

Overview of ESG-related Derivatives Products and Transactions

The transition to a sustainable economy will take a massive amount of long-term funding. The financial services sector will be an essential partner in providing this funding and managing the risks associated with sustainable investments, including project risk and interest rate and currency risks.

Derivatives markets can play an essential role in this process. Derivatives enable more capital to be channeled towards sustainable investments; help market participants hedge risk related to environmental, social and governance (ESG) factors; facilitate transparency, price discovery and market efficiency; and contribute to long-termism.

This paper is intended to help market participants further understand the potential role of derivatives in sustainable finance. The paper outlines the range of product structures and transaction types that comprise the universe of ESG-related derivatives, including sustainability-linked derivatives; ESG-related credit default swap (CDS) indices; exchange-traded derivatives on listed ESG-related equity indices; emissions trading derivatives; renewable energy and renewable fuels derivatives; and catastrophe and weather derivatives.

This report does not cover conventional derivatives transactions, such as interest rate swaps (IRS), which are used by market participants to hedge the risk arising from green bonds, or credit default swaps (CDS), which are used to decrease or increase exposure to credit risk. While such transactions play an important role in the transition to a sustainable economy, they are no different from a product standpoint than other IRS or CDS transactions.

EXECUTIVE SUMMARY

As the costs and challenges of climate change continue to mount, so too has the need to mobilize capital to drive climate innovation. The financial services sector will be an essential partner in meeting this need, by providing funding and managing the risks associated with sustainable investments, including project risk and interest rate and currency risks.

Customers are searching for climate mitigation strategies and new ESG-related products, whether for investment or financing purposes. To avoid greenwashing and ensure a high level of trust and expected outcomes, the financial service industry needs to develop globally consistent ESG standards, best practices and taxonomies to ensure investment products are consistent and verifiably accurate in terms of delivering sustainable and socially responsible outcomes.

Derivatives markets can play an essential role in facilitating the transition to a sustainable economy. As noted in a recent research report by the Centre for European Policy Studies (CEPS) and the European Capital Markets Institute (ECMI), derivatives enable more capital to be channeled towards sustainable investments¹; help market participants hedge risk related to ESG factors; facilitate transparency, price discovery and market efficiency; and contribute to long-termism².

This paper builds on the CEPS-ECMI report and is intended to help market participants further understand the potential role of derivatives in sustainable finance. The paper outlines the range of product structures and transaction types that comprise the universe of ESG-related derivatives, including sustainability-linked derivatives; ESG-related CDS indices; exchange-traded derivatives on listed ESG-related equity indices; emissions trading derivatives; renewable energy and renewable fuels derivatives; and catastrophe and weather derivatives. Descriptions and examples of each of these transaction types are provided in the following pages.

This report does not cover conventional IRS, which are used by market participants to hedge the risk arising from green bonds, or conventional CDS, which are used to decrease or increase exposure to credit risk. While such transactions play an important role in the transition to a sustainable economy, they are no different from a product standpoint than other IRS or CDS transactions.

Continuing innovations in the market make it very challenging to compile a list of product structures that is entirely comprehensive. ISDA will continue to monitor market developments to update this paper in future months.

¹ Derivatives are essential to the European Union's (EU) Sustainable Europe Investment Plan (SEIP), the investment pillar of the EU Green Deal, which is set to mobilize at least €1 trillion in sustainable investments over the next decade

² Derivatives in Sustainable Finance, Centre for European Policy Studies (CEPS) and the European Capital Markets Institute (ECMI): <https://www.isda.org/a/KOmTE/Derivatives-in-Sustainable-Finance.pdf>. ISDA provided sponsorship for this report

SUSTAINABILITY-LINKED DERIVATIVES

A range of sustainability-linked derivatives has been issued over the past several years, which add an ESG pricing component to conventional hedging instruments, such as IRS, cross-currency swaps or forwards³. These transactions are highly customizable and use various key performance indicators (KPIs) to determine sustainability goals.

Some of the transactions can reduce one counterparty’s payment in the event it achieves some pre-agreed sustainability performance target. This mechanism provides market participants with a financial incentive for improved ESG performance. Other transactions facilitate the clients’ ability to support sustainability outcomes through a derivatives transaction. If a company cannot meet its ESG target, it will have to compensate by supporting climate action sustainability projects.

Table 1 provides examples of recently issued sustainability-linked derivatives, which focus on individual client approaches to sustainability. As this is a niche, nascent market, the transaction volume has been very low, and uptake is expected to be gradual.

Table 1: Sustainability-linked IRS and Foreign Exchange (FX) Derivatives⁴

Issuer	Deal Information	Sustainability-linked Characteristics
Interest Rate Derivatives		
SBM Offshore , a global supplier of floating production solutions to the offshore energy industry	In August 2019, ING executed the world’s first sustainability improvement derivative (SID), designed to hedge the interest rate risk of SBM’s \$1 billion five-year floating rate revolving credit facility. SBM pays a fixed rate on the swap and receives a floating rate ⁵ .	The SID adds a positive or negative spread to the fixed rate set at the inception of the swap based on SBM’s environmental, social and governance (ESG) performance, which is scored by Sustainalytics. At the beginning of every year during the life of the swap, ING sets a target ESG score for SBM. If this score has been met, a discount of 5-10 basis points (bp) is applied to the fixed rate paid by SBM. If SBM hasn’t met its targeted ESG score, it has to pay a 5-10bp penalty.
Italo - Nuovo Trasporto Viaggiatori , a private rail operator	In January 2020, Natixis structured a €1.1 billion sustainability-linked syndicated loan. The loan comprised a €200 million revolving credit facility to provide general corporate funding and a €900 million green loan to finance and refinance the company’s low-carbon rolling stock ⁶ .	As part of the loan transaction, the company also executed a sustainability-linked interest rate swap (IRS) that included an incentive mechanism aligned with the sustainable performance indicators outlined in the financing agreement.
Siemens Gamesa , a supplier of wind power solutions	In March 2020, HSBC executed an IRS that converted a €250 million tranche of a floating-rate syndicated loan, which was arranged in December 2019, into fixed-rate funding ⁷ .	The fixed rate of the swap will not vary if Siemens Gamesa’s ESG rating changes, but any change during the life of the swap will prompt charitable giving. If Siemens Gamesa’s ESG rating improves, HSBC will donate annually to projects of non-profit organizations. If the rating declines, Siemens Gamesa will donate. This incentive structure differs from some other ESG-linked derivatives hedges where the ESG target impacts the cost of the hedge.

