Nordic Battle of Treasury

Commodity Risk Management focused on CO_2 emissions

12th of June 2024

pwc

Agenda

Time	Activity
15:00 – 15:05	Introduction - Why a corporate need to focus on CO2?
15:05 – 15:15	How to measure CO2 emissions? What are the options and lessons learned?
15:15 – 15:20	What is the market depth and volatility of CO2 (EUA) compared to other asset classes?
15:20 – 15:30	GRM - CO2 emissions for corporate risk managers
15:30 – 15:40	Previse - CO2 software solutions and considerations
15:40 – 15:55	Questions & Answers
15:55 – 16:00	Closing

- Questions can be asked via the chat bar - anonymized
- Presentations will be shared following the end of the webinar on our website

Nordic Battle of Treasury concept

✓ Different topics related to Finance & Treasury at each session

✓ Insights to some of the latest Treasury opportunities

✓ Real life business challenges

✓ Interactive sessions with us, the audience and solution vendors

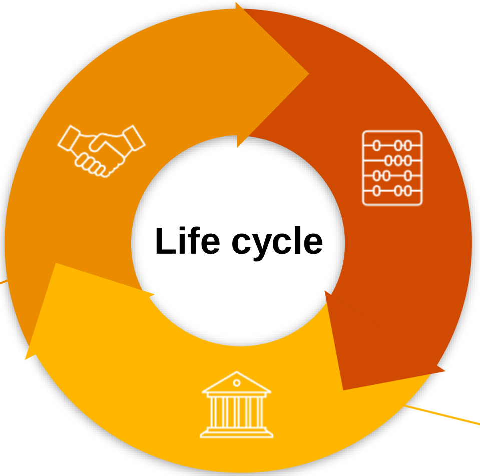
GRM GLOBAL RISK MANAGEMENT previse systems

Why a corporate need to focus on CO2?

CO2 focus is a corporate need, which includes the measuring of CO2 emissions, volatility in the CO2 market, how to trade and hedge it as a risk manager and software solutions.

Commodity trader

Emissions trading
Market access
Buy&sell allowances



Sustainability responsible

GHG Data collection
Calculating emissions
Inventory quality
Reporting emissions
Tracking emissions over time

Ensure alignment with the treasury/procurement strategy by entering the market

Treasury/Procurement

Exposure management
Hedge decision
Risk assessment
Allocation and distribution

The strategic decision varies depending on the company's circumstances and priorities

EU Emissions Trading System (ETS) sets a cap on the total amount of emitted GHG

The governments set the cap across the different industries

Introduction to GHG accounting

Why are companies measuring and reporting on their greenhouse gases (GHG)?

- **Regulatory requirements - CSRD**
- **Target setting and decarbonisation**
- **Access to finance**
- **Participation in carbon markets**
- **Reputation and brand**
- **Identify efficiency and cost savings**
- **Understanding exposure risks and opportunities related to GHG emissions**

Expressed in CO2 equivalents

Corporate GHG inventories are calculated using CO2 equivalents

What are CO2 equivalents (CO2e)?

There are seven greenhouse gases included in a corporate inventory, all with different contribution level to global warming.

To be able to compare the potency of the gases, a measure of how much the emission of 1 ton of gas will contribute relatively to 1 ton of CO2.

Greenhouse Gas	Global Warming Potential (GWP) - 100 years*	What is it?
Carbon dioxide (CO2)	1	Carbon dioxide e.g. emission from burning of fossil fuels such as coal, oil, natural gas
Methane (CH4)	28	Methane, e.g. from agriculture
Nitrous oxide (N2O)	265	Commonly known as laughing gas, e.g. from agriculture
Hydrofluorocarbons (HFCs)	124 - 12,400	HFCs, e.g. from industrial chemicals primarily used for cooling and refrigeration
Perfluorocarbons (PFCs)	7,390 - 11,100	PFCs, e.g. PFOS - impregnation
Sulfur hexafluoride (SF6)	23,500	SF_6 , e.g. gas used in electrical switching systems and devices
Nitrogen trifluoride (NF3)	16,100	NF3 e.g. colorless, non-flammable toxic gas used in flat-panel displays, photovoltaics, LEDs

*Although the IPCC has prepared a newer version, the methods have not yet been officially accepted for use under the UNFCCC.

The Greenhouse Gas (GHG) Protocol is the de facto standard for measuring corporate GHG emissions

GHG Protocol arose when World Resource Institute (WRI) and World Business Council for Sustainable Development (WBCSD) recognised the need for an international standard for corporate GHG accounting and reporting in the late 1990s.

The standards and guidance were made with the following objectives in mind:

- Help companies prepare a GHG inventory that represents a true and fair account of their emissions, through the use of standardized approaches and principles
- Simplify and reduce the costs of compiling a GHG inventory
- Provide business with information that can be used to build an effective strategy to manage and reduce GHG emissions
- Provide information that facilitates participation in voluntary and mandatory GHG programs
- Increase consistency and transparency in GHG accounting and reporting among various companies and GHG programs.

