

UBS-WEMI

UBS World Emissions Index

Technical Document

Over the last few years, commodities have emerged as a liquid alternative investment class to financial assets such as bond and stocks.

As investors have grown dissatisfied with returns on the stock and bond markets, they have looked to commodities as a potential source of greater returns, diversification and alpha¹. Recent growth in Asia, the rising demand for energy in China and India, in conjunction with renewed fears of inflation in the US and in Europe, a rising US budget and trade deficit have helped fuel the demand for commodities and commodity-related investments that do not necessarily correlate with other types of investments.

The increasing effects of climate change have directed world attention to environmental concerns. These themes, in particular the role played by Greenhouse Gases (GHG) on global warming, have historically been of interest to niche players in the Socially Responsible Investment (SRI) field. Since the signing of the Kyoto Protocol and the arrival of the EU Emission Trading Scheme (ETS), the broader investment community has had access to a formalised GHG market, leading to increased interest in thematic funds. The global community is increasingly aware of the environmental importance of reducing emissions and has been instrumental in the introduction of programmes to place a financial charge on them.

With the UBS World Emissions Index (UBS-WEMI, respectively, for the purpose of this Technical Description “WEMI” or “Index”), UBS Investment Bank provides market participants with a tradable benchmark, allowing them to access the emissions sector of the commodity market as it emerges.

¹ Under certain market conditions.

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Executive Summary

The UBS World Emissions Index (UBS-WEMI) is an international emissions benchmark, issued by UBS Investment Bank (UBS IB), a leading institution in Emissions, Energy and Power research and trading.

The Index features the following characteristics:

- An open basket, subject to occasional change, currently composed of 2 emissions assets/certificates².
- One composite index and 2 component indices.
- Arithmetic averaging.
- Price Index (PI), the Excess Return Index (ER) and the Total Return Index (TR) are published daily.
- Each index is calculated in U.S. Dollar (USD), Euro (EUR) and Swiss Franc (CHF) such that all indices are made available in several major currencies.
- Target Weights (TWs) are designed to reflect the regional and trade importance of the respective Emission Programmes, based on programme value, and their underlying trading platforms' contract open interest and trading volume. The Target Weights are revised semi-annually in May and November, by the WEMI Steering Committee with changes, if any, effected during the following July and January maintenance periods, respectively.
- The automatic re-balancing methodology of the Index is designed to limit necessary changes to the Target Weights. The Index re-balances monthly according to the last defined Target Weights.
- The index rolls one twelfth of its exposure from the UBS-WEMI "first" into "second" nearby (defined as the most relevant and liquid contract for the specific period) over the last three business days of each month, starting in November of the respective year. Therefore, Index's exposure to second nearby increases with every month until the Index is fully exposure to the second nearby in October of the following year. Each instrument expiry schedule is fixed by the WEMI Steering Committee and is part of Index Technical document.
- Index composition changes, in accordance with the methodology, only upon the occurrence of specified "eligible circumstances" such as:
 - change in programme value, declining or rising trading volumes, instrument delisting or creation,
 - critical changes in Emission Programmes (i.e. cancellation, addition, increased programme scope, etc.),
 - changes in foreign exchange laws,
 - in general, all types of legal and tax rulings or decisions presenting a material increase in costs or compliance requirements to WEMI investors and/or members of the WEMI Steering Committee.
- When the introduction of a new emissions related trading instrument is made and the WEMI Steering Committee may deem its introduction to the Index appropriate in light of the Index procedures and objectives.
- In some circumstances, the WEMI Steering Committee can declare an event of "force majeure" and can take any actions that it deems to be necessary or appropriate for the maintenance of the Index and the realization of the objectives of the Index, even if such actions are not specifically provided for under the Index procedure. Any such actions might be taken with immediate effect.
- All changes to the Index are proposed by the WEMI Steering Committee members and approved by the WEMI Steering Committee.

² as of 1 January 2008

As of December 2007, the candidate components to the Index are shown in Table I.

