



REVERSE inquiries

Workshop Series

IN-DEPTH SESSIONS

Emissions-linked Trading in the EU & US

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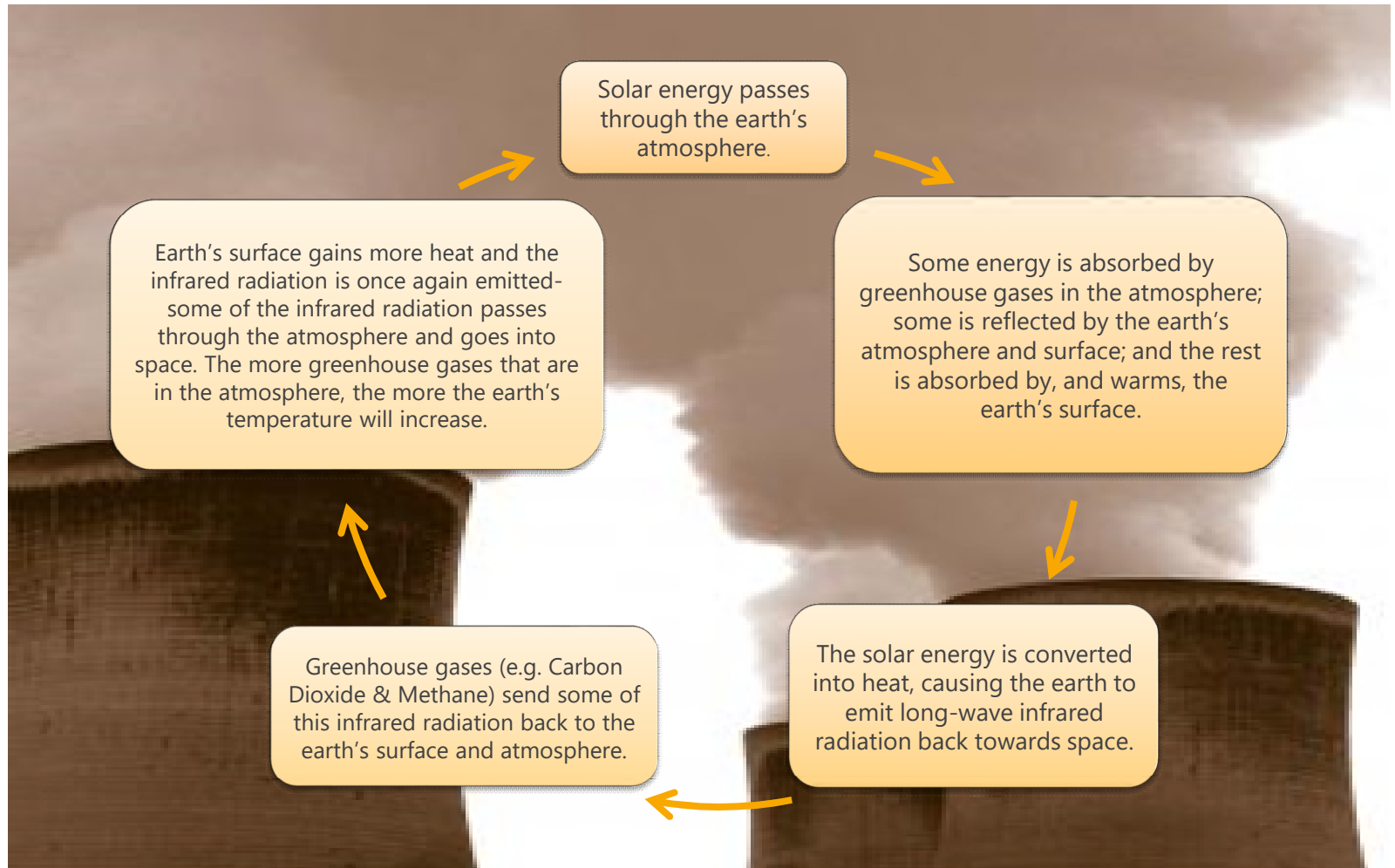
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November 12, 2020

What are we covering today?