The GHG protocol splits between direct emissions and indirect GHG emissions, which is classified based on the consolidation approach selected for setting organisational boundaries. It is mandatory to report on both direct and indirect emissions.

The three scopes in the GHG Protocol

Scope definitions:

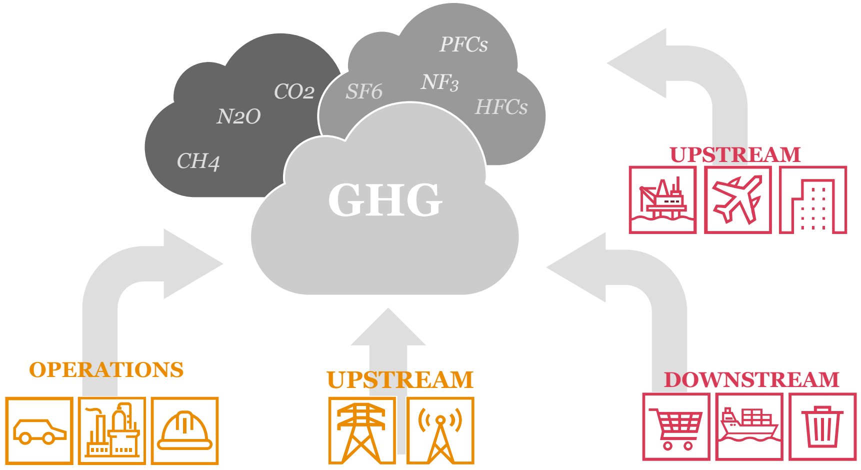
Direct GHG emissions are emissions from sources that are owned or controlled by the company, which is referred to as scope 1

Indirect GHG emissions are emissions that are a consequence of the activities of the company but occur at sources owned or controlled by another company. Indirect GHG emissions can be split into two scopes - scope 2 and scope 3.

Scope 2 emissions include emissions from the production of the energy purchased by the company, that physically occur where the energy is generated.

Scope 3 includes all other indirect emissions that occur in the company’s value chain as a consequence of the company’s activities.

Scope 3 emissions normally represent the largest source of GHG emissions for companies.



SCOPE 1
Direct emissions from owned or controlled sources such as fuel combustion in boilers, furnaces and vehicles

SCOPE 2
Indirect emissions from the generation of purchased energy, such as heat, steam and electricity

SCOPE 3
Indirect emissions (not included in scope 2) that occur in the vale chain of the reporting company, including both upstream and downstream emissions

Source: The GHG Protocol Corporate Standard, The GHG Protocol Scope 3 Standard

GHG accounting will be mandatory for companies in scope for CSRD

SECTOR-AGNOSTIC STANDARDS

Cross-cutting standards	Topical standards		
	Environment	**Social**	**Governance**
ESRS 1 General requirements	**ESRS E1** Climate change	**ESRS S1** Own workforce	**ESRS G1** Business conduct
ESRS 2 General disclosures	**ESRS E2** Pollution	**ESRS S2** Workers in the value chain	
	ESRS E3 Water and marine resources	**ESRS S3** Affected communities	
	ESRS E4 Biodiversity and ecosystems	**ESRS S4** Consumers and end-users	
	ESRS E5 Resource use and circular economy		

SECTOR-SPECIFIC STANDARDS
(postponed until 2026)

LISTED SME STANDARDS
(coming later)

THIRD COUNTRY STANDARDS
(postponed until 2026)

Large listed companies	FY 2024
Other large companies	FY 2025
SMEs of public interest (except micro companies)	FY 2026

Find more guidance by downloading the **CSRD Guidebook** for preparers of the sustainability statement on our webside

https://cloud.pwc.dk/download-form?id=701Vl000007mK6xIAE

Reporting on GHG emissions and tracking performance in CSRD

Climate change mitigation

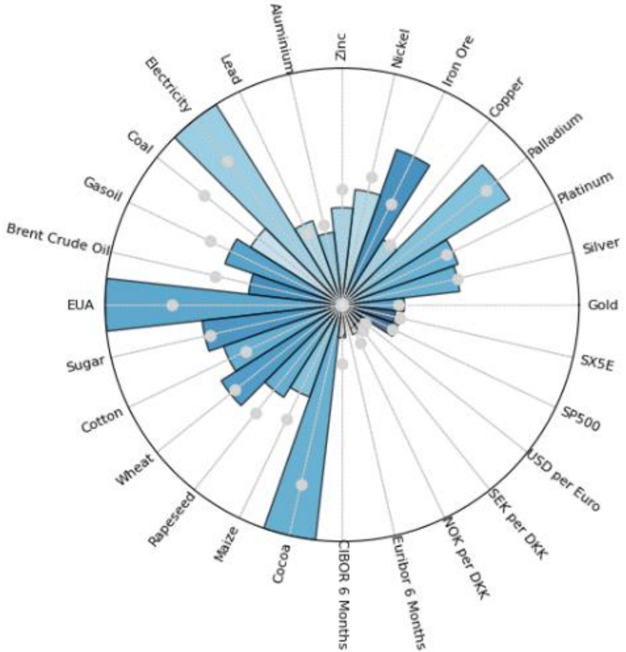
Relates to the undertaking's endeavours to limit global warming to 1.5 °C (Paris Agreement)