Table I. Index Candidate Components

Emission Programme ³	Emission Program Mnemonic ⁴	Instrument Mnemonic	Trading Platform ⁵	Register ⁶	Type	Instrument Type
EU Programmes						
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ ECX	ECX – ICE	CITL	Mult.Fed	Fut.
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NP	NordPool	CITL	Mult.Fed.	Fut.
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EEX	EEX	CITL	Mult.Fed.	Fut., Spot
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EXAA	EXAA	CITL	Mult.Fed.	Cash (Auc)
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ PN	Powernext	CITL	Mult.Fed.	Cash
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ SND	SENDECO2	CITL	Mult.Fed.	Cash
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NVC	NVC	CITL	Mult.Fed.	Cash
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EUETS	Euets.com	CITL	Mult.Fed.	Cash
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ KCE	KCE	CITL	Mult.Fed.	Cash
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ KBB	KBB	CITL	Mult.Fed.	Cash
CO ₂ Euro Trading Scheme	CER ETS	CER NP	NordPool	CER ITL	Mult.Fed.	Fut., Spot
Green Certificates	GC	GC	POPLX	n/a	Mult.Fed.	Cash (Auc)
Green Certificates (CV)	GCERT	CV GME	GME	GCR	Regional	Cash
Swedish green certificates	ELCERT	ELCERT	Nordpool	CESAR	Regional	Cash, Fwd.
Norwegian ETS	CO ₂ NORW	CO ₂ NOR	OTC	SFT	Federal	Cash, Fwd.
UK Renewable Obligation Cert.	ROC	ROC	OTC	Ofgem	Federal	Cash
Renewable Energy Credits EU	REC EU	REC EU	OTC	AIB	Mult.Fed.	Cash
U.S. Programmes						
EPA SO ₂ Emissions Allow.U.S.	SO ₂ U.S.	CCX SFI	CCX	EPA	Federal	Cash
CO ₂ Emissions U.S.	CO ₂ U.S.	CCX CFI	CCX	EPA	Regional	Cash
CO ₂ Emissions U.S.	CER U.S.	CCFX CER	CCFX	EPA	Regional	Fut
EPA SO ₂ Emissions Allow.U.S.	SO ₂ U.S.	CCFX SFI	CCFX	EPA	Federal	Fut.
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	CCFX NO _x	CCFX	EPA	Federal	Fut.
EPA SO ₂ Emissions Allow.U.S.	SO ₂ U.S.	SO ₂ OTC	OTC	EPA	Federal	Cash, Fwd.
EPA SO ₂ Emissions Allow.U.S.	SO ₂ U.S.	SO ₂ NYX	NYMEX	EPA	Federal	Fut.
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	NO _x SIP OTC	OTC	EPA	Regional	Cash, Fwd.
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	NO _x SIP NYX	NYMEX	EPA	Regional	Fut.
HGA ⁴ NO _x Emissions Allow.U.S.	NO _x U.S.	NO _x HGA	OTC	Regional	Regional	Cash, Fwd.
Reclaim Trading Credits NO _x U.S.	NO _x U.S.	NO _x RTC	OTC	Regional	Regional	Cash, Fwd.
Reclaim Trading Credits SO _x U.S.	SO _x U.S.	SO _x RTC	OTC	Regional	Regional	Cash, Fwd.
Emiss. Red. Credits (Offsets) U.S.	ERC U.S.	ERC	OTC	Regional	Regional	Cash, Fwd.
Emiss. Red. Credits (Offsets) U.S.	ERC U.S.	CCX CFI	CCX	Regional	Regional	Cash, Fwd.
Discrete Emissions Reduction U.S.	DER U.S.	DER	OTC	Regional	Regional	Cash, Fwd.
Renewable Energy Credits U.S.	REC U.S.	REC	OTC	Regional	Regional	Cash, Fwd.

³ Please refer to Section 1.5 for an explanation of codes and mnemonics

⁴ Houston/Galveston Area

⁵ NY: New York

⁶ CT: Connecticut

Emission Programme ³	Emission Programme Mnemonic ⁴	Instrument Mnemonic	Trading Platform ⁵	Register ⁶	Type	Instrument Type
Mob. Source Averaging, Bank. & Trad. Prog.	ABT U.S.	ABT	OTC	Federal	Federal	Cash, Fwd.
NY ⁵ SO ₂ Emissions Allowance Market	NY SO ₂ U.S.	NY SO ₂	OTC	Regional	Regional	Cash, Fwd.
CT ⁶ SO ₂ Emissions Allowance Market	CT SO ₂ U.S.	CT SO ₂	OTC	Regional	Regional	Cash, Fwd.
Texas NO _x Emissions Allowance Market	TX NO _x U.S.	TX NO _x	OTC	Regional	Regional	Cash, Fwd.
California NO _x Emissions Allowance Market	CA NO _x U.S.	CA NO _x	OTC	Regional	Regional	Cash, Fwd.

Other Programmes

Greenhouse Gas Abatement Scheme	GGAS AU	CO ₂ AU	n/a	Regional	IPART	Cash
Ontario Pilot Emissions Reduction Trading	CO ₂ CAN	PERT	OTC	Regional	PERT	Cash
Greenhouse Gas Emission Reduction Trading	CO ₂ CAN	GERT	OTC	Regional	GERT	Cash
Large Final Emitters System	CO ₂ CAN	LFES	OTC	Federal	CEPA	Cash
Canadian Environmental Protection Act	CO ₂ CAN	CO ₂ MCX	MCX	Federal	CEPA	Cash
Canadian Environmental Protection Act	CO ₂ CAN	CO ₂ CCE	CCE	Federal	CEPA	Cash
Brazilian Carbon Market	CO ₂ BMF	CO ₂ BMF	BMF	Federal	Federal	Cash

Source: UBS Investment Bank

³ Please refer to Section 1.5 for an explanation of codes and mnemonics

⁴ Houston/Galveston Area

⁵ NY: New York

⁶ CT: Connecticut

The instruments codes for Bloomberg and Reuters are provided in Table II.