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³ Scaling Finance for the Sustainable Development Goals <https://globalcompact.no/wp-content/uploads/2020/01/Scaling-SDG-Finance.pdf>

⁴ This list of derivatives transactions is not comprehensive. The examples of over-the-counter (OTC) derivatives transactions are based on publicly available information

⁵ Introducing the world’s first sustainability improvement derivative <https://www.ing.com/Newsroom/News/Introducing-the-worlds-first-sustainability-improvement-derivative.htm>

⁶ Natixis Structures an Innovative Financing Solution for Italo - Nuovo Trasporto Viaggiatori, Aligned with the Company’s Sustainable Development Targets <https://pressroom-en.natixis.com/news/natixis-structures-an-innovative-financing-solution-for-italo-nuovo-trasporto-viaggiatori-aligned-with-the-companys-sustainable-development-targets-780b-8e037.html>

⁷ Siemens Gamesa in ESG-linked interest rate swap <https://energy.economictimes.indiatimes.com/news/renewable/siemens-gamesa-in-esg-linked-interest-rate-swap/74587038#:~:text=The%20interest%20rate%20swap%20is,to%20remove%20interest%20rate%20risk>

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Issuer	Deal Information	Sustainability-linked Characteristics
Interest Rate Derivatives		
<p>Goodman Interlink Limited, a global logistics property group</p>	<p>In November 2020, Credit Agricole CIB executed a green IRS, totaling HK\$590 million⁸.</p>	<p>A preferential fixed rate paid by the borrower was linked to the underlying facility's green classification. The company's fixed rate steps up to non-preferential if the green condition fails.</p> <p>The green condition is satisfied if the company maintains two requirements: (1) silver certification from the US Leadership in Energy and Environmental Design, the most widely used green building rating system in the world; and (2) gold certification of the building environmental assessment method (BEAM) from the BEAM Society Limited, an organization specializing in green certification for Hong Kong buildings.</p>
<p>New World Development, a real-estate owner and developer</p>	<p>In November 2020, DBS Hong Kong completed an IRS linked to the United Nations Sustainable Development Goals (UNSDGs). This derivative transaction is designed to provide a hedge against the interest rate risk related to the New World Development (NWD) five-year HK\$1 billion sustainability-linked loan from DBS, which closed in November 2019⁹.</p>	<p>If the company successfully generates at least eight business-to-business integration opportunities that contribute to the UNSDGs adopted by the New World Sustainability Vision 2030, it is eligible to receive sponsorship from DBS to support social innovation projects. NWD's social innovation initiatives include Impact Kommons, a UNSDG-focused start-up accelerator and business-integration program, of which DBS is a social impact partner.</p>
FX Derivatives		
<p>Enel, an Italian power and gas company</p>	<p>In September 2019, Société Générale executed a sustainable-development-goal-linked cross-currency swap tied to a €1.5 billion bond. The swap enables Enel to hedge its exposure against the euro/dollar exchange rate and interest rate risk created by the different denomination of the bond repayments (US dollars) and the source of repayments (euros)¹⁰.</p>	<p>As part of the transaction, Enel received a discounted rate based on its commitment to sustainability performance. Société Générale provided the discount as part of its commitment to the positive impact finance and based on Enel's positive contribution to one of the pillars of sustainable development (economic, environmental and social) and mitigation of any potential negative impacts to any of the pillars.</p> <p>Enel's bond is linked to the company's ability to increase its installed renewable electricity generation capacity from 45.9% to 55% by December 2021. Should Enel not be able to achieve this objective, the interest on the bond will rise by 25bp to 2.9%. This will be carried over to the accompanying cross-currency swap, which will be rebooked if the bond coupon changes.</p>

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⁸ Credit Agricole CIB innovates, bringing the first green interest rate swaps to the Asia-Pacific capital markets <https://www.ca-cib.com/pressroom/news/credit-agricole-cib-innovates-bringing-first-green-interest-rate-swaps-asia-pacific>

⁹ New World Development Joins Forces with DBS Hong Kong to Pioneer Hong Kong's First Interest Rate Swap Linked to the United Nations Sustainable Development Goals <https://www.nwd.com.hk/content/new-world-development-joins-forces-dbs-hong-kong-pioneer-hong-kong%E2%80%99s-first-interest-rate>

¹⁰ Enel Electrifies Sustainability Market with Inaugural Green-linked Bond and Swap <https://wholesale.banking.societegenerale.com/en/insights/clients-successes/clients-successes-details/news/enel-electrifies-sustainability-market-with-inaugural-green-linked-bond-and-swap/>

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Issuer	Deal Information	Sustainability-linked Characteristics
FX Derivatives		
<p>Siemens Gamesa, a supplier of wind power solutions</p>	<p>In October 2019, BNP Paribas executed a €174 million FX hedging contract. The transaction aims to hedge Siemens Gamesa's FX exposure from selling offshore wind turbines in Taiwan and to contribute to the UNSDG targets related to climate action and affordable and clean energy¹¹.</p>	<p>Depending on whether Siemens Gamesa reaches its sustainability targets, BNP Paribas will reinvest any premium into reforestation projects.</p> <p>If Siemens Gamesa misses its annual minimum ESG score, it must pay a sustainability premium, which BNP Paribas will reinvest in reforestation projects. The premium is calculated using a metric assigned by third-party sustainable finance specialists RobecoSAM.</p>
<p>Olam International, a major food and agri-business company</p>	<p>In June 2020, Deutsche Bank executed an FX derivative linked to ESG key performance indicators (KPIs). A one-year US dollar/Thai baht FX forward enables Olam to hedge its FX risk arising from exporting agriculture products from farms in Thailand to the rest of world¹².</p>	<p>The transaction allows Olam International to lock in a discount when it meets pre-defined ESG targets, which support the UNSDGs.</p> <p>The transaction KPIs will contribute to 10 of the 17 UNSDGs, including alleviating poverty (UNSDG 1); alleviating hunger (UNSDG 2); improving gender quality (UNSDG 5); improving clean water and sanitation (UNSDG 6); reducing inequalities (UNSDG 10); increasing responsible consumption and production (UNSDG 12); contributing to climate action (UNSDG 13); protecting life below water (UNSDG 14); protecting life on land (UNSDG 15); and increasing partnerships for the goals (UNSDG 17).</p>
<p>Primetals Technologies, an engineering and plant construction company</p>	<p>In October 2020, Deutsche Bank entered into an FX transaction that links currency options to sustainability goals. This agreement enables Primetals Technologies to hedge its currency risk with FX options over a four-year period¹³.</p>	<p>If Primetals Technologies fails to meet the agreed sustainability targets, it must pay a predefined sum to a contractually defined non-governmental organization.</p> <p>The currency hedge is linked to several sustainability targets, including the proportion of total sales of projects that aim to reduce greenhouse gas emissions for customers, and revenues relative to research and development expenditure that result in improved resource efficiency. Another metric is the promotion of a safe and healthy work environment for all staff at Primetals Technologies.</p> <p>Independent consultants will monitor and certify whether the targets are adhered to for the entire life of the option.</p>