Description	Reference
Gross GHG emissions in scope 1, 2 and 3 in CO2 equivalents	ESRS E1-6
Share of scope 1 GHG emissions from installations subject to regulated **emission trading schemes**	ESRS E1-6
Reporting on mitigative actions, including **achieved and expected GHG emissions reductions**	ESRS E1-3
Amount of credits purchased in voluntary markets separate from total gross GHG emissions	ESRS E1-7

Description is non-exhaustive, please refer to ESRS E1 on more detail on how to prepare information for the disclosure

Market depth and volatility of CO2 (EUA)

May 2024



The length of each bar around the radar chart represents the **volatility** of a commodity, with longer bars indicating higher volatility over the preceding 3 months compared to the previous 12 months.

Previous 12 month volatility

The color of each bar signifies the **depth** of the commodity. Darker shades of the color represent more depth, which is measured by the number of open interests, that is the amount of outstanding derivative contracts on the asset.

No liquidity data

Source: Bloomberg, PwC calculations

EU Allowances (EUA)

… on **carbon credits is the 3rd most volatile price** among the 32 different assets the previous 3 months*. The white dot indicates intensified price fluctuations in the short term.

Market depth

… measured by the average number of open interests over the last 3 months, shows that **EUA has one of the deepest market depths** across the different asset classes.

Voluntary carbon credits

… enable the **offsetting of CO2 emissions** through investments in GHG reduction projects.

Guaranteed avoidance

… relies on **firm commitments** to implement measures that prevent specific GHG emissions.

* Electricity and Cocoa demonstrates higher volatility, they have been capped at the 3rd highest level (matching EUA) in the radar plot for illustrative purposes.

GRM

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GRM OVERVIEW | KEY FACTS

Energy risk management company headquartered in Middelfart, Denmark and offices in Copenhagen, Aarhus, Singapore

Global Risk Management Investment Firm is licensed with the Danish FSA

GRM provides hedging solutions so clients can hedge their energy price risks confidently

GRM COMMODITY | ENERGY PRODUCTS

Through our deep derivatives expertise and full participation in **global energy markets**, GRM provides consumers, distributors, and producers the knowledge and ability to identify and efficiently manage all **energy price risks** inherent within their operations.

ENERGY PRODUCTS

- Brent oil
- Fuel oil
- Middle distillates
- Light ends
- Power
- Biofuels
- FFA
- Coal
- Liquified Petroleum gas
- Liquified Natural gas
- Emissions allowances
- Natural gas

GRM METHOD | HEDGING

THE ACT OF TAKING A POSITION IN THE MARKET IN ORDER TO ELIMINATE OR REDUCE PRICE FLUCTUATIONS

CLOSING
the gap between market risks and company operation

LOCKING
in a cost structure to suit your economic planning

INSURANCE
against adverse price risks

PRO-ACTIVE
strategy for budgeting purposes

MARKET ACCESS | AUCTIONS AND SECONDARY MARKETS

Main supply of EU Allowances are through the auction and free allowances

EEX AUCTIONS

- The European Energy Exchange (EEX) is the common auction platform
- In 2023 around 600 mio EUA's are expected to be auctioned at more than 200 auctions
- Participation in auctions requires membership or bidding through a registered intermediary

Secondary markets

- EU Allowances SPOT
- Derivatives i.e., Forwards or options

Should I be worried of the EUA price development?

Direct effect on energy cost

Example	Oil price per ton	2024	2025	2026
PHASE IN		40%	70%	100%
OIL PRICE	520	617	690	763
EUA in USD	76			

One ton Bunker = 3,2 EUAs

USD520+(3,2*USD 76) = New price (Fully Phased in & intra EU/EEA)

Example on EUA price add on if price of oil and EUA is the same over the years

Previse Systems

previse systems

The New Energy Trading Paradigm

Who are Previse Systems?

About Us

- Founded in 2019 by veterans of the energy (software) industry
- Combined team industry experience of 250+ years
- Based in Zug, Switzerland

Our Vision

Simpler – Faster – Better Energy Trading Software
→ more value for less €!

