviate various environmental externalities through market-based means. Green bonds support the flow of funds to environmentally beneficial projects, essentially reducing their costs as well as heightening awareness of the financial risks related to environmental change (Ehlers & Packer, 2017).

To increase trust in green bonds, various organisations have started to provide certification to indicate adherence to particular definitions of “green” to support asset managers in their reporting obligations. Certification bodies or rating agencies can support green bond identification and certification schemes.

Typology of Green Bonds

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1. *Green use of proceeds bonds*

A “green use of proceeds bond” is a standard recourse-to-the-issuer debt obligation for which the proceeds are held in a sub-portfolio or otherwise tracked by the issuer and attested to by a formal internal process that is linked to the issuer's lending and investment operations for projects. The Green Bond Principles recommend that issuers disclose to investors the types of temporary investment instruments for the balance of unallocated proceeds.

2. *Green use of proceeds revenue bond or asset-backed securities*

A “green use of proceeds revenue bond” is a non-recourse-to-the-issuer debt obligation in which the credit exposure in the bond is to the pledged cash flows of the revenue streams, fees, taxes, etc. The use of proceeds of the bond goes to related **or** unrelated green projects. The proceeds are moved to a sub-portfolio or otherwise tracked by the issuer and attested to by a formal internal process linked to the issuer's lending and investment operations for projects. The Green Bond Principles recommend that issuers disclose to investors the types of temporary investment instruments for the balance of unallocated proceeds.

3. *Green project bond*

A “green project bond” is a project bond for a single or multiple green project(s) for which the investor has direct exposure to the risk of the project(s) with or without potential recourse to the issuer.

4. *Green securitised bond*

A “green securitised bond” is collateralised by one or more specific projects, such as covered bonds, asset-backed securities and other structures. The first source of repayment is generally the cash flows of the assets securing the bonds. This type of bond covers, for example, asset-backed securitisations of rooftop solar photovoltaic systems.

5. *Covered green bonds*

This instrument also involves financing a group of green projects, known as the “covered pool”. In this case, investors have recourse to the issuer, but if the issuer cannot make the debt payments, bondholders gain recourse to the covered pool.

6. *Loans*

Financing for green projects may be secured by collateral or unsecured. In the case of secured loans, lenders have recourse to the collateral, whereas, in the case of unsecured loans, lenders have full recourse to the borrower's assets.

Specifications for a DLT Green Bond

Once **Agreena** determines the type of bond, several considerations need to be maintained:

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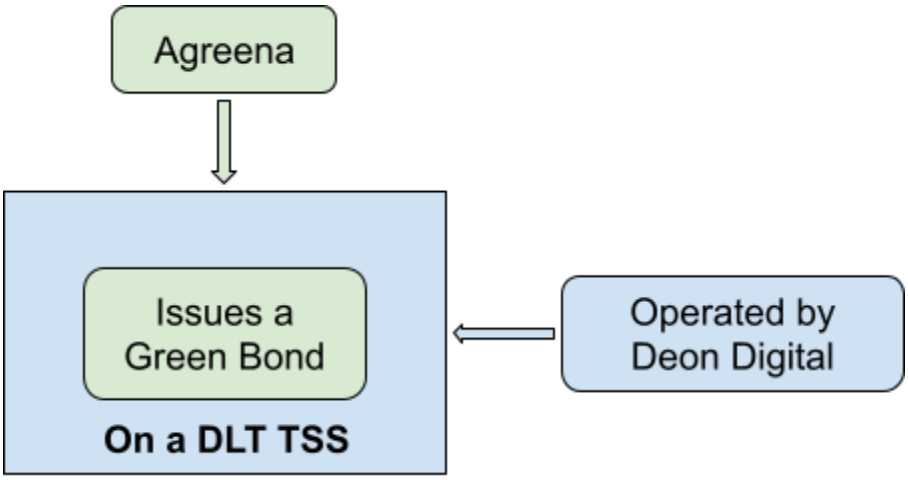
- Under DLTR, DLT financial instruments shall only be admitted to trading on a DLT MI or be recorded on a DLT MI if, at the moment of admission to trading or the moment of recording on a distributed ledger, the DLT financial instruments are **bonds**, with an issue *size of less than EUR 1 billion*, excluding those that embed a derivative or incorporate a structure which makes it difficult for the client to understand the risk involved.
- Under DLTR, DLT financial instruments shall only be admitted to trading on a DLT MI or be recorded on a DLT MI if, at the moment of admission to trading or the moment of recording on a distributed ledger, the DLT financial instruments are **corporate bonds** issued by issuers whose market capitalisation did not exceed EUR 200 million at the time of their issuance shall be excluded from the calculation of the threshold (1 billion).
- The aggregate market value of all the DLT financial instruments that are admitted to trading on a DLT MI *shall not exceed EUR 6 billion* at the moment of admission to trading, or initial recording, of a new DLT financial instrument.