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¹¹ Siemens Gamesa Pioneers the Green Foreign Exchange Hedging Market <https://www.siemensgamesa.com/en-int/-/media/siemensgamesa/downloads/en/newsroom/2019/10/pressrelease-siemens-gamesa-green-fx-en.pdf>

¹² Deutsche Bank Executes Asia's First FX ESG Derivative <https://www.marketsmedia.com/deutsche-bank-executes-asias-first-fx-esg-derivative/>

¹³ Deutsche Bank draws up the world's first ESG FX derivative framework agreement for Primetals Technologies https://www.db.com/newsroom_news/2020/deutsche-bank-draws-up-the-world-s-first-esg-fx-derivative-framework-agreement-for-primetals-technologies-en-11709.htm

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Issuer	Deal Information	Sustainability-linked Characteristics
FX Derivatives		
<p>Hysan Development, a Hong Kong property developer</p>	<p>In October 2020, BNP Paribas executed a \$125 million approximately 15-year sustainability-linked hedge¹⁴.</p>	<p>Under the terms of the transaction, Hysan commits to remain as a constituent member of the Hang Seng Corporate Sustainability Benchmark Index, which ranks the top 20% of Hong Kong companies based on their sustainability performance on broad metrics, for the period between 2021-2024. The company also commits to reduce its energy consumption by 20% by December 31, 2024.</p> <p>If Hysan is not successful in reaching the two goals, it will contribute to an impact-driven charity approved by BNP Paribas.</p>
<p>Enel, an Italian power and gas company</p>	<p>In October 2020, Enel issued £500 million of sustainability-linked bonds. Along with this issuance, Enel also executed a sustainability-linked cross-currency swap with JP Morgan Chase to hedge against the sterling/euro exchange rate and interest rate risk¹⁵.</p>	<p>The bonds are linked to the company's ability to reach at least 60% renewable generation within its total installed capacity by December 31, 2022. The achievement of the target will be certified by an auditor's specific assurance report¹⁶.</p> <p>The interest rate on the bonds will remain unchanged to maturity, unless Enel fails to achieve the sustainability performance target. If the target is not achieved, a step-up mechanism will be applied, increasing the rate by 25bp as of the first interest period after publication of the assurance report of the auditor.</p> <p>Enel and JPMorgan will pay interest to each other on the borrowed money every six months on the cross-currency swap. That interest cost can rise if either side does not keep up to its environmentally friendly targets¹⁷.</p> <p>JP Morgan has pledged to help arrange \$200 billion of funding this year for climate-change action and the UNSDGs, which include activities such as underwriting green bonds.</p>

¹⁴ Hysan Unveils Innovative Green Hedging Solution <https://www.theasset.com/article-esg/41987/hysan-unveils-innovative-green-hedging-solution>

¹⁵ Enel issues £500 million of sustainability-linked bond <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/enel-issues-163-500m-of-sustainability-linked-bond-60725267>

¹⁶ Enel issues £500 million of sustainability-linked bond <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/enel-issues-163-500m-of-sustainability-linked-bond-60725267>

¹⁷ JPMorgan Currency Deal Highlights Finance's Green Shift <https://www.wsj.com/articles/jpmorgan-currency-deal-highlights-finances-green-shift-11603727838>

ESG-RELATED CREDIT DERIVATIVES

Market participants can use CDS¹⁸ to manage the credit risk of a counterparty or credit where its financial results may suffer because of climate change or where its viability might be threatened. In that respect, CDS can serve two different purposes: i) to hedge future potential losses that would be realized following the occurrence of a catastrophic event (that leads to bankruptcies/defaults); and ii) to hedge the risk of changes in the market value of ESG/sustainability-linked bonds/loans resulting from market expectations of future potential losses/damages and other market factors¹⁹.

ESG screening can be applied to the reference entities of CDS contracts. A growing body of research suggests that companies with high ESG ratings exhibit lower credit risk²⁰. Companies that perform well against ESG metrics are increasingly recognized as potentially offering higher returns and representing lower risk than firms without these goals.

In May 2020, IHS Markit launched the iTraxx MSCI ESG Screened Europe Index, which is a broad European corporate CDS index derived using ESG criteria. The index includes a basket of CDS contracts on companies that meet various sectoral, controversy and ESG risk criteria. It follows a three-step screening methodology based on MSCI ESG research, including a value-based screen, a controversy-based screen and an ESG-ratings-based screen²¹. The index started trading from June 2020 at the five-year tenor.

Being a broad sector-diversified index, the iTraxx MSCI ESG Screened Europe Index can be used as a macro instrument to gain exposure to or hedge broad ESG European corporate risk. Due to the similarities in the ESG screening methodology applied to the iBoxx bond indices, the iTraxx MSCI ESG Screened Europe Index could also be an effective hedge for bond portfolios tracking forthcoming iBoxx MSCI ESG indices.

The iTraxx MSCI ESG Screened Europe Index can also be used by buy-side firms that want to gain long exposure (protection seller position) to ESG companies. The similarities and high correlation of the index with the overall iTraxx Europe Index allows sell-side trading counterparties to use the iTraxx Europe Index to hedge their protection buyer positions²².

LCH CDS Clear started clearing the iTraxx MSCI ESG Screened Europe Index and its constituent single names for members and their clients in September 2020. In addition to managing counterparty risk, clearing also encourages greater liquidity in this product, provides significant margin and operational benefits and supports the wider industry focus on sustainability²³.