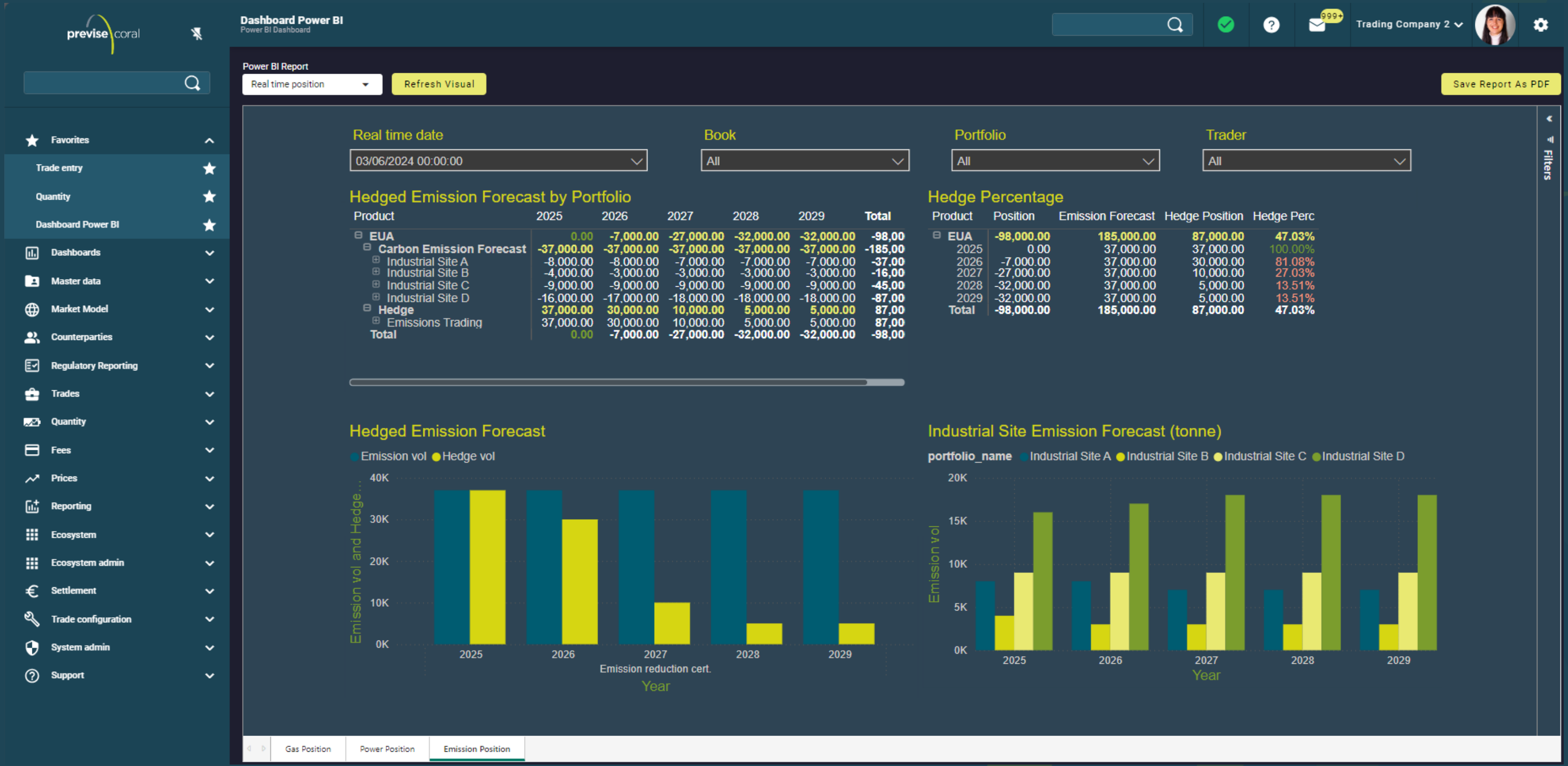
Community approach (collaboration & cost sharing)

Modern technology & tools (microservices, serverless, open APIs)