Deon Digital aims to acquire a licence under MiFID II and the DLTR to be an operational DLT TSS. As such, Deon Digital can create a service to provide do-it-yourself (DIY) bonds, which permit the issuer (Agreena) to build their own DLT-based green bonds. DIY bonds allow investors to build and manage their portfolios without intervention or guidance from a professional financial advisor. These bonds can then be offered via the issuance of security tokens.[2] It is worth mentioning that one of the greatest use cases of tokenising green assets is fractional asset ownership. Green bonds and other assets can be converted into smaller units and offered to a larger pool of investors. When combining fractional asset ownership with automated reporting, small investors will be able to supervise the progress of their investments quicker and easier.

[2] According to the DLTR The so-called 'tokenisation' of financial instruments, that is to say, the digital representation of financial instruments on distributed ledgers or the issuance of traditional asset classes in tokenised form to enable them to be issued, stored and transferred on a distributed ledger, is expected to open up opportunities for efficiency improvements in the trading and post-trading process. However, as fundamental trade-offs involving credit risk and liquidity remain in a tokenised world, the success of token-based systems will depend on how well they interact with traditional account-based systems at least in the interim.

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DLT Pilot Regime (DLTR): Considerations for Deon Digital

A permit issued under the DLTR covers the operation of a DLT MI exclusively. It does not replace an authorisation under MiFID II or CSDR.

A. Eligibility for DLTR

a. Authorised investment firms and market operators may apply to operate a DLT multilateral trading facility (DLT MLF);
b. Authorised central securities depositories may apply to operate a DLT securities settlement system (DLT SS);
c. Both groups may apply to operate a combined DLT trading and settlement system (DLT TSS);
d. New entrants may apply for temporary authorisations as investment firms/market operators or CSDs, alongside an application under the DLTR regime.

B. Eligible applicants

To be an eligible applicant under DLTR, Deon Digital must be authorised either under Regulation (EU) No 909/2014 (CSDR) or Directive 2014/65/EU (MiFID II). Alternatively, Deon Digital must apply simultaneously to the above and DLTR (Art 11 Preamble).

C. Types of operations

There are three types of operation under DLTR:

a. DLT MTF (multilateral trading facility) is operated by an investment firm, or a market operator authorised under MiFID II and has received specific permission under the DLTR. DLT MTF and their operators should be subject to all requirements under MiFIR and MiFID II, but the granted exemptions under DLTR;
b. DLT SS (settlement system) should be a settlement system operated by a CSD authorised under CSDR that has received specific permission to operate a DLT SS under DLTR
c. DLT TSS (trading and settlement system) combines the activities normally performed by MTFs and SSs. As such, a DLT TSS is operated either:
    i. By an investment firm or market operator
    ii. By a CSD

D. Eligible financial instruments

a. DLT financial instruments is a financial instrument that is recorded, transferred and stored using distributed ledger technology;
b. The definition of financial instrument is provided by MiFID II (Annex, Section C). It shall include all financial instruments employing distributed ledger technology.
c. Art. 3 of DLTR Regulation, however, **limits** the types of financial instrument admitted to trading or recorded on a DLT market infrastructure should be limited

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to *shares, bonds, and units in collective investment undertakings* that benefit from the execution-only exemption under Directive 2014/65/EU.

Only DLT shares, bonds and units in collective investment undertakings can be admitted to trading or be recorded on a DLT.

d. DLT MIs may only admit/record bonds of issuers with an issuance size below EUR 1 billion. The total market value of DLT transferable securities recorded at a DLT MI may not exceed EUR 6 billion at the moment of admission to trading or initial recording. Then the aggregate value of DLT financial instrument traded/recorded on a DLTY MI reaches EUR 9 billion - this DLT MI needs to implement a pre-defined transition strategy.[3]

E. Exemptions from general regulation

a. The operators will generally be subject to applicable regulation to the equivalent traditional market infrastructures, except the requested exemptions. Except where specific exemptions were given, the operators continue to be governed and regulated by MiFID II, MiFIR, MAR or CSDR.
b. The DLTR permission procedure should broadly follow the same procedures as those for authorisation under CSDR or MiFID II, while the Applicant must indicate the exemptions it is requesting.
c. The requested exemptions must be specific and incompatible with the proposed DLT use case (*important*);
d. Each granted exemption will be subject to certain attached conditions, with which the operator must comply;
e. Exemptions should be granted temporarily, for a period of up to six (6) years from the date on which the specific permission was granted, while being valid only for the duration of the pilot regime;
f. A DLT SS/ DLT TSS that settles transactions in DLT financial instruments may require exemptions from some definitions under CSDR (dematerialised form, transfer orders, securities account) as well as from rules on the recording of securities, the integrity of issue, segregation of assets, measures to prevent and address settlement fails, outsourcing, the conduct of business, settlement finality, cash settlement or access between CSDs, and between CSDs, trading venues and CCPs, and might not be designated as a securities settlement system under the Settlement Finality Directive, provided that appropriate compensatory measures are in place (*important*);[4]

F. Specific permission to operate DLT TSS (Art 10 DLTR)

a. A legal entity authorised as an investment firm (MiFID) **or** as a CSD (CSDR) may apply for specific permission to operate DLT TSS;
b. Section 4 of Article 10 DLTR lists all the necessary information that the DLT TSS shall provide when applying for permission under DLTR;

[3] Section 12 ESMA Report.
[4] Section 10, ESMA Report.