¹⁸ A credit default swap (CDS) is a type of derivative that transfers the risk of certain defaults of a particular borrower (the 'reference entity') referenced in the CDS contract (eg, a financial, corporate or sovereign entity), from the buyer to the seller. The buyer makes periodic payments to the seller and in return receives a settlement upon the occurrence of a default (a credit event) with respect to the referenced entity

¹⁹ Derivatives in Sustainable Finance, CEPS ECMI Study, Centre for European Policy Studies <https://www.isda.org/a/KOmTE/Derivatives-in-Sustainable-Finance.pdf> ISDA provided sponsorship for this report

²⁰ Foundations of ESG Investing in Corporate Bonds [https://www.msci.com/documents/10199/19248715/Foundations-of-ESG-Investing-in-Corporate-Bonds-How-ESG-Affects-Corporate-Credit-Risk-and-Performance+\(002\).pdf](https://www.msci.com/documents/10199/19248715/Foundations-of-ESG-Investing-in-Corporate-Bonds-How-ESG-Affects-Corporate-Credit-Risk-and-Performance+(002).pdf)

²¹ iTraxx MSCI ESG Screened Europe Index Rules <https://www.markit.com/NewsInformation/NewsAnnouncementsFile?CMSID=1a9f39ab4d774f94aecfa46f2a0443e3>

²² First of its kind ESG Index - iTraxx MSCI ESG Screened Europe Index <https://ihsmarkit.com/research-analysis/iTraxx-msci-esg-screened-europe-index.html>

²³ CDS Clear Goes Live Clearing New ESG Index Series <https://www.marketsmedia.com/cdsclear-goes-live-clearing-new-esg-index-series/>

ESG-RELATED EXCHANGE-TRADED DERIVATIVES

With more capital flowing into ESG strategies, global exchanges, including Eurex, Intercontinental Exchange (ICE), CME Group, Nasdaq, Chicago Board Options Exchange (CBOE), Euronext and Japan Exchange Group, have recently launched a series of new equity index futures and options contracts tied to ESG benchmarks. While liquidity in most of these new contracts is still relatively low, demand has been gradually increasing.

ESG futures and options enable institutional managers to better hedge their ESG investments, more efficiently implement their ESG investment strategies, and better manage cash inflows and outflows of their ESG funds. Using ESG futures and options allows funds to meet target allocation in a more cash-efficient way than investing directly in the underlying stocks.

ESG index derivatives reference ESG indices, which are based on parent benchmarks that define the universe of companies from which the constituents of an ESG index are selected.

ESG indices can be based on an exclusion methodology that allows investors to eliminate certain types of exposures, while retaining similar risk-return characteristics to the parent benchmark. Some examples of exclusions are companies considered to be non-compliant with certain ESG standards or companies involved in controversial weapons, tobacco or fossil fuels. Alternatively, ESG indices can be constructed to gain exposure to high ESG ratings, a specific ESG theme, or to generate a positive environmental or social impact. ESG indexes may combine elements of these approaches.

Examples of ESG futures and options launched by major exchanges include²⁴:

- [CME E-mini S&P 500 ESG Index futures](#)
- [CBOE S&P 500 ESG Index options](#)
- [Eurex STOXX Europe 600 ESG-X Index futures / options](#)
- [Eurex STOXX USA 500 ESG-X Index futures](#)
- [Eurex EURO STOXX® 50 Low Carbon Index futures](#)
- [Eurex STOXX Europe Climate Impact Ex Global Compact Controversial Weapons & Tobacco Index futures](#)
- [Eurex STOXX Europe ESG Leaders Select 30 Index futures / options](#)
- [Eurex DAX 50 ESG futures / options](#)
- [Eurex EURO STOXX® 50 ESG Index futures / options](#)
- [ICE MSCI EAFE ESG Leaders Index futures](#)
- [ICE MSCI Emerging Markets ESG Leaders Index futures](#)
- [ICE MSCI Europe ESG Leaders Index futures](#)
- [ICE MSCI Japan ESG Select Leaders Index futures](#)
- [ICE MSCI World ESG Leaders Index futures](#)
- [ICE MSCI World Climate Change futures](#)
- [ICE MSCI Europe Climate Change futures](#)

²⁴ Please note this list is not exhaustive

EMISSIONS TRADING

Emissions trading, which can also be referred to as cap and trade, emissions trading schemes or allowance trading, is a market-based approach to reducing pollution. It is designed to set a geographic limit on the amount of (primarily) carbon dioxide that can be emitted into the atmosphere by specific sectors of the economy.

Emissions trading includes two key components: a limit (or cap) on pollution and tradable allowances that authorize allowance holders to emit a specific quantity (eg, one ton) of the pollutant²⁵. The limit declines on an annual basis, with the intention of reducing the overall amount of emissions.

Market participants can trade emission allowances (including offset credits) and derivatives based on emission allowances (primarily futures and options). Emission allowances can be purchased through centrally organized auctions or from other companies that have more than they need for compliance. Secondary trading can be executed on exchanges or in over-the-counter (OTC) markets as spot, forwards, futures and options contracts.

While trading on exchanges provides more liquidity, OTC transactions provide greater flexibility as contracts can be customized more precisely to a company's particular risk management needs.

Market participants use ISDA templates for emission allowances (ie, the ISDA US Emissions Annex and the ISDA EU Emissions Annex) to trade swaps, options and forwards. ISDA also offers EU emissions forms for the trading of carbon dioxide allowances. The ISDA US Emissions Annex covers sulfur dioxide and nitrogen oxide emissions (under the federal scheme) and carbon dioxide (under the Regional Greenhouse Gas Initiative scheme).

Derivatives based on carbon allowances and carbon offsets enable companies subject to carbon cap-and-trade programs to meet obligations and manage their risk in a cost-effective way. Policy makers rely on price signals from these instruments to gauge the effectiveness of their programs and ensure desired outcomes²⁶.

Carbon markets exist as mandatory (compliance) schemes and as voluntary programs. Compliance carbon markets are created and regulated by mandatory national, regional or international carbon reduction regimes. Cap-and-trade programs are set on a national or regional level. Depending on the program, allowances can either be allocated to regulated polluters for free or are bought at an auction.

To comply with a specific cap-and-trade program, a company must either keep its emissions within the allowable annual limit or purchase additional allowances. Each year, companies must surrender enough allowances to cover all their emissions, otherwise heavy fines are imposed. If a company reduces its emissions below the limit, it can keep the spare allowances to cover its future needs or sell them to another company that is short of allowances²⁷.

The voluntary carbon markets function outside of compliance markets and enable individuals, companies or governments to purchase carbon offsets on a voluntary basis. The majority of voluntary credits are purchased by the private sector, where corporate social responsibility goals are typically the key drivers.