- How the Greenhouse Effect works
- The Kyoto Protocol
- CDM Project Cycle
- JI Project Cycle
- Phases of EU ETS
- Use of derivatives in carbon markets
- Documenting emissions trading
- US ETS Framework
- Regulation of carbon trading by the CFTC

How does the Greenhouse Effect work?



Three Classes of signatory to the Kyoto Protocol

Annex I Parties

Signatory countries which were OECD countries in 1992, as well as twelve countries whose economies were or are in transition (EIT parties).

Obligated to adopt climate change strategy to reduce greenhouse gas emissions.

Annex II Parties

The Annex I Parties, less the economies in transition e.g. Russian Federation.

Receive assistance from Annex 1 Parties for technology transfer.

Non- Annex I Parties

Developing Nations.

No commitments, but receive assistance.

Kyoto Protocol: Ratification and General Content

The Kyoto Protocol was adopted in 1997 and refined in further conferences and accords.

The protocol focuses on **six greenhouse gases**:

1. **Carbon dioxide;**
2. **Nitrous oxide;**
3. **Methane;**
4. **Hydrofluorocarbons;**
5. **Perfluorocarbons;** and
6. **Sulphur hexafluoride**



Carbon dioxide, methane and nitrous oxide account for almost 75% of greenhouse gas emissions, with carbon dioxide alone accounting for 50%.

The protocol's adherents must achieve legally binding greenhouse gas emissions reductions.

Protocol adherents can achieve targets by reducing emissions to below a cap, or by using three potential flexible mechanisms

Joint Implementation (JI)

Encourages Annex I parties (and entities from them) to finance sustainable development in developing nations through the transfer of emissions-reducing technology to adhering Non-Annex I parties.

If emissions reductions are achieved the project earns tradable emissions credits called "**certified emission reductions**".

Clean Development Mechanism (CDM)

Encourages Annex I parties (and entities from them) to invest in emission reduction projects in the territories of Annex II parties (i.e. other countries with their own emissions reduction targets).

If emissions reductions are achieved the project earns tradable emissions credits called "**emission reduction units**".

Cap and Trade Systems (Emissions Trading)

Annex I parties and entities within them trade allowance units with others within an approved trading system e.g. the EU Emissions Trading Scheme.

Allowances may be units allocated under emissions trading schemes as well as **certified emission reductions** generated under CDM projects and **emission reduction units** generated under JI projects.

Kyoto Protocol: Commitments to Reduce Emissions

- Annex I parties must meet a greenhouse gas emissions reduction target. In addition, Annex I parties must implement climate change policies.
- Annex I parties must reduce their greenhouse gas emissions by at least **5%**.
- The European Union is treated as a single Annex I party and has an overall emissions reduction target of 8%.
- Each EU member state has a target - some member states may increase their emissions (e.g. Portugal by 27% and Spain by 15%), while others must reduce theirs greatly (e.g. Germany by 21% and the United Kingdom by 12.5%).



CDM Project Cycle: A Hypothetical Example

Nicol International Industries, a UK corporate and major emitter of carbon dioxide, liaises with the Algerian Energy Ministry to upgrade Algeria's national grid. Algeria, a Non-Annex I party, ratified the protocol. The project involves a technology transfer from the UK, an Annex I party, to Algeria, a Non-Annex I party. The Algerian project will make Algerian energy transfer more efficient, resulting in lower carbon dioxide emissions. Nicol believes the project will qualify as a CDM project.

Nicol is a participating installation in the EU Emissions Trading Scheme and must surrender allowances for all of its carbon dioxide emissions. Nicol has not been allocated enough allowances by UK government to match its actual emissions. As an alternative to buying allowances on the open market, it plans to register the Algerian project as a CDM and surrender the certified emission reductions it generates to cover allowances it must submit under the EU Emissions Trading Scheme.

For an explanation of the EU Emissions Trading Scheme, see below.

Nicol submits the project plan to the CDM Executive Board.

Leburn Consulting Limited, a designated operational entity appointed by Nicol, and the Algerian Energy Ministry review the project plan and verify it meets the CDM criteria.

Nicol registers the approved project with Leburn and the CDM Executive Board.