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c. Follow ESMA's Guidelines;
d. A competent national authority has 30 days to assess whether the application is complete or provide a deadline to submit additional information;
e. Once the application is considered complete, it shall send a copy of the application to ESMA and the relevant authorities specified in Article 12 of Regulation under CSDR

The permission under the DLT Pilot is granted by the NCA for a period of up to 6 years.

G. Settlement of transactions

a. CSDR encourages the settlement of transactions in central bank money. Where this is not feasible, it should be possible for a settlement to take place through the CSD's (DLT TSS's) own accounts in accordance with that Regulation or through accounts opened with a credit institution ('commercial bank money').
b. Therefore, a temporary exemption should be allowed for CSDs operating a DLT SS from the provision of that Regulation on cash settlement to develop innovative solutions under the pilot regime by facilitating access to commercial bank money, or the use of 'e-money tokens'.
c. Other than the requirements that have proven impractical in a distributed ledger technology environment, the requirements linked to cash settlement under Regulation (EU) No 909/2014 continue to apply outside the pilot regime. Operators of DLT market infrastructures should therefore describe in their business plans how they intend to comply with Title IV of Regulation (EU) No 909/2014 if they eventually exit the pilot regime;

H. Obligations of the DLT MIs

a. Operators under the DLTR regime will be subject to additional requirements for the risks associated with the novel technology and structure;
b. Operators will require a clear business plan, an appropriate legal rulebook, disclosure to stakeholders on how the offering differs from a traditional offering, robust arrangements around technology and the protection of client assets, and a credible exit strategy (in case the pilot discontinues);
c. Provide publicly available up-to-date, clear and detailed written documentation that defines the rules under which the DLT MI and their operators are to operate, including the legal terms defining the rights, obligations, responsibilities and liabilities of operators of DLT MI - such legal terms shall specify the governing law, any pre-litigation dispute settlement mechanisms, insolvency protection measures and the jurisdictions in which legal action may be brought;
d. Establish or document rules on the functioning of the distributed ledger they use, including the rules on accessing the DL, on the participation of the validated nodes, on addressing potential conflicts of interests, and on risk management,

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including any mitigation measures to ensure investor protection, market integrity and financial stability;

e. Provide information regarding how the operators carry out their functions, services and activities and how their performance of those functions, services and activities deviates from those performed by a multilateral trading facility or securities settlement system that is not based on distributed ledger technology.
f. Ensure that the overall IT and cyber arrangements related to the use of their distributed ledger technology are proportionate to the nature, scale and complexity of their businesses.

I. Applications

a. In the application, the applicant must indicate which regulatory exemption they seek;
b. Applications are to be made to relevant national authorities. National authorities are required to consult with ESMA as part of their decision-making process.

J. Limitations

a. In the Preamble, Art. 14, the DLTR clearly stipulates that the use of DLT can expedite and combine trading and settlement in near real-time and could enable the combination of trading and post-trading services and activities (i.e. sale of carbon credits and alike). However, the combination of trading and post-trading activities within a single entity is not envisaged by the existing rules, irrespective of the technology used. Thus, if any additional services or activities were introduced concerning the reading and settlement of DLT green bonds, these would have to occur with a third party, not Deon Digital.

The Green Bond Framework (GBF)

GBF is the document that underpins every Green Bond issuance. It plays multiple roles in the issuance process:

- It sets out the “green” characteristics
- Is built on four pillars:
    1. Use of proceeds
    2. Project evaluation and selection
    3. Management of proceeds
    4. Reporting
- GBF is based on the issuer’s (Agreena) Sustainability Strategy.

It is important that the GBF is compatible with the underlying technology and applied governance systems.

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Obligations before issuing the DLT Bond

1. The DLT TSS (Deon, which will hold a MiFID II licence), the market operator, although it is exempted from applying for a fully-fledged authorisation as a CSD, will have to comply with a selection of the requirements that apply to a CSD under CSDR. More specifically:
    a. the requirements for a multilateral trading facility under Regulation (EU) No 600/2014 and Directive 2014/65/EU; and
    b. mutatis mutandis, the requirements that apply to a CSD under Regulation (EU) No 909/2014, except for Articles 9, 16, 17, 18, 20, 26, 27, 28, 31, 42, 43, 44, 46 and 47 of that Regulation.

II. SCENARIO 2 - DLT SHARE UNDER DLTR

As an alternative to creating a green DLT bond, Agreena could consider designing and establishing a special purpose vehicle (SPV) which main aim and purpose would be to become an umbrella financing entity. The SPV would sell its shares to investors (most presumably sophisticated), and the proceeds from this sale would be used for financing the green translation of the projects selected by Agreena. These projects would, over time *t* accumulate *x* tons of CO2, which could then be distributed to the investors (shareholders) through dividends.