In September 2020, a private-sector-led taskforce was launched to begin scaling voluntary carbon markets to help reduce emissions. This initiative involves more than 40 leaders from six continents with backgrounds across the carbon market value chain²⁸.

One of the recommendations of the taskforce for creating a voluntary carbon market is to create carbon spot and futures contracts, with the aim of matching suppliers' products and buyers' preferences more efficiently. Critically, this would provide a daily reference carbon price for a standardized product²⁹.

²⁵ What Is Emissions Trading? <https://www.epa.gov/emissions-trading-resources/what-emissions-trading>

²⁶ Environmental markets and indices <https://www.theice.com/energy/environmental>

²⁷ In some schemes, companies that do not pollute (and therefore have no obligations) may also trade permits and financial derivatives of permits

²⁸ Private Sector Voluntary Carbon Markets Taskforce Established to Help Meet Climate Goals <https://www.iif.com/tsvcm/Main-Page/Publications/ID/4061/Private-Sector-Voluntary-Carbon-Markets-Taskforce-Established-to-Help-Meet-Climate-Goals>

²⁹ Voluntary Carbon Markets: A Blueprint <https://www.whitecase.com/publications/alert/voluntary-carbon-markets-blueprint>

These contracts would be physically settled, traded on exchanges and cleared via clearing houses. Futures contracts should be fungible to allow for trading across all markets and multiple platforms and could potentially also be cash settled. Futures contracts would also provide a useful, transparent reference price for a complementary OTC market that would reference different types of carbon offsets.

As is seen in similar markets, OTC markets for both standardized and bespoke contracts are fundamental to the efficiency and success of the entire market. Exchange-traded spot and futures contracts, as well as OTC contracts, are equally needed to develop a mature, fully functioning market and maintain the efficacy of a carbon contract as a hedging tool³⁰.

What are Carbon Allowances?

A carbon allowance (carbon credit) is a tradable permit or certificate that provides the holder of the credit the right to emit one ton of carbon dioxide (CO₂) or an equivalent of another greenhouse gas.

While a carbon allowance is a permit to emit, a carbon offset is a certificate awarded for a proactive initiative that reduces or removes emissions. Carbon offsets can be used for voluntary carbon reduction commitments and for compliance within a cap-and-trade program.

Other trading units in the carbon markets include a removal unit (RMU), an emission reduction unit (ERU) and a certified emission reduction (CER). Each of these units is equal to one ton of CO₂³¹.

RMUs relate to carbon that is sequestered via a land use change such as reforestation. ERUs are generated via a joint implementation mechanism, when two countries can work together on a project to enhance the reduction of emissions or the removal of carbon from the atmosphere through a carbon sink. CERs are generated from a clean development mechanism project activity, which allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol to implement an emission-reduction project in developing countries³².

Examples of emissions derivatives contracts offered by major exchanges include³³:

- CME RGGI CO₂ allowance futures and options
- CME CBL California Carbon allowance futures
- CME California Low Carbon Fuel Standard (PRIMA) futures
- EEX EU allowances (EUA) futures and options
- EEX Green Certified Emission Reductions (CER) futures
- ICE European Union Allowance (EUA) futures
- ICE California Carbon Allowance (CCA) futures
- ICE California Carbon Offset (CCO) futures
- ICE Regional Greenhouse Gas Initiative futures
- ICE Certified Emission Reduction (CER) futures
- ICE Global Carbon Futures Index

³⁰ ISDA's response to the Institute of International Finance's Taskforce on Scaling Voluntary Carbon Markets consultation <http://assets.isda.org/media/9a674bfd/b0ffbc11-pdf/>

³¹ Emissions trading <https://unfccc.int/process/the-kyoto-protocol/mechanisms/emissions-trading>

³² The Clean Development Mechanism <https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism>

³³ Please note this list is not exhaustive

RENEWABLE ENERGY AND RENEWABLE FUELS

Renewable energy is from sources that are naturally replenishing. The major types of renewable energy are biomass, hydropower, geothermal, wind and solar³⁴.

Renewable fuels are produced from renewable resources such as biofuels or hydrogen fuel. Biofuels, which include ethanol and biodiesel, are produced from biomass. Hydrogen can be produced from a variety of resources, such as natural gas, nuclear power, biomass and renewable power like solar and wind.

Renewable energy and renewable fuel derivatives support the transition to a sustainable economy by enabling market participants to hedge against the risks associated with fluctuations in renewable energy production and encouraging more capital to be directed to sustainable projects.

Various derivatives instruments have been created to trade renewable energy and renewable fuels, including and power purchase agreements (PPAs), renewable energy certificates (RECs) futures, wind index futures, renewable identification numbers (RINs) futures and low carbon fuel standard futures.

Power Purchase Agreements

PPAs are a form of renewable energy transaction that have increased activity in recent years. PPAs are legal contracts for the purchase of power and associated RECs between a specific renewable energy generator (the seller) and a purchaser of renewable electricity (the buyer)³⁵. The renewable electricity is mainly generated by solar and wind sources.

PPAs can be used to reduce market price volatility for buyers. At the same time, they provide a guarantee to developers that the buyer will purchase power generated from renewable energy assets and, therefore, enable new renewable electricity projects to be developed. Even though PPAs do not require companies to reduce their overall greenhouse gas emissions, these instruments can help catalyze a shift to clean energy sources by financing projects.

A financial (virtual) PPA is a financially settled fixed-for-floating commodity swap. The buyer and seller agree to a strike price per kilowatt hour that the seller will receive for its delivery of electricity into the wholesale market. There is no physical delivery of energy. Any monetary difference between the strike price and the wholesale market price is exchanged between the two parties, so the seller always receives the net strike price for its sales of electricity. The buyers of financial PPAs usually receive the RECs³⁶.

PPAs are used by large corporations such as Verizon, General Motors, Facebook, Amazon and Google. In the year to October 2020, corporate energy users closed 55 deals, representing 4.56 gigawatts (GW), according to the Renewable Energy Buyers Alliance³⁷.

For example, Verizon entered into several VPPAs with more than 450 megawatts (MW) of renewable energy capacity in August 2020 in support of its 2035 carbon-neutrality goal. Under the 12-year agreement with Brookfield Renewable, Verizon contracted up to 160 MW of capacity at two wind energy facilities that are being repowered. The wind energy facilities are located in New York, where Verizon has significant energy usage, and the repowered facilities are expected to be fully operational in 2021. Verizon also entered into two VPPAs with First Solar for an aggregate of up to 296 MW of capacity from two solar facilities that are under development³⁸.