Nicol runs and monitors the Algerian project in accordance with criteria given to it by the CDM Executive Board.

Two years later, the project is complete and Freeland Partners, another designated operational entity, verifies the reduction in carbon dioxide emissions.

The CDM Executive Board instructs CDM Registry to credit Nicol's CDM Registry accounts with the appropriate number of certified emission reductions.

The CDM Registry deducts 2% of the certified emission reductions from total issued to Nicol as a CDM levy. These 'deducted' reductions are sold into the market and proceeds are transferred to an adaptation fund for developing nations most susceptible to climate change risks.

The project has been more successful than Nicol anticipated, leaving Nicol with more certified emission reductions than it needs to satisfy EU Emissions Trading Scheme quota. Nicol is able to sell additional reductions into the market, where they can be bought by countries or private firms.

This wouldn't have occurred had the project taken place in a Kyoto Non-Annex I party deemed to be particularly susceptible to the adverse risks of climate change.



1. The United Kingdom is facing high emissions reductions costs and is struggling to meet its Kyoto target. It decides to invest in upgrading an old Soviet-era Ukrainian power plant with carbon dioxide emissions reduction technology. Achieving similar emissions reductions in a UK power plant would be far more expensive.



JI PROJECT
CYCLE
A Worked Example

2. The project is successful and achieves the anticipated carbon dioxide and sulphur dioxide reductions. Ukraine issues the United Kingdom with the corresponding emission reduction units which the United Kingdom counts towards its emissions reduction target.



3. Ukraine has benefited from the United Kingdom's foreign direct investment, although to prevent double counting the emissions reductions do not count towards Ukraine's target.

Emissions Trading

- The protocol's third flexible mechanism
- It allows adhering Annex I parties and the public entities and private firms within them to trade allowance units with other Annex I parties and their public entities and private firms.
- The allowances may be units allocated under emissions trading schemes as well as certified emission reductions generated under CDM projects and emission reduction units generated under JI projects.



Four Phases of EU ETS

Phase I

January 1 2005 to
December 31 2007.
The **"Trial Period"**

Phase II

January 1 2008 to
December 31 2012.
Coincides with the Kyoto
compliance period: the
"Compliance Period".

Phase III

January 1 2013 to
December 31 2020.
Airlines join the scheme.

Will other greenhouse
gasses be added?

Phase IV

January 1 2021 to
December 31 2030.
43 % reduction of 2005
Emissions Levels, with 2.2%
annual reduction



EU ETS

EU ETS: Phase 1 – Trial Period

Phase 1 applied to firms which emit carbon dioxide above a set threshold and were involved in:

- energy activities with a thermal capacity of at least 20 megawatts;
- the ferrous metals industry;
- the minerals industry (*including cement, ceramics and glass*); or
- pulp and paper production.



EU ETS

EU ETS: Phase 2 – Compliance Period

EU ETS Phase II commenced on January 1 2008. It will last until December 31 2012. This is the Kyoto compliance period: the period when the emissions reduction goals set out in Kyoto must be complied with.

As in Phase I, Phase II of the EU ETS covers only one greenhouse gas: CO₂.

However, member states may “opt-in” other greenhouse gasses.

In Phase II the non-compliance penalty went up to 100 Euro per tonne of CO₂, from 40 Euros in Phase I. In addition to the EU member states, three non-members: Iceland, Norway and Liechtenstein, joined Phase II of the EU ETS.

Through an amendment to the EU ETS Directive, the aviation sector will join the EU ETS from 2012.



EU ETS

EU ETS: Phase 2 – Compliance Period (*cont'd*)

1. National Allocation Plans (“NAPs”)

The scheme requires each member state to prepare a national allocation plan and submit it to the European Commission. The plan sets out the quantum of the member state’s permissible emissions to be assigned to:

- **the EU ETS;**
- **each relevant industrial sector; and**
- **each affected installation.**



In Phase II, the EU ETS adopted a tougher stand in reviewing the NAPs and the allocations sought were reduced.

EU ETS

EU ETS: Phase 2 – Compliance Period *(cont'd)*

2. National Registry



Commission Regulation 2216/2004 obliges EU member states to set up a national registry.