The structure is shown in Figure 2.

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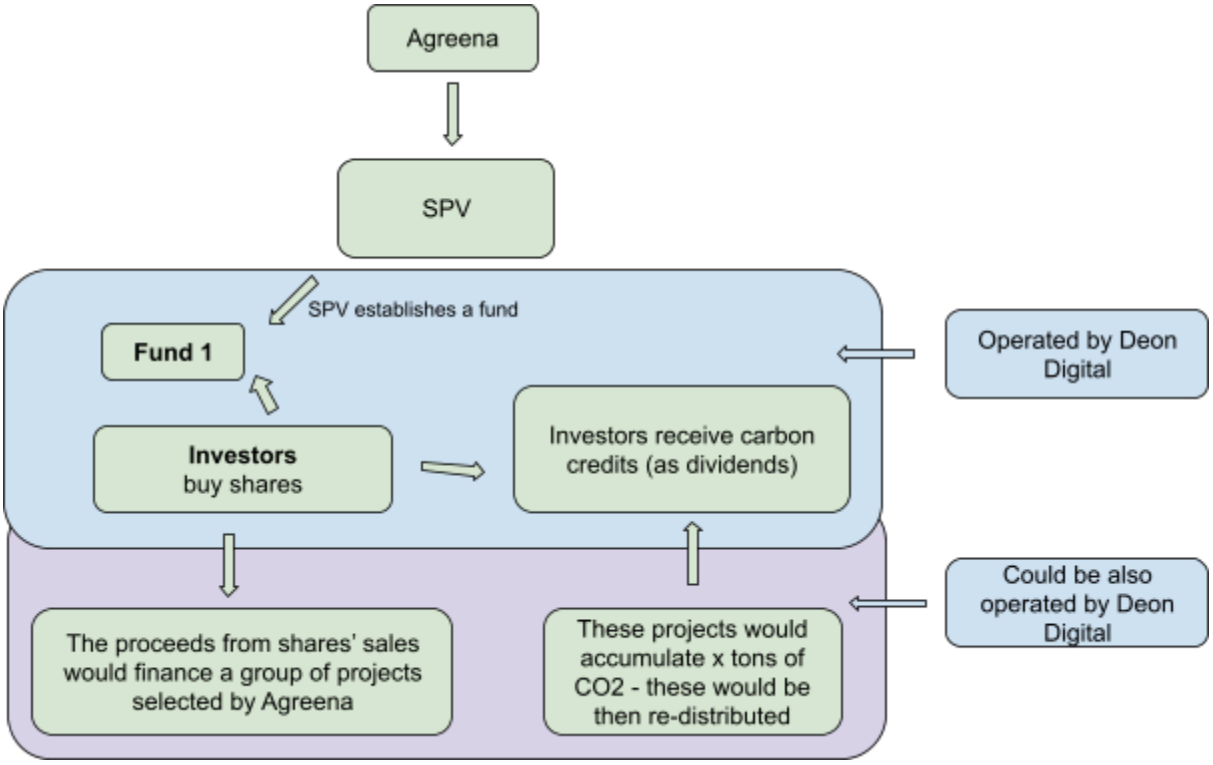

Figure 2

A. Shares on DLT

According to DLTR, the types of financial instruments admitted to trading or recorded on a DLT market infrastructure should be limited to *shares*, bonds, and units in collective investment undertakings that benefit from the execution-only exemption under Directive 2014/65/EU. As discussed in the above sections, the DLTR aims to allow regulated entities to innovate by lowering some of the regulatory obligations.

DLTR itself is very narrow when discussing the offering of shares. Only Article 3 stipulates that besides bonds and UCITS, the DLT financial instruments are ***shares,*** the issuer of which has a market capitalisation, or a tentative market capitalisation, of less than EUR 500 million. The rationale for setting the maximum value is to avoid risk to financial stability, the aggregate market value of DLT financial instruments admitted to trading or recorded on a DLT market. Besides this provision, DLTR does not specify further requirements or limitations regarding such shares. Regarding MiFID II, shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares are considered "transferable securities".[5]

[5] Art. 4 (44) MiFID II.

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B. Execution-only exemption

The execution-only (together with appropriateness) requirements are an important element of investor protection in the case of the provision of non-advised services to clients. According to the MiFID II "execution-only" exemption,[6] Member States shall allow investment firms when providing investment services that only consist of execution or reception and transmission of client orders with or without ancillary services, excluding the granting of credits or loans that do not comprise of existing credit limits of loans, current accounts and overdraft facilities of clients, to provide those investment services to their clients without the need to obtain the information or make the determination regarding investor's knowledge and experience relevant to the specific type of product or service offered or demanded, where ***shares admitted to trading on a regulated market or an equivalent third country market or on an MTF, where those are shares in companies, and excluding shares in non-UCITS collective investment undertakings and shares that embed a derivative***.