Reduced Vendor Dependence, e.g. on R&D

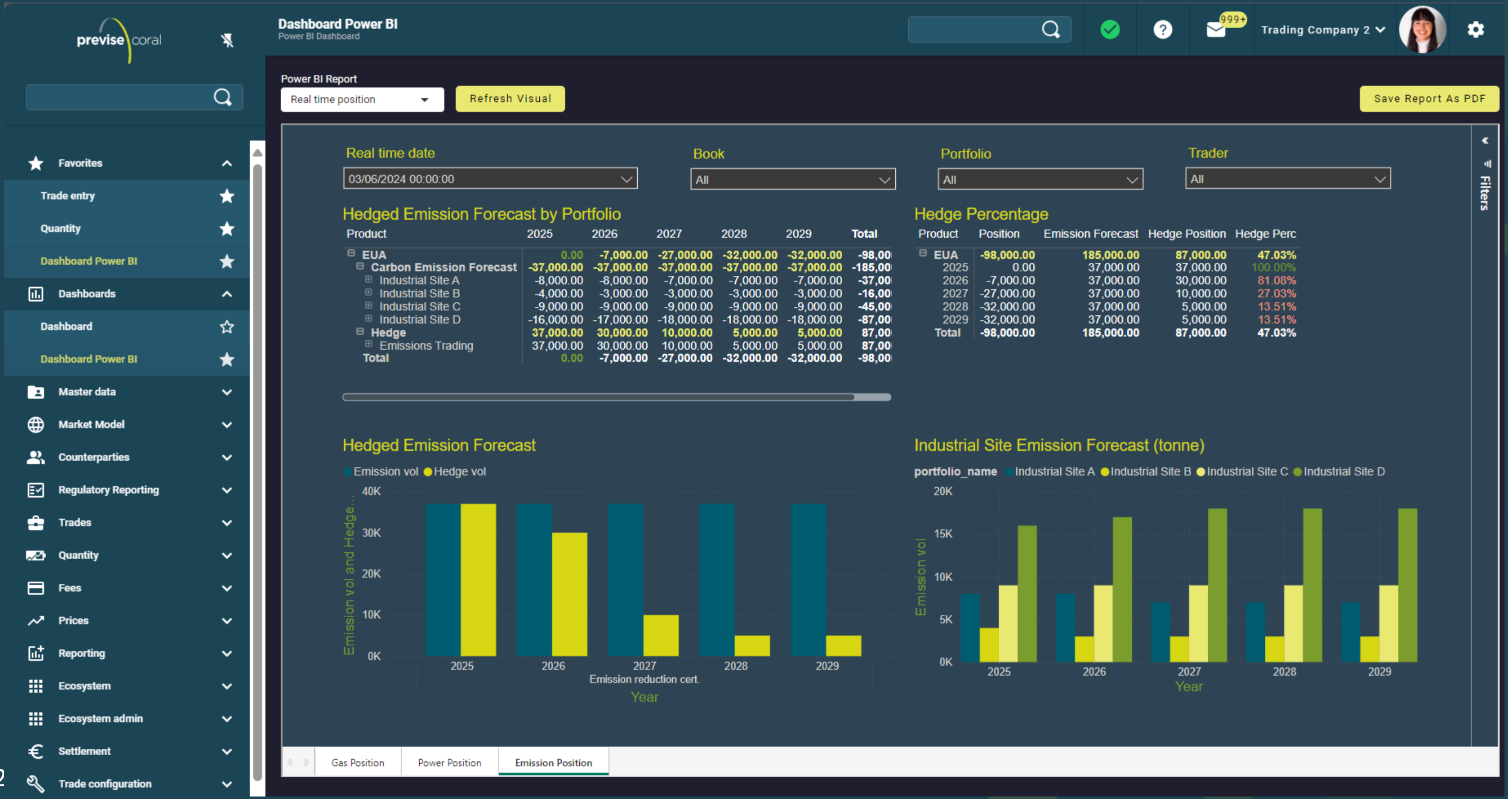
Short Product Demonstration

CO2 Trade and Position Management



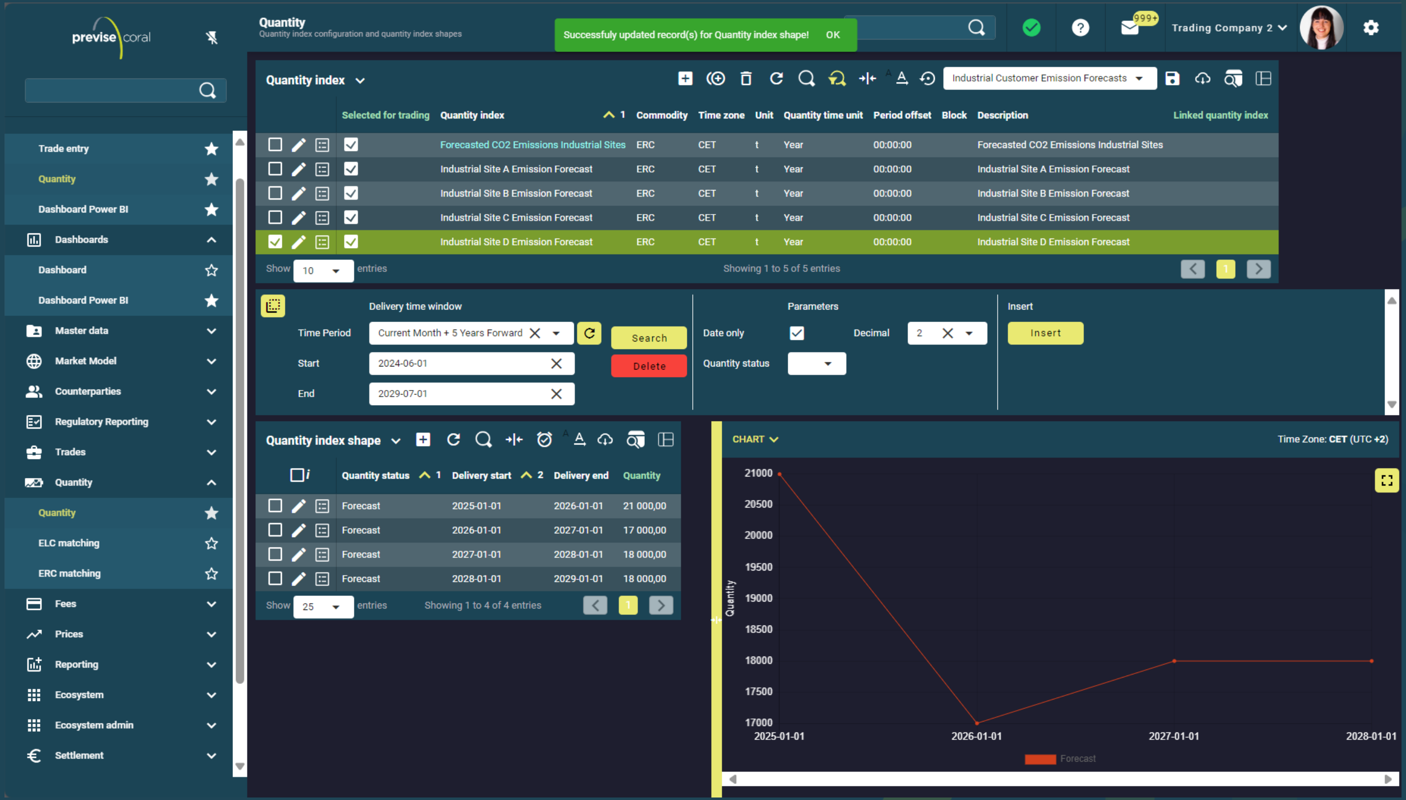
Demonstration Preview