The online registry records the allowances issued to participating installations, as well as each installation's annual verified emissions and compliance status, and tracks the movements of allowances between accounts (including surrender and cancellation).

Participating installations and individuals and organisations that wish to participate in emissions trading are among those that can open registry accounts.

The registry also holds the designated national competent authority's accounts into which allowances are surrendered.

EU ETS

EU ETS: Phase 2 – Compliance Period *(cont'd)*

3. Community independent transaction log

All of the registries are supervised by a central administrator who, through the European Union's Community Independent Transaction Log, records and checks each transaction.

The log also records any allowance transfers between registries.

The ability to transfer allowances between national registries means that EU member states can meet their Kyoto targets while their emissions are above the required threshold.

The ETS will ensure though that corresponding decreases in emissions are made either within the European Union through the trading of allocated allowances and issued certified emission reductions or in non-EU countries through JI or CDM projects.



EU ETS

EU ETS: Phase 2 – Compliance Period *(cont'd)*

4. Surrender, cancellation and trading of allowances

By March 31 each year, each affected installation must report its carbon dioxide emissions during the previous calendar year. The affected installation then has until April 30 to surrender allowances for all of its carbon dioxide emissions to its national authority or face a fine. During Phase II, this is set at €100 per missing allowance. Once surrendered, the allowances are then cancelled.

Each affected installation is allocated a set number of allowances each year; if it turns out to have more allowances than it needs, it may hold these in its account for use the following year or sell them to another party. However, allowances issued under the EU ETS could not be carried over (commonly referred to as “banking”) from Phase I to Phase II, though allowances to be issued in Phase II can be held over for Phase III. Certified emission reductions and Emission reduction units are eligible for surrender against quotas including those sourced in Phase I.



EU ETS

EU ETS: Phase 3

The EU ETS phase III runs from 2013 to 2020. In January 2009, the EC published the “EU ETS Reform Directive” which, if implemented, introduces several bold new developments.

- **A single EU wide emissions cap – which means allowances for each member at EU level, thereby abolishing NAPs.**
- **Single Union Registry**
- **Expansion of EU ETS to cover new gases: e.g. nitrous oxide**



In addition there are other changes such as move towards reducing free allocation of allowances, and an increased commitment to overall reduction of emissions.

EU ETS

EU ETS: Phase 4

To achieve the EU's overall greenhouse gas emissions reduction target for 2030, the sectors covered by the EU Emissions Trading System (EU ETS) must reduce their emissions by 43%, compared to 2005 levels.

The revised EU ETS Directive, which will apply for the period 2021-2030, will enable this through a mix of interlinked measures.

To increase the pace of emissions cuts, the overall number of emission allowances will decline at an annual rate of 2.2% from 2021 onwards, compared to 1.74% currently.

Between 2019 and 2023, the amount of allowances put in the reserve will double to 24% of the allowances in circulation. The regular feeding rate of 12% will be restored as of 2024.

As a long-term measure to improve the functioning of the EU ETS, and unless otherwise decided in the first review of the MSR in 2021, from 2023 onwards the number of allowances held in the reserve will be limited to the auction volume of the previous year. Holdings above that amount will lose their validity.

Use of Derivatives in Carbon Markets



1. Options

Options are bilateral contracts between an option holder and an option writer. The option writer, in consideration for a premium, grants the option holder the right but not the obligation, to buy or sell an agreed quantity of carbon credits at a fixed price on a future date.

The most common options are “put” and “call” options. Put option holders have the right to sell or deliver carbon credits at an agreed price on a future date. Call option holders have the right to buy or receive carbon credits at an agreed price on a future date.

The most commonly used types of carbon derivatives in the OTC market include forwards, option and swaps.

Use of Derivatives in Carbon Markets *(cont'd)*



2. Forwards

In forward and futures contracts, the parties agree to buy and sell carbon credits at a future date at an agreed price.

Forwards differ from options in that the buyer of a forward contract is obliged to pay the agreed purchase price even if the carbon credits are worth less than the purchase price on the settlement date, while the buyer of an option is not obliged to exercise the option and pay the purchase price.