Based on the above, these types of shares should also be allowed to be admitted to trading or recorded on DLT.

C. Regulating Shares and Dividends

The existing regulatory framework of companies has been left to the individual Member States. This means that each Member State in the EU has national laws that specify the characteristics of its publicly and privately traded companies and the rights and obligations attached to the shares and dividends. It is beyond the scope of this Report to review the regulatory framework of all EU Member States. However, we have briefly reviewed the Danish Companies Act[7] regarding the nature of dividends and whether dividends can be paid in other forms than cash, i.e. carbon credits.

D. Non-cash Assets as Dividends

According to the Danish Companies Act, a company may distribute ordinary or extraordinary dividends. According to Article 181, ***non-cash assets*** can be distributed as dividends. In such a case, a valuation report must be prepared in accordance with Articles 36 and 37. The declaration by the valuation expert must state that the amount of the dividend corresponds to at least the estimated value of the non-cash assets distributed. The balance sheet, pursuant to section 36(3), must be prepared as a pre-acquisition balance sheet for the transferred undertaking. If the central governing body prepares and files a declaration under section 38(2), it has no obligation to obtain a valuation report in connection with the distribution of assets, as mentioned in section 38(1). The central governing body must publish the declaration in the IT

[6] See Article 25 (4) MiFID II and Article 57 of the MiFID II Delegated Regulation.
[7] See Consolidating Act no 1952 of 11 October 2021.

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system at the Danish Business Authority by no later than two weeks after the date of the resolution on distribution, cf. section 9(3). The same is valuation process is applicable if extraordinary dividends are distributed as non-cash dividends (Article 183 (5)). Therefore, the general meeting may decide to distribute its dividend alson in non-cash assets, such as carbon credits, provided that they follow the process stipulated in the Danish Companies Act.

E. Possibilities and Limitations

Establishing an SPV that would further create other entities whose shares would be traded on Deon's MTF is a viable solution under the existing regulatory framework, including the DLTR. Even more so if the dividends could be paid in the form of carbon credits. However, this is still an untested design that would benefit further analysis, both from the national company and tax law perspective.

III. SCENARIO 3 - PROJECT GENESIS 2.0 in EU

Within scenario 3, the ultimate focus is to review Project Genesis 2.0 from the EU regulatory perspective.[8] It is reviewed whether, under the existing EU financial regulation, it would be possible to issue green bonds that would have attached carbon credits under the existing EU financial regulation. The rationale for this endeavour is that carbon markets represent an important market mechanism for decarbonisation, and numerous corporate entities outside the classical financial market would thus be interested in investing in green bonds, where they could also benefit from carbon credits.

A. Structure of a DLT Green Bond with Carbon Credits

Project Genesis 2.0 proposed a new structure of a green bond that serves the 1.5°C climate goal, specifically, green bonds appended with a Mitigation Outcome Interest (MOI)[9], which is an instrument of carbon unit indebtedness.The green bond is appended with MOIs, which will be repaid in Mitigation Outcome Units (MOUs) - *de facto* verified carbon credits recognised either by international, national or other verification mechanisms in line with the Paris Agreement. The MOIs can be sold and traded immediately, separate from the bond issuance. The MOUs are used to repay the MOI obligations. The MOUs need to be generated by the asset or activities financed by the proceeds of the bond and not simply bought from the carbon market. The MOUs, in the case of Agreena, would be generated by the projects that would be financed by Agreena, as depicted on Figure 3.

[8] *See* Hong Kong Monetary Authority, *Project Genesis 2.0.: Smart Contract-based Carbon Credits attached to Green Bonds* (Genesis 2 Report).
[9] MOI is an instrument of carbon unit indebtedness o a green bond issuer to the holders of the MOI. Future repayment of MOIs is made using mitigation outcome units (MOUs.)

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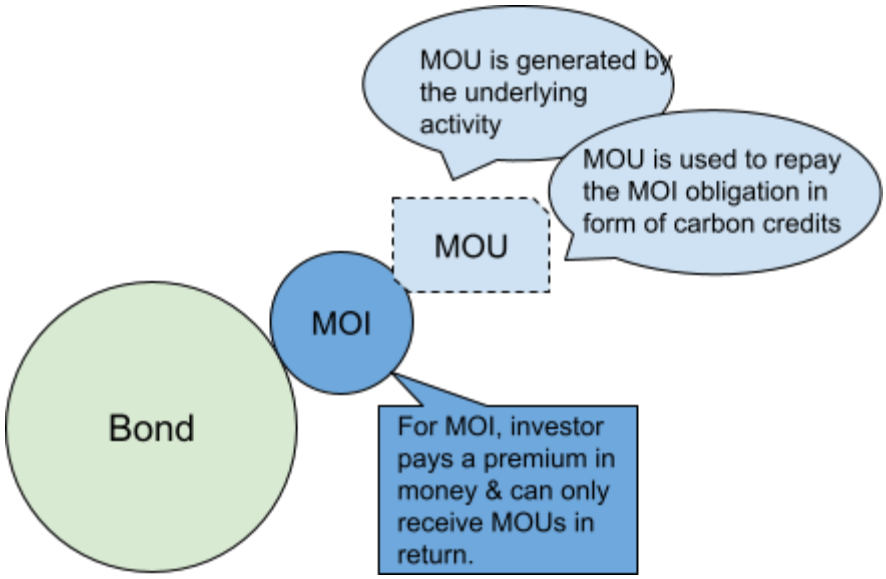