³⁴ Renewable Energy Explained <https://www.eia.gov/energyexplained/renewable-sources/>

³⁵ Physical power purchase agreements <https://www.epa.gov/greenpower/physical-power-purchase-agreements-physical-ppas>

³⁶ Financial power purchase agreements <https://www.epa.gov/greenpower/financial-power-purchase-agreements>

³⁷ REBA Deal Tracker <https://rebuyers.org/deal-tracker/>

³⁸ Verizon signs new renewable energy purchase agreements bringing total to 840 MW of renewable energy <https://www.globenewswire.com/news-release/2020/08/26/2084063/0/en/Verizon-signs-new-Renewable-Energy-Purchase-Agreements-bringing-total-to-840-MW-of-renewable-energy.html>

Facebook signed a VPPA with Sunseap Group to buy solar power from 100 MW of rooftop photovoltaic installations in Singapore in October 2020. Under the terms of the contract, Facebook will get the RECs associated with the electricity generated by solar arrays on top of 1,200 public housing residential blocks and 49 government buildings across Singapore. The projects are expected to be completed in 2022³⁹.

McDonald's signed VPPAs for two wind farms and one portfolio of solar projects with a total renewable energy capacity of 1,130 MW in December 2020. The projects will be constructed across Illinois, Oklahoma, North Carolina and Ohio. McDonald's share of the projects will help prevent about 2.5 million metric tons of greenhouse gases per year once online⁴⁰.

Renewable Energy Certificates

RECs are market-based instruments that represent the property rights to the environmental, social and other non-power attributes of renewable electricity generation. RECs are issued when one megawatt hour of electricity is generated and delivered to the electricity grid from a renewable energy resource⁴¹.

ISDA has published a template for trading in a wide range of US renewable energy certificates (as a supplement to the existing ISDA North American Power Annex).

RECs are traded on the REC spot or futures markets. They are used to 'green' a specific buyer's electricity consumption, whereby a buyer consumes grid electricity made up of various sources (natural gas, coal, nuclear and/or renewable) and covers the non-renewable elements of this consumption with an equivalent amount of RECs.

ICE offers REC futures contracts for RECs issued by five state renewable portfolio standards (RPS) programs^{42,43}. These contracts are physically delivered products, whereby contracts held to expiry result in the physical delivery of RECs within the REC registry used by the specific state.

Wind Index Futures

Wind index futures are financial instruments that enable trading firms and companies operating in the energy industry to hedge against the risks associated with fluctuations in wind energy production.

Nasdaq German Wind Index Futures allow producers and other stakeholders to hedge the production of German wind power. Nasdaq German Wind Index Futures use NAREX WIDE as the underlying index to settle on the relative German wind power utilization⁴⁴.

In November 2020, Nodal Exchange and IncubEx announced the upcoming launch of seven new REC futures and options. Pending regulatory review, Nodal will list physically delivered M-RETS CRS wind futures⁴⁵, Texas CRS solar futures and options on Texas CRS listed wind contracts⁴⁶.

³⁹ Facebook contracts 100 MW of rooftop solar arrays in Singapore <https://renewablesnow.com/news/facebook-contracts-100-mw-of-rooftop-solar-arrays-in-singapore-716000/>

⁴⁰ McDonald's in three new renewable energy VPPAs <https://energynews.biz/mcdonalds-in-three-new-renewable-energy-vppas/>

⁴¹ Green power partnership <https://www.epa.gov/greenpower/renewable-energy-certificates-recs>

⁴² A renewable portfolio standard (RPS) is a government-mandated program whereby electricity retailers and other load-serving entities are required to source a specific percentage of the electricity that they sell to the end consumer from renewable energy sources. <https://www.theice.com/green-attribute-terminology-and-product-faq#q9>

⁴³ All futures, options, OTC products and physicals <https://www.theice.com/products/?filter=renewable%20energy%20certificate%20futures>

⁴⁴ Nasdaq wind power futures <https://www.nasdaq.com/solutions/wind-power-futures>

⁴⁵ The M-RETS wind futures contracts are based on RECs from M-RETS, a registry that tracks in all North American states and provinces and is the system of record for various state/province renewable portfolio standards (RPS) programs. The M-RETS wind and Texas solar contracts, along with the existing Texas wind REC contract, each deliver RECs from facilities registered with Center for Resource Solutions (CRS) in accordance with its Green-e renewable energy certification program

⁴⁶ Nodal and IncubEx to Expand Environmental Markets with Seven New Renewable Contracts <https://www.businesswire.com/news/home/20201029005303/en/>

Renewable Identification Numbers

RINs are credits that are used for compliance in the renewable fuel standard (RFS) program in the US, which sets renewable fuel blending standards for fuel producers. Obligated parties under the RFS must comply with the program by producing and blending the minimum percentage of renewable fuels into their transportation fuels, or by purchasing enough RINs to equal their obligation⁴⁷.

ICE lists RIN futures contracts for two distinct fuel blends. They are financially settled products tracking the market price of the RIN.

Nodal and IncubEx announced the launch of physically delivered RIN futures and options in November 2020. Pending regulatory review, Nodal will list futures contracts on D3 RINs for cellulosic biofuels, D4 RINs for biomass-based diesel, D5 RINs for advanced biofuels such as sugar cane ethanol, and D6 RINS for renewable fuels such as corn ethanol⁴⁸.

Low Carbon Fuel Standard

The low carbon fuel standard (LCFS) is a greenhouse gas reduction program focusing on the transportation sector in California that incentivizes low-carbon fuels and other alternative transportation methods. Each year, different fuel types are given carbon intensity (CI) scores. Fuel producers that are below their annual CI benchmark are awarded credits, while producers that are above the benchmark must procure LCFS credits to remain in compliance⁴⁹.

ICE lists ICE California Low Carbon Fuel Standard Credit (OPIS) futures and CME offers California Low Carbon Fuel Standard (PRIMA) futures, which are contracts for LCFS credits created from various processes and initiatives. These futures are financially settled contracts that track the market price of the LCFS credits.