Screen 1: Tracking aggregated customer forecasted emissions against traded position in Previse Coral



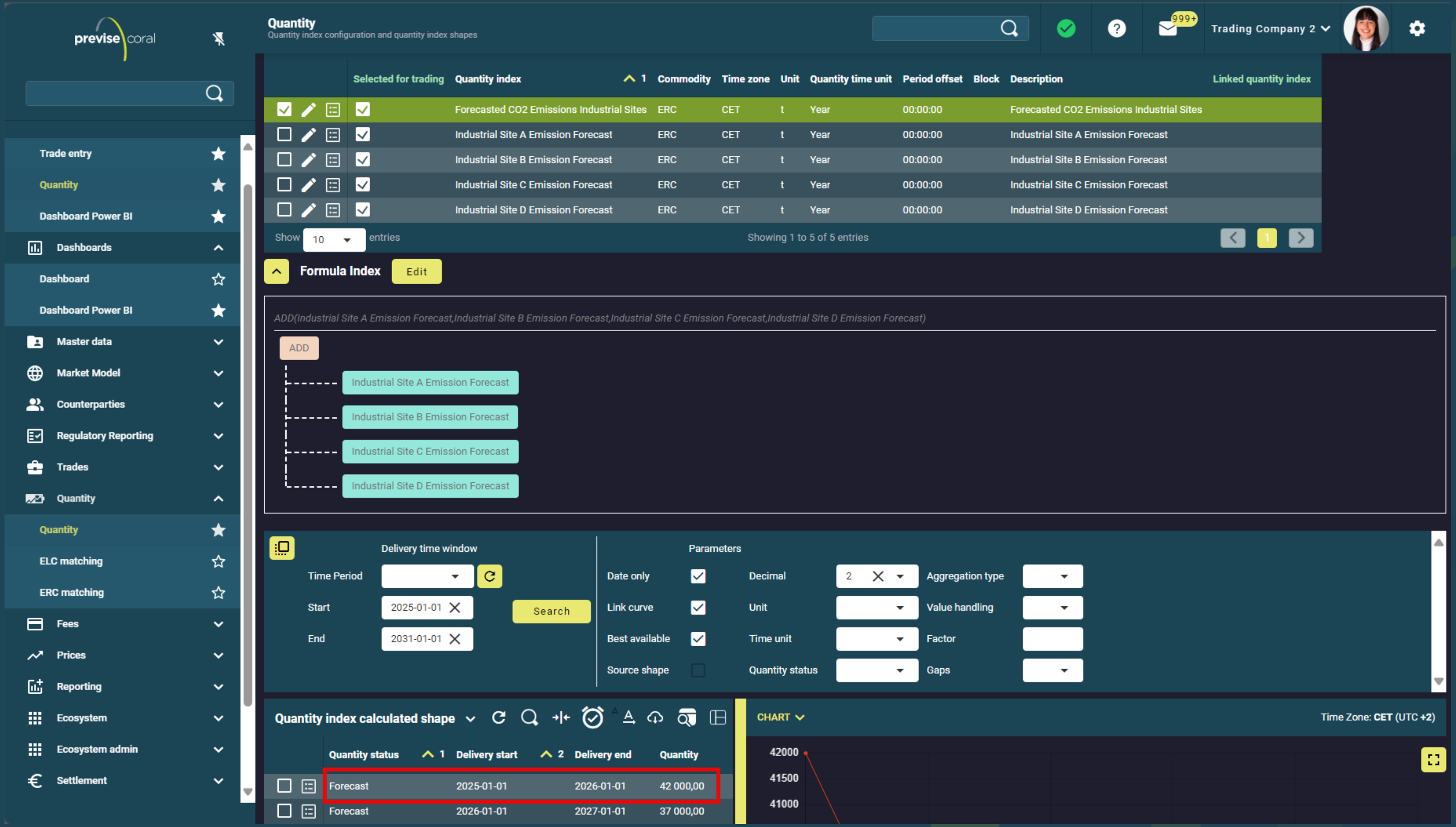
Demonstration Preview

Screen 2: Receiving updated emission forecast for 2025 for Industrial site D by 5000 tonnes in Previse Coral