Figure 3

Structurally, the relationship between the Issuer and the Investor would look the following way:

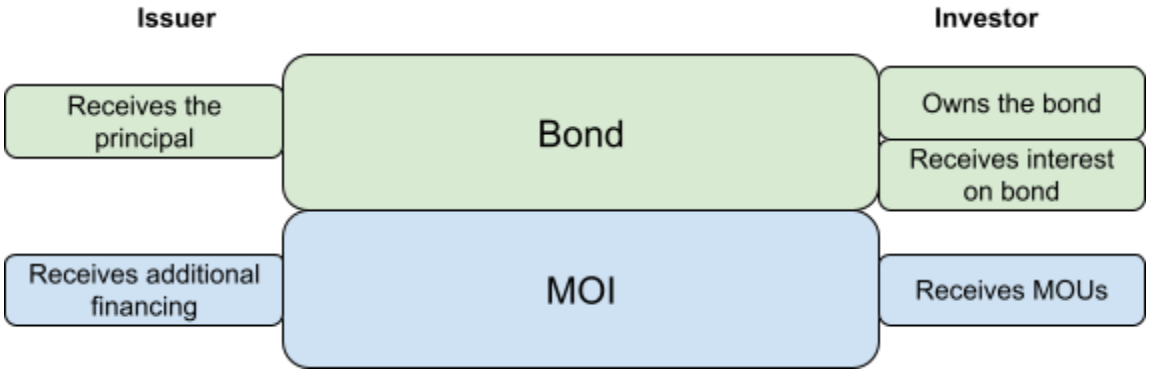

Figure 4

Based on this structure, there are numerous benefits for the Investor, as during the life of the bond, they would be able to receive (1) interest on bonds, (2) the MOUs in the form of carbon credits and at maturity would receive back the (3)principal on bonds. Thus, such a financial tool

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could become of great interest to potential investors. The further added value to the above structure is the possible transferability on a secondary market of **both** the bond and the MOI on a secondary market.

B. Legal Structures of a Bond and MOI

In the EU, corporate bonds are regulated by a combination of EU regulations and national laws. The main EU regulation governing corporate bonds are the MiFID II and Prospectus Regulation. Whereas MiFID II sets out the regulatory framework for trading financial instruments, including corporate bonds, the Prospectus Regulation sets out the rules for issuing and publishing prospectuses of corporate bonds. In addition to these EU regulations, corporate bonds are also subject to national laws in the country where they are issued. In Denmark, the primary legislation governing corporate bonds is the Danish Securities Trading Act.

There are several possibilities for structuring the above design of the Genesis 2.0 bond. Considering the partition of the bond and MOI, and the fact that they should be transferable independently, the underlying bond should be structured as a common corporate bond in the light of the applicable rules. The MOI is initially stapled to the bond but subsequently detachable and tradable independently on the secondary markets. The MOI should ***not*** be considered a yield. The MOI, under Genesis 2.0 Project, is seen as a legally transferable claim to one metric tonne of CO2 in ***smart contract*** form.[10] Smart contracts are currently not regulated by the EU. However, on March 17, 2023 the Council of the EU published the Proposal for Data Act (regulation)[11], which introduced new rules for smart contracts. These rules are, however, not enforceable. Under Danish law, which would be currently relevant, there are also no rules or binding judicial decisions addressing the legal enforceability of smart contracts. Nonetheless, Danish law generally includes no requirements as to the form of a contract. Therefore, a self-executing contract is permitted, provided that it is based on an offer and the acceptance that can be proved. Even though this structuring is not prohibited *per se,* the question remains whether such an instrument, where a smart contract accompanies a traditional bond, would be allowed for trading by the Financial Supervisory Agency.

C. Application of DLTR

In general, the DLTR could be utilised as long as the Financial Supervisory Authority considers this particular type of bond compliant with the DLTR, as the bond itself would be settled in money.

IV. SCENARIO 4 - DLT CARBON EMISSION PLATFORM

[10] *See Project Genesis 2.0*, p. 27.
[11] *See* Proposal for a Regulation of the European Parliament and of the Council on harmonised rules on fair access to and use of data (Data Act), 7413/23, available online: https://data.consilium.europa.eu/doc/document/ST-7413-2023-INIT/en/pdf

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Scenario 4 focuses on the possibilities of operating a carbon credit/emission allowance exchange service on a DLT platform. In this scenario, the carbon credits issued by the EU or its Member State could be tokenised by Agreena and sold on a DLT platform operated by Deon Digital.