⁴⁷ Renewable fuel standard program <https://www.epa.gov/renewable-fuel-standard-program/renewable-identification-numbers-rins-under-renewable-fuel-standard>

⁴⁸ Nodal and IncubEx to launch first-ever physically delivered RIN futures <https://www.nodalexchange.com/nodal-and-incubex-to-launch-first-ever-physically-delivered-rin-futures/>

⁴⁹ Low carbon fuel standard <https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard>

CATASTROPHE AND WEATHER DERIVATIVES

Catastrophe Derivatives

Catastrophe derivatives are financial instruments through which natural disaster risk can be transferred between counterparties. Catastrophe swaps are customizable OTC derivatives that enable a bearer of risk to obtain protection from massive potential losses resulting from a major natural disaster, such as a hurricane or earthquake, by transferring some of its catastrophe exposure to investors in return for a premium payment. It can therefore be thought of as the financial equivalent of a reinsurance contract or securitization, but it avoids the structural complexities and costs associated with facultative agreements or full catastrophe bond issuance⁵⁰.

Catastrophe swaps allow countries to transfer some of their disaster risk exposure to insurance and capital markets without increasing their sovereign debt. A country pays a premium and in return receives a payout if a specified disaster event occurs. These instruments are pre-arranged in advance of a disaster happening and can be designed to provide a quick payout within days or weeks of an event occurring.

The World Bank has designed several catastrophe swaps that helped transfer risks related to natural disasters and other risks from developing countries to the capital markets. One example is a \$206 million catastrophe swap issued for the Philippines in 2017⁵¹.

The Philippines government (the policy holder) purchased insurance policies from the Philippines Government Service Insurance System covering national government assets and local governments against earthquakes and severe typhoons. The World Bank acted as an intermediary to transfer the risk outside the country by executing a catastrophe swap with international investors.

As part of the transaction, the Philippines government paid a fixed premium for the coverage, which the World Bank transferred to the investors. If the loss for an insured event exceeds a pre-defined loss amount, a payout in Philippine peso would be triggered. The national and local governments would receive a payout within 20 days after the occurrence of an insured event.

In 2017, the World Bank launched \$320 million of pandemic catastrophe bonds and \$105 million of pandemic-risk-linked swaps, which transfer the risk of pandemic outbreaks to capital market investors. These transactions provided financing for the Pandemic Emergency Financing Facility (PEF). The PEF was created by the World Bank to provide an additional source of financing to the world's poorest countries facing the risk of a pandemic⁵².

In 2019, the World Bank designed a \$10 million catastrophe deferred drawdown option (CAT DDO), with a linked pandemic emergency financing facility for the Maldives, bringing together both catastrophe and pandemic protection. The CAT DDO is a catastrophe-contingent debt instrument that makes financing available after the government of a country declares a disaster following a catastrophe-type event⁵³.

⁵⁰ Derivatives in Sustainable Finance, CEPS ECMI Study, Centre for European Policy Studies <https://www.isda.org/a/KOmTE/Derivatives-in-Sustainable-Finance.pdf> ISDA provided sponsorship for this report

⁵¹ Insuring the Philippines Against Natural Disasters <http://pubdocs.worldbank.org/en/449941523545801796/case-study-financial-products-Phillippines-2018-parametric-catastrophe-insurance-pool-8-15-2018.pdf>

⁵² World Bank Launches First-Ever Pandemic Bonds to Support \$500 Million Pandemic Emergency Financing Facility <https://www.worldbank.org/en/news/press-release/2017/06/28/world-bank-launches-first-ever-pandemic-bonds-to-support-500-million-pandemic-emergency-financing-facility>

⁵³ World Bank links catastrophe and pandemic risk finance for the Maldives <https://www.artemis.bm/news/world-bank-links-catastrophe-pandemic-risk-finance-for-the-maldives/>

Weather Derivatives

Weather derivatives are financial products that derive their values from weather-related variables such as temperature, precipitation, wind and stream flow. Weather derivatives are typically used by market participants to hedge or mitigate the risks associated with adverse or unexpected weather conditions. The main players in these derivatives, apart from farmers, are utilities, insurance companies and some banks.

The payout on a weather derivatives contract is typically based on an index that measures a particular aspect of weather. For example, temperature-related derivatives are usually based on the number of heating degree days (HDD) or cooling degree days (CDD) over the contract period (typically a month or a winter or summer season) at a specified location.

Precipitation-related weather derivatives are based on the number of critical precipitation days (those during which precipitation exceeds a specified reference level) that occur during the contract period. Hurricane derivatives are based on factors such as the number of named hurricanes, wind speed and hurricane radius.

This market is a mix of insurance-linked products, some hybrid solutions, exchange-traded derivatives and bespoke OTC transactions. Customized OTC derivatives allow market participants, such as holiday resorts or ice cream manufacturers, to structure transactions that suit their specific needs. OTC weather derivatives have become more complex as they combine several variables, such as weather and commodities.

ISDA has templates for weather swaps, which specifically cover temperature transactions (cooling/heating degree days). A separate ISDA template covers US wind events for the purposes of natural catastrophe trading.

Some weather derivatives are traded on exchanges. For example, CME Group lists temperature-based index futures and options for cities in the US, Europe and Asia. These instruments track CDD or HDD on a monthly or seasonal basis⁵⁴.

⁵⁴ CME Group weather products <https://www.cmegroup.com/trading/weather/>

GLOSSARY

Climate finance is local, national or transnational financing – drawn from public, private and alternative sources of financing – that seeks to support mitigation and adaptation actions that will address climate change⁵⁵.

Environmental, social and governance investing, also referred to as sustainable investing, is a type of investment that considers environmental, social and corporate factors to generate positive financial returns and positive societal impact.

The EU Sustainable Finance Disclosure Regulation defines sustainable investment as an investment in an economic activity that contributes to an environmental objective, as measured by key resource efficiency indicators on the use of energy, renewable energy, raw materials, water and land, on the production of waste and greenhouse gas emissions, or on the impact on biodiversity and the circular economy. It can also be an investment in an economic activity that contributes to a social objective, contributes to tackling inequality or fosters social cohesion, social integration and labor relations. Alternatively, it can be an investment in human capital or economically or socially disadvantaged communities. The investments must not significantly harm any of the objectives and the investee companies must follow good governance practices – in particular, with respect to sound management structures, employee relations, remuneration of staff and tax compliance⁵⁶.

Green bonds are a type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible green projects and are aligned with the four core components of the green bond principles (GBP). Green projects contribute to environmental objectives such as climate change mitigation, climate change adaptation, natural resource conservation, biodiversity conservation, and pollution prevention and control⁵⁷.

Green loans are a type of loan instrument that are made available exclusively to finance or refinance, in whole or in part, new and/or existing eligible green projects. Examples of green projects include renewable energy, energy efficiency, pollution prevention and control, environmentally sustainable management of living natural resources and land use, clean transportation, sustainable water and wastewater management, climate change adaptation and green buildings. Green loans must align with the four core components of the green loan principles, including use of proceeds, process for project evaluation and selection, management of proceeds and reporting⁵⁸.