Use of Derivatives in Carbon Markets *(cont'd)*

3. Swaps

As mentioned above, the trading price of EUAs can vary from those for CER's and ERU's. The latter two normally trade at a discount due to the uncertainty as to whether these allowances will actually materialise and fears of fraud in the verification process arising in individual projects, resulting in credits being annulled. Where an entity involved in the production or purchase of these units, it may wish to hedge against falls of CER's or ERU's against EUA's by entering into a swap protecting itself against any downward movement in the trading price.

(See example next slide)

Cash settled EUA v CER swaps are also possible. In this type of transaction the parties exchange the difference in the trading price of the two types of credits on a periodic basis. This type of transaction might be attractive to an entity participating in a CDM project, which wanted to ensure that the price of CERs did not fall too far below the price of EUAs.



Use of Derivatives in Carbon Markets *(cont'd)*

4. OTC trading

When entering into a carbon trade in the OTC markets the parties have three options as regards the documentation platforms they use: ISDA, IETA and EFET.



5. Trading through climate exchanges

The development of exchange trading is helping the carbon credit market to reduce credit risk by providing a central counterparty, as well as liquidity, through matching counterparties, trading standardised and simple contracts, and publishing prices.

There are currently more 10 European exchanges with exchange traded allowance contracts, and nearly 40 worldwide. These include the European Climate Exchange in the United Kingdom, Powernext in France and Nordpool in Germany.

The European Climate Exchange coordinates the marketing, listing and sales of ECX Carbon Financial Instruments: futures and cash contracts for EU ETS allowances. These are listed on ICE Futures (an electronic trading platform). Trades are cleared through LCH. Clearent Ltd, which acts as a central counterparty guaranteeing financial and physical performance.

Use of Derivatives in Carbon Markets *(cont'd)*

6. Carbon Pools

Carbon pools are spot trading platforms. Their members are small emitters that have been allocated allowances under the EU ETS. The pool matches their buy and sell orders together in an order book. After placing an order, the parties transfer their funds or allowances into their pool account and these are then transferred within the pool.

Advantages of carbon pools include:

- **counterparty anonymity;**
- **the grouping of small buy and sell orders into larger orders together; and**
- **increased liquidity.**