The framework laid out for this scenario has its basis on three main required functionalities for the emission exchange platform.

1. The first functionality must include the possibility to issue, trade and retire carbon credits on a DLT-based platform;
2. The second functionality includes the possibility of trading carbon credits for a cash settlement;
3. The third functionality includes the option to settle trade with carbon credits partly. This functionality, for instance, could be a trade where half of the settlement consists of cash considerations and the other half in carbon credit(s).

A. Outside the scope of DLTR

The DLTR is a regulatory sandbox which facilitates innovation and the distribution of DLT-based projects in the securities market. At its core, the sandbox aims to provide companies and actors more flexibility in the regulatory set-up and reduces legal barriers. Although this flexibility and the general framework provided by the DLTR initially provide a great set-up for the project, many restrictions concerning the typologies of DLT-based projects have been found.

Art. 1 in the DLTR states that the sandbox solely applies to Multilateral Trading Facilities and Securities Settlement Systems. Applying these sole organisational structures provides little room for innovation regarding the organisational framework. Secondly, the DLTR limits the types of financial instruments that can be “put” on a DLT (shares, convertible bonds, covered bonds, corporate bonds and other public bonds), eliminating financial instruments such as carbon credits from the DLTR´s scope.

Therefore, if the vision of Agreena and Deon Digital is to create innovative financial tools, which settlement would not only happen in money but could also happen in carbon credits, such a setup could not rely on the DLTR and its exemptions.

B. Multilateral Trading Facility (MTF)

A Multilateral Trading Facility (MTF) is a financial trading venue alternative to a traditional trading exchange. MTFs connect multiple buyers and sellers through computerised systems. MTFs are operated by investment firms or a market operator, which brings together multiple third-party buying and selling i*nterests in financial instruments* - in the system and following

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non-discretionary rules - in a way that results in a contract.[12] Financial instruments are further listed under Section C, which among various types of instruments, also includes emission allowances consisting of any units recognised for compliance with the requirements of Directive 2003/87/EC (Emissions Trading Scheme). Hence, an MTF can also trade with emission allowances while complying with the rest of the obligations under MiFID II.

Deon Digital would need to be licensed under MiFID II in order to operate an MTF.

C. Organised Trading Facility (OTF)

MiFID II legislative package introduced a new category of financial intermediary - an Organised Trading Facility (OTF). An "Organised Trading Facility (OTF) means a multilateral system which is not a regulated market or an MTF and in which multiple third-party buying and selling interests in bonds, structured finance products, emission allowances or derivatives are able to interact in the system in a way that results in a contract in accordance with Title II of this directive".[13]

OTF is intended as a third form of multilateral trading venue, alongside regulated markets (RMs) and MTFs, the OTF was required as a platform for the trading of over-the-counter (OTC) derivatives. By definition given in MiFID II, an OTF structure is the framework the EU desires to perform carbon emission trading.

In addition, two types of systems operated by an OTF are identified in Article 20(6) of MiFID II: (i) systems that cross client orders (without prejudice to the restrictions placed on matched principal trading) and (ii) systems that arrange transactions in non-equities where the operator of the OTF may facilitate negotiations between clients so as to bring together two or more potentially compatible trading interests in a transaction.

Under Section A(8) of Annex I of MiFID II, the operation of an OTF is an investment activity that requires prior authorisation. According to ESMA,[14] an entity should seek authorisation to operate an OTF where the three following conditions are met:
a) trading is conducted on a multilateral basis,
b) the trading arrangements in place have the characteristics of a system, and
c) the execution of the orders takes place on a discretionary basis through the systems or under the rules of the system.

Deon Digital would need to be licensed under MiFID II in order to operate an OTF.

[12] Article 4(22) MiFID II.
[13] Article 4 (23) MiFID II.
[14] ESMA, Questions and Answers on MiFID II and MiFIR market structure topics, December 16, 2022Available online at:
https://www.esma.europa.eu/sites/default/files/library/esma70-872942901-38_qas_markets_structures_issues.pdf

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D. Differences Between a DLT MTF and a DLT OTF

MTFs and OTFs both are multilateral trading systems that can be operated by an investment firm or a market operator. However, compared to MTFs, OTFs have several key distinct features:

a) Generally, the key difference between the two structures relies on the differentiation between equity and non-equity instruments. MTFs can be used for trading a wider range of financial instruments, including equities, bonds and derivatives, than OTFs. OTFs are designed for trading non-equity instruments such as bonds, structured finance products, emission allowances or derivatives. As such, an OTF structure is geared towards trading liquid instruments with no equity or convertibility attached to the instrument. Thereby establishing the OTF represents a good solution to the trade of non-equity-based financial instruments such as DLT green bonds combined with carbon credits. By this extension, there could also be an argument for this model to be used on green bonds if the project cannot trade bonds with equity convertibility.
b) MTFs can sell more diverse financial instruments than OTFs. The only limitation to what OTFs can trade that MTFs cannot is mentioned in Annex 1 Section C(6), which indicates that wholesale energy products can ***only*** be traded and sold on an OTF. Wholesale energy products include electricity, gas, steam and the coal industry. Wholesale energy products that must be physically settled do not qualify as financial instruments when traded on an OTF.
c) There are less stringent limitations to the type of activities that the operator of the OTF may undertake, both concerning matched principal trading and trading on their own account. Additional restrictions apply as an OTF and a SI cannot be operated by the same legal entity;
d) As opposed to regulated markets and MTFs governed by non-discretionary rules, the OTF operator must exercise discretion either when deciding to place or retract an order on the OTF and/or when deciding not to match potential matching orders available in the system; and
e) As opposed to regulated markets and MTFs that have members or participants, OTFs have clients. As a consequence, transactions concluded on OTFs have to comply with client-facing rules, including best execution rules, regardless of whether the OTF is operated by an investment firm or a market operator.

Regarding the authorisation, Deon Digital should be able to receive both MTF and OTF licences, as no provision in the MiFID II would limit such a possibility. Such licences would be subject to two applications. Moreover, it is important to note that the national interpretation and application of MiFID II might be stricter and request Deon Digital to simultaneously fulfil the financial and non-financial requirements for MTF and OTF.

E. Requirements for Obtaining an OTF Licence

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The requirements for acting as an OTF are almost identical to the ones mentioned in scenario 1. Deon Digital must complete some initial steps to obtain a MiFID II licence to operate an OTF.

The requirements to establish an OTF are similar to those to establish MTF under MiFID II. The applicant must comply and follow the regulations set under Title II in MiFID II with the exemption of Art. 19 - as these are specific requirements for MTFs - whereas Art. 20 lays out specific requirements for OTFs.

F. DLT OTF or MTF

The EU has, on multiple occasions, proclaimed that it is technology agnostic. As such, Deon Digital should be able to operate the MTF and/or OTF on a DLT platform as long as it can comply with the MiFID II obligations.

V. OTHER IDEAS

When carrying out the research, there are other possibilities that the parties could consider either individually or in combination:

1. DLT platform that assists with the tracking and selling of carbon credits - a platform that would directly allow the offset of emissions through carbon credit purchases from voluntary or mandatory carbon markets. Using DLT would allow the storage of all the information associated with each transaction to be visible to the purchaser. The platform would be connected with projects verified by large standards such as the CDM, the VCS and the Gold Standard. The projects focus on all areas of climate change, from renewable energy production to carbon capture and storage. Platform users could also calculate the carbon footprint, offset the emissions, prepare sustainability reports and guide others on the communication strategy.
2. Utilise DLT to create a market for carbon removals, for the moment focussed on soil carbon projects, and allow participants to offset their emissions. The platform could distribute Ethereum-based carbon removal tokens representing one tonne of carbon dioxide that has been removed from the atmosphere for a minimum of x years.

CONCLUSION

Under the existing regulatory framework, the originally foreseen setup for Agreena and Deon Digital collaboration to utilise the DLTR is slightly limited. The use of DLTR proved restrictive, as Art. 1 in the DLTR solely applies to MTFs and Securities Settlement Systems. Applying these sole organisational structures provides little room for innovation regarding the organisational framework. Secondly, the DLTR limits the types of financial instruments that can be “put” on a DLT (shares, convertible bonds, covered bonds, corporate bonds and other public bonds). These

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two limitations combined challenge the original idea that Agreena and Deon Digital had regarding DLT bonds, where yield could be paid in the form of carbon credits. However, there are possibilities in connection with DLT shares, a combination of a DLT bond and a smart contract, and establishing DLT MTFs that should be further considered and analysed in light of the national regulatory framework, with a focus on a particular Member State, where the bonds or shares would be issued. These further analyses and considerations might prove critical from the structural perspectives as various regulatory and tax issues should be reviewed. Alternatively, the Project Participants could consider disregarding the DLTR and focus on establishing less regulated market entities that could use DLT and comply with existing regulatory obligations, such as OTFs. This suggestion is under the assumption that the regulatory framework is technology agnostic.

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Annex

Table 3 DLT-based applications (Source: Schlosser & Schultz & additional research)

Use case	Application field
GiveTrack	Decentralized finance
TruBudget	Decentralized finance
Sun Exchange	Decentralized finance

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Etherisc	Decentralized finance
Arbol	Decentralized finance
Carbonex	DLT platform for carbon credits
IBM Energy Blockchain Labs	DLT platform for carbon credits and environmental data
ClimateTrade	DLT platform for carbon credits
BBVA-Structured Green Bond	Asset management
Green Assets Wallet	Asset management
D-REC Initiative	Measurement, reporting and verification
Digital MRV	Measurement, reporting and verification
Evercity platform	Measurement, reporting and verification
BITMO platform	Tokenization
ClimateTrade	Tokenization
ECO2 Ledger	Tokenization
Ixo protocol	Tokenization
Greeneum	Tokenization
Power Ledger	Tokenization
Rowan Energy	Tokenization
WePower	Tokenization

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