Impact investing includes investments that are made with the intention of generating positive, measurable social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets and target a range of returns from below market to market rate, depending on investors' strategic goals⁵⁹.

Renewable energy is energy from sources that are naturally replenishing but flow-limited. Renewable resources are virtually inexhaustible in duration but limited in the amount of energy that is available per unit of time⁶⁰.

⁵⁵ The United Nations Framework Convention on Climate Change <https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance>

⁵⁶ Regulation (EU) 2019/2088 of the European Parliament and of the Council of November 27, 2019 on sustainability-related disclosures in the financial services sector <https://eur-lex.europa.eu/eli/reg/2019/2088/oj>

⁵⁷ International Capital Market Association (ICMA) Green Bond Principles <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf>

⁵⁸ Loan Market Association, Asia Pacific Loan Market Association, Loan Syndications and Trading Association Green Loan Principles <https://www.lsta.org/content/green-loan-principles/>

⁵⁹ Global Impact Investing Network <https://thegiin.org/impact-investing/need-to-know/>

⁶⁰ US Energy Information Administration Renewable Energy Explained <https://www.eia.gov/energyexplained/renewable-sources/>

Social bonds are a type of bond instrument where the proceeds will be exclusively applied to finance or refinance, in part or in full, new and/or existing eligible social projects and are aligned with the four core components of the social bond principles (SBP). Examples of social project categories include affordable basic infrastructure, access to essential services, affordable housing, employment generation, food security and sustainable food systems, and socioeconomic advancement and empowerment⁶¹.

Social impact bonds (SIBs) are financing mechanisms in which governments or commissioners enter into agreements with social service providers, such as social enterprises or non-profit organizations, and investors pay for the delivery of pre-defined social outcomes⁶².

Sustainability bonds are bonds where the proceeds will be exclusively applied to finance or refinance a combination of both green and social projects. Sustainability bonds are aligned with the four core components of both the GBP and SBP⁶³.

Sustainability-linked bonds (SLBs) are a type of bond instrument for which the financial and/or structural characteristics can vary depending on whether the issuer achieves predefined sustainability/ ESG objectives. In that sense, issuers are committing explicitly (including in the bond documentation) to future improvements in sustainability outcome(s) within a predefined timeline. SLBs are forward-looking performance-based instruments⁶⁴.

Sustainability-linked loans (SLLs) are any types of loan instruments and/or contingent facilities (such as bonding lines, guarantee lines or letters of credit) that incentivize the borrower's achievement of ambitious, predetermined sustainability performance objectives. The borrower's sustainability performance is measured using sustainability performance targets, which include key performance indicators, external ratings and/or equivalent metrics and measure improvements in the borrower's sustainability profile⁶⁵.

Sustainable development investing (SDI) refers to the deployment of capital in ways that make a positive contribution to sustainable development, using the United Nations Sustainable Development Goals as a basis for measurement. The contribution can be made through products, services, and/or operations or through projects financed across asset classes and in multiple sectors or themes⁶⁶.

Socially responsible investing (SRI) refers to investing with the aim of achieving financial returns while respecting specific ethical, environmental and/or social criteria⁶⁷.

Transition bonds are bonds targeted at industries with high greenhouse gas (GHG) emissions – the so-called brown industries – that will allow them to raise capital with the goal of becoming less brown. The objective is to help the issuer shift to greener business activities. These bonds differ from green bonds, which are designed for green industries alone – that is, industries already on the road to reducing GHG emissions, such as renewable energies⁶⁸.

⁶¹ ICMA Social Bond Principles <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2020/Social-Bond-PrinciplesJune-2020-090620.pdf>

⁶² The Organisation for Economic Co-operation and Development, Understanding Social Impact Bonds <http://www.oecd.org/cfe/leed/UnderstandingSIBsLux-WorkingPaper.pdf>

⁶³ ICMA Sustainability Bond Guidelines <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainability-Bonds-Guidelines-June-2018-270520.pdf>

⁶⁴ ICMA Sustainability-Linked Bond Principles <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/June-2020/Sustainability-Linked-Bond-Principles-June-2020-171120.pdf>

⁶⁵ Loan Market Association, Asia Pacific Loan Market Association, Loan Syndications and Trading Association Sustainability Linked Loan Principles <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/LMASustainabilityLinkedLoanPrinciples-270919.pdf>

⁶⁶ Renewed, Recharged and Reinforced Urgent Actions to Harmonize and Scale Sustainable Finance [https://www.un.org/development/desa/financing/sites/www.un.org.development.desa.financing/files/2020-08/Renewed,%20Recharged%20and%20Reinforced%20\(GISD%202020\)_vF.pdf](https://www.un.org/development/desa/financing/sites/www.un.org.development.desa.financing/files/2020-08/Renewed,%20Recharged%20and%20Reinforced%20(GISD%202020)_vF.pdf)

⁶⁷ ICMA Sustainable Finance High-level definitions <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Sustainable-Finance-High-Level-Definitions-May-2020-051020.pdf>

⁶⁸ Transition Bonds: Is Sustainable Finance about to Reach Critical Mass https://cib.bnpparibas.com/sustain/transition-bonds-is-sustainable-finance-about-to-reach-critical-mass-_a-3-3260.html

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ISDA has published other recent research papers:

- ***ISDA-Clarus RFR Adoption Indicator: November 2020, December 2020***

<https://www.isda.org/a/AgfTE/ISDA-Clarus-RFR-Adoption-Indicator-November-2020.pdf>

- ***Key Trends in the Size and Composition of OTC Derivatives Markets in the First Half of 2020, November 2020***

<https://www.isda.org/a/ZGNTE/Key-Trends-in-the-Size-and-Composition-of-OTC-Derivatives-Markets-in-theFirst-Half-of-2020.pdf>

- ***SwapsInfo Third Quarter of 2020 and Year-to-September 30, 2020 Review, October 2020***

<https://www.isda.org/a/Kh4TE/SwapsInfo-Q3-of-2020-and-Year-to-September-30-2020-Review-Full-Report.pdf>

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ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient.

Today, ISDA has over 925 member institutions from 75 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition

to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, intermediaries, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's website: www.isda.org. Follow us on [Twitter](#), [LinkedIn](#), [Facebook](#) and [YouTube](#).