7. Structured Notes: Banks such as Morgan Stanley



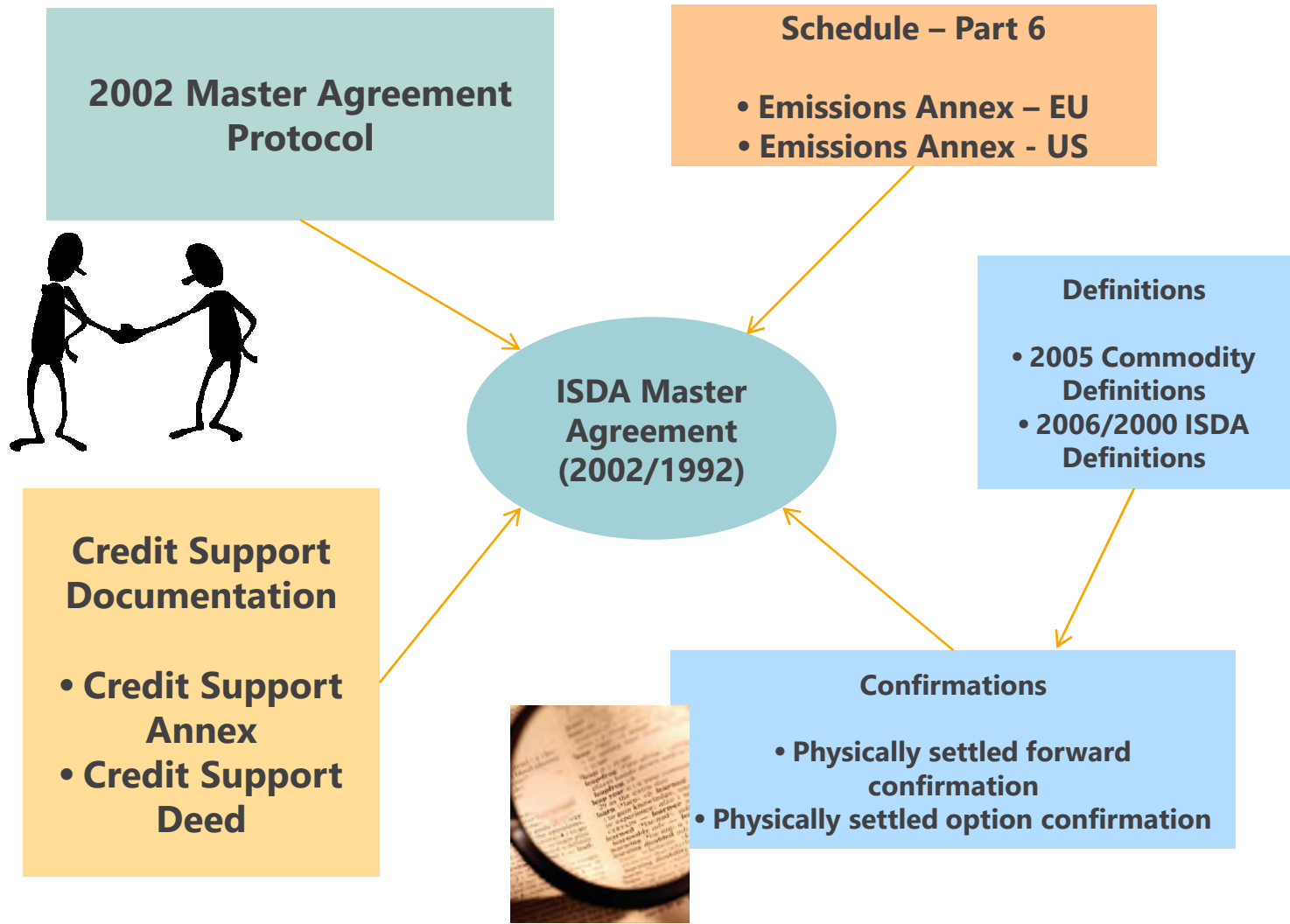
OTC trading: documenting emissions trading under the EU ETS - ISDA

ISDA

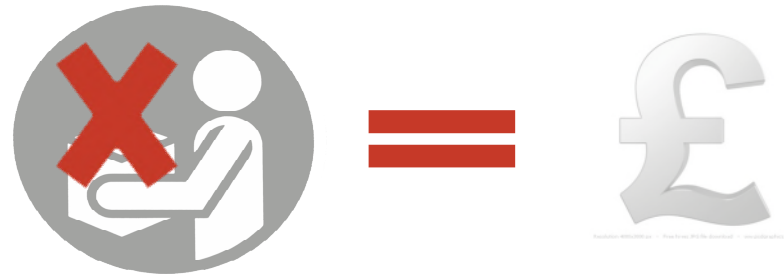
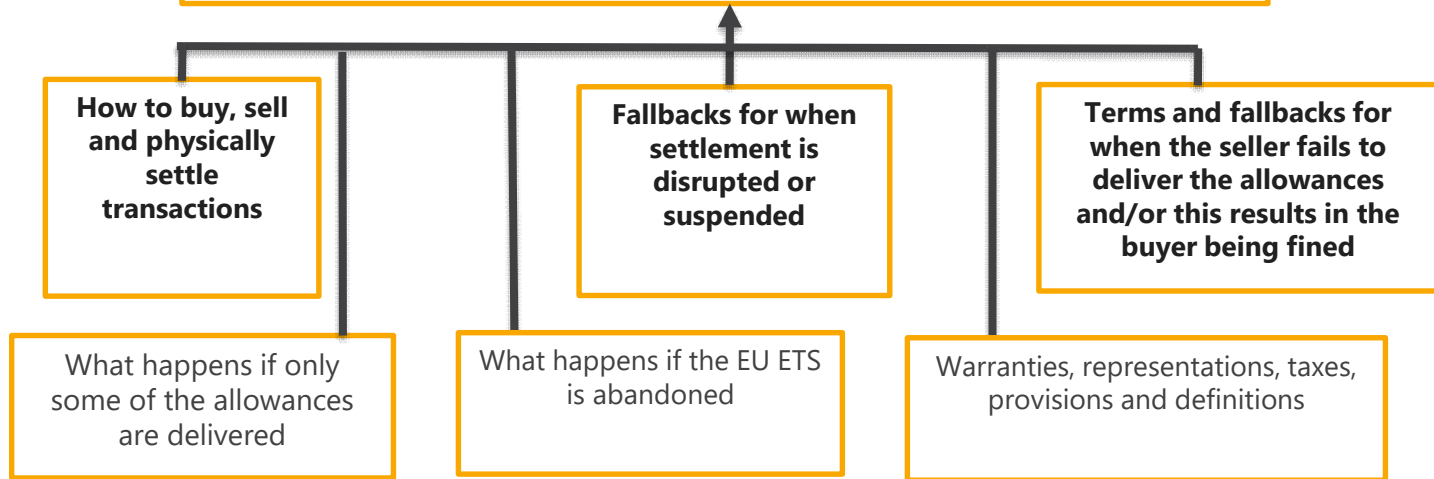
IETA