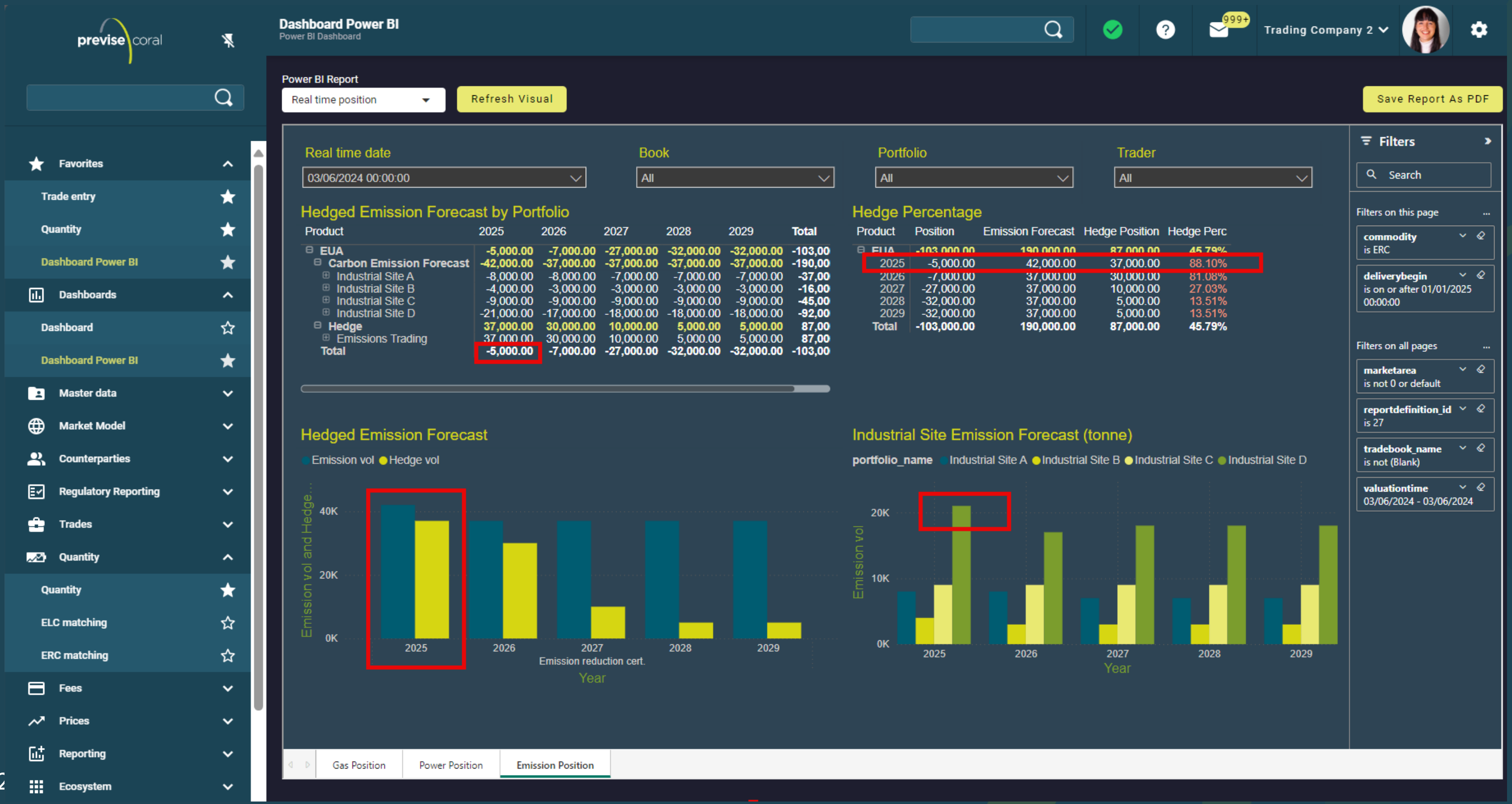
Demonstration Preview

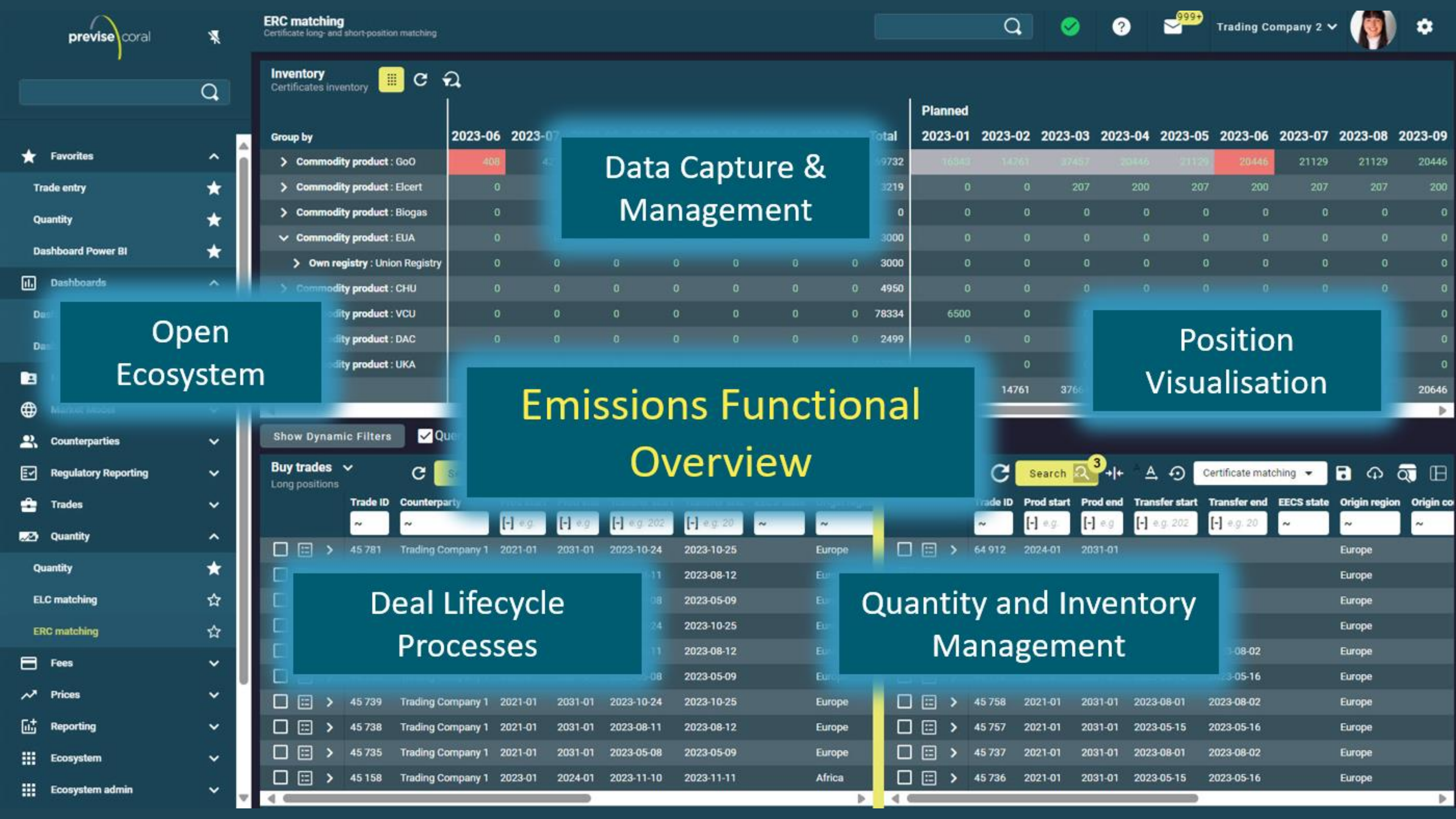
Screen 2: Total quantity to be hedged increases by 5000 tonnes



Demonstration Preview

Screen 3: Hedge percentage has increased and open position for 2025 CO_2 position is no longer flat on real time report





Data Capture & Management
Open Ecosystem
Position Visualisation
Emissions Functional Overview
Deal Lifecycle Processes
Quantity and Inventory Management
previse coral
ERC matching
Certificate long- and short-position matching
Trading Company 2
Inventory
Certificates inventory
Planned
Group by
Commodity product : GoO
Commodity product : Elcert
Commodity product : Biogas
Commodity product : EUA
Own registry : Union Registry
Commodity product : CHU
Show Dynamic Filters
Buy trades
Long positions
Favorites
Trade entry
Quantity
Dashboard Power BI
Dashboards
Counterparties
Regulatory Reporting
Trades
ELC matching
ERC matching
Fees
Prices
Reporting
Ecosystem
Ecosystem admin

Thank you to the presenters

Moving on to the questions asked by the audience

Nordic Battle of Treasury - Considerations

Considerations:

- How to measure CO_2 emissions?
- What are the options and lessons learned?
- How do you manage your CO_2 emission with a dedicated software solution?

Next:

- Material will be shared with participants
- In case questions have not been answered during the webinar, we will contact you directly
- You are welcome to contact us in case you have any questions

Upcoming webinar on CO_2 tax

When:

- Thursday 22 August 2024
- 09:00am-10:00am

Information:

- Learn more about the new CO_2 tax
- The Danish Parliament has implemented new legislation into the field
- New CO_2 tax is a reality from 1 January 2025

Sign up here

Nordic Battle of Treasury

Thank you

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