EFET





Areas covered by Sub-Annex H





Failure to deliver

Fallbacks for failed settlement/delivery

Settlement Disruption

Suspension Events



Calculation of replacement cost where there is failure to deliver: three possible elections



Election 1

- Excess emissions penalty does not apply



Election 2

- Excess emissions penalty does apply



Election 3

- Failure to deliver (alternative method)

Key differences between ISDA and IETA and EFET platforms:

- Excess emissions penalties
- Force majeure
- Settlement Disruption and failure to deliver
- Differences in payment and delivery dates
- Opting out of physical settlement of delivery obligations
- Suspension events



US ETS

- The United States lags behind the European Union in its efforts to set up an emissions trading system. So far, these can be categorized as emissions trading at state level. The most recent attempt at introducing a federal system of emissions trading, the Clean Energy and Security Act, failed to make it to the Senate for a vote.
- At state and regional level, significant progress has been made in establishing emissions trading systems.
- In January 2009, the Regional Greenhouse Gas Initiative commenced. This is the first mandatory, market-based effort in the United States to reduce greenhouse gas emissions. A number of States have committed to a carbon dioxide cap.
- California has a particularly robust ETS.
 - California Carbon Allowances / ICE Futures

Environmental Commodities— CFTC Regulation

- **Jurisdiction of the Commodity Futures Trading Commission (CFTC)**
 - Commodity interest products
 - Swaps, futures, retail commodity transactions and others
- **Implications of product characterization**
 - Commodity interests vs. forwards and spot transactions
- **Environmental commodity products**
 - Renewable energy credits (RECs), emission allowances, carbon offsets/credits, etc.

CFTC Interest in Environmental Commodities

- **2011 Joint Product Release**

- Sets forth current regulatory thinking of the CFTC

- **2019 CFTC Market Risk Advisory Committee**

- June 2019—Meeting to discuss climate-related financial risks, including the impact of climate change on the future stability of the global financial system, current domestic and international initiatives addressing financial risks related to climate change, financial industry approaches to the management and mitigation of such risks, and the challenges ahead for regulators and market participants in the derivatives industry.

- **Commissioner Speeches**

CFTC Interest in Environmental Commodities

- **Sept. 2019—Report of the Climate-Related Market Risk Subcommittee, Market Risk Advisory Committee of the Commodity Futures Trading Commission—“Managing Climate Risk in the U.S. Financial System”**
 - Commissioner Rostin Behnam, Sponsor
 - “To serve the long-term need for price discovery and risk mitigation, the derivatives industry must provide new, innovative products focused on climate risk.”
 - Recommendations:
 - Financial regulators should establish climate **finance labs or regulatory sandboxes** to enhance the development of innovative climate risk tools as well as financial products.

CFTC Interest in Environmental Commodities

- The CFTC should pursue the following activities to further catalyze climate finance market development:
 - Survey market participants about their **use of climate-related derivatives**, the adequacy of product availability and market infrastructure, and the availability of data to incorporate climate impacts into existing and new instruments.
 - Consider appropriate and **targeted exemptions** where needed to help facilitate coordination with other regulators and promote market development.
 - Support the study and **adoption of alternative execution methods**, such as block trading, auction style markets, or incentive programs, to attract liquidity providers to make climate-related markets.
 - **Coordinate with other regulators** to support the development of a robust ecosystem of climate-related risk management products.

Regulatory Characterization of Products

- **Product characterization**

- Swaps
- Forwards
- Spots

- **Forward contract exclusion—Generally**

- CEA excludes “forward contracts” from substantive federal regulation.
- Dodd-Frank Act amended the CEA to add a forward exclusion to the definition of “swap.”
- The exclusion applies to “any sale of a nonfinancial commodity or security for deferred shipment or delivery, so long as the transaction is intended to be physically settled.”

Forward Contract Exclusion—Generally

- To fall within the forward exclusion, the transaction must include three components:
 - a nonfinancial commodity,
 - deferred shipment or delivery of the nonfinancial commodity, and
 - an intent to physically deliver the nonfinancial commodity.
- The CFTC interprets the forward exclusion for nonfinancial commodities in the swap definition in a manner consistent with its historical interpretation of the existing forward exclusion with respect to futures contracts.
- The CFTC’s historical interpretation has been that forward contracts are “commercial merchandising transactions,” the primary purpose of which is to transfer ownership of the commodity and not to transfer solely its price risk.

Forward Contract Exclusion—Environmental Commodities

- In 2011, the CFTC and the SEC adopted joint final rules further defining the term “swap” and other terms in the Dodd-Frank Act (Product Release). In the Product Release, the CFTC discussed whether certain instruments, including environmental commodities, are subject to regulation by the CFTC or the SEC (or both) or whether they fall outside of either agency’s general regulatory authority under the CEA.
- The CFTC stated that a “nonfinancial commodity” is a “commodity that can be physically delivered and that is an exempt commodity or an agricultural commodity.”
 - “[T]he CFTC is providing an interpretation that an intangible commodity . . . which can be physically delivered qualifies as a nonfinancial commodity *if ownership of the commodity can be conveyed in some manner and the commodity can be consumed.*”

Forward Contract Exclusion—Environmental Commodities

- An example offered by the CFTC was that of environmental commodities:
 - “Those two features—*ownership transfer and consumption*—distinguish environmental commodity transactions from other types of intangible commodity transactions that cannot be delivered, such as temperatures and interest rates.
 - The ownership transfer and consumption features render such environmental commodity transactions similar to tangible commodity transactions that clearly can be delivered, such as wheat and gold.”

Forward Contract Exclusion—Environmental Commodities

- Thus, the three elements for intangible, nonfinancial commodities to qualify for the forward exclusion are:
 - **Intent to deliver;**
 - **Transfer of ownership; and**
 - **Consumption.**
- CFTC: Intent to deliver should be readily determinable, delivery failures generally would result from frustration of the parties' intentions, and cash-settlement would be insufficient because delivery of the commodity is necessary for compliance purposes.
- Electronic settlement or contractual attestation is acceptable.

Forward Contract Exclusion—Environmental Commodities

- **What is “consumption”**

- The CFTC does not define the term, but make several references to its application.
- The CFTC acknowledges in the Product Release, but does not directly address, a comment letter explaining that, “purchasers of environmental commodities intend to take delivery of RECs or carbon offsets *for either compliance purposes or in order to make an environmental claim regarding their renewable energy use or carbon footprint*”.

Forward Contract Exclusion—Environmental Commodities

- **Consumption element**

- The CFTC also notes that market participants may engage in environmental commodity transactions “in order to transfer ownership of the environmental commodity (and not solely price risk), so that the buyer can *consume the commodity in order to comply with the terms of mandatory or voluntary environmental programs.*”
- The CFTC also states that, “[o]ne example of an intangible nonfinancial commodity that qualifies under this interpretation . . . is an environmental commodity . . . that *can be physically delivered and consumed (e.g., by emitting the amount of pollutant specified in the allowance).*
- Transactional vs. ultimate consumption?



Questions?