Table II. Instruments Codes

Emission Programme	Instrument Mnemonic	Contract Code (Bloomberg)	Contract Code (Reuters)
EU			
CO ₂ Euro Trading Scheme	CO ₂ EXC	MO	CFI
CO ₂ Euro Trading Scheme	CO ₂ NP	NEUAAM	EUA
CO ₂ Euro Trading Scheme	CO ₂ EEX	UJ	F1PE/P1EA.DE
CO ₂ Euro Trading Scheme	CO ₂ EXAA	AUEUSCO2	CO2-EXA
CO ₂ Euro Trading Scheme	CO ₂ PN	PNXCSPOT	(*)
Swedish green certificates	ELCERT	NEUAAM	ECS.NP
US			
CO ₂ Emissions Allow.U.S.	CCX SFI	(*)	SFI
CO ₂ Emissions Allow.U.S.	SO ₂ NYX	(*)	RO
EPA SIP NO _x Em. Allow.U.S.	NO _x SIP NYX	(*)	RN

Source: UBS Investment Bank, (*): Not available.

Real time and settlement Index prices as well as important static data and related information will be made available on Reuters Pages UBSWEMIO1 (and subsequent pages) and on Bloomberg page WEMI <GO> and CUBS <GO>.

Sponsors contact details

UBS AG

UBS, Equity Structured Products Group
 Commodity Index Trading
 1 Finsbury Avenue
 EC2M 2PP
 London
 U.K.

+44 (0) 207 567 58 22

www.ubs.com/emissions-index

0. Minutes from December 2007 Steering Committee

The second meeting of the UBS World Emissions Index Steering Committee was held on December 17, 2007.

Attendance: Jerome Drouin, Julie Hudson, Katia Demekhina, Emma Jenkin, Roderick Schutt, Jeffery Schlesinger

Apologies: Per Lekander, Liselotte Arni, Thomas Ulrich

1. Market Analysis

Outlook for Phase II is strong and the price forecast is EUR30-40.

The CER futures market has been growing and futures contracts have been launched on a number of exchanges (see point 4 below).

NYMEX and other market participants are to form a Green Exchange, which would potentially have contracts that could be included in the index at a future stage (see article attached)

Due to the latest news that ECX is "caught in the crossfire of a battle between two of its business partners that could result in it losing a substantial portion of its trade to rivals", WEMI Steering Committee would observe the exchange volume on regular basis. For more information, please see <http://www.planetark.com/dailynewsstory.cfm/newsid/46046/story.htm>

2. Roll Period

An important question we have discussed is whether we should change the roll in order to not leave the index fully exposed to one particular future contract until the end of the year.

What we are proposing to do is to do a monthly roll of 1/12th of the index exposure from one future contract into the next (i.e. roll 1/12 of Dec08 into 1/12 of Dec09) over the last 3 business days of the month. This way, we would have exposure to both Dec08 and Dec09, with the Dec09 portion increasing as we move further in the year.

Market conditions would allow to do this as Dec09 has liquidity increasing on gradual basis and becoming the most liquid contract towards the end of Q208 and beginning of Q308 when traders start to role their DEC 08 positions. By rolling only 1/12th of the exposure, we are ensuring that there is enough liquidity in the Dec09 market even at the start of the year.

As this roll methodology would not be implemented till January 2008, for this year we would need to split the roll volume proportionally between 10 months, rather than 12 as would be done in the future.

3. New Weights

There are currently no new components in the index and the weight has changed only slightly - Nordpool has increased by a small percentage.

New weights are:

ECX: 82.86%

NP: 17.14%

4. Potential future inclusion of CERs

In June 2007, Nordpool have launched futures contracts on CERs. CER contracts could potentially be added to the index to add its diversification. (Barclays's Carbon Index launched last week has 20% of its weight in CER futures contracts).

One complication with including CERs with the current index methodology is that the first step of Secondary Analysis (analysis of tradability) is to determine the size of the market. In order to do so we need not just the closing prices, but the amount of CERs in circulation. This figure would be difficult to determine and it changes on regular basis as the new CERs get approved. The committee would think of the ways to determine the size of CER market to be able to look at CER's membership eligibility criteria.

Also, CER futures have been launched on CCFX in August this year. There is not much history and there seems to be very little volume (occasionally 5,000 are traded), while open interest is around 15,000-75,000 tonnes.

5. Steering committee

Jeff Schlesinger has agreed to join the Steering Committee to replace Jerome Drouin who stepped down from the committee.

The next meeting of the UBS World Emissions Index Steering Committee will be held in May 2008.

1. Introduction

1.1 Overview of the Global Emissions Market

As investors have grown dissatisfied with returns on the stock and bond markets, they have looked to commodities as a potential source of greater returns, diversification and alpha ⁷. Recent growth in Asia, the rising demand for energy in China and India, in conjunction with renewed fears of inflation in the US and in Europe, a rising US budget and trade deficit have helped fuel the demand for commodities and commodity-related investments that do not necessarily correlate with other types of investments.

UBS believes that emissions markets offer a potentially profitable investment opportunity within the commodity markets. The increasing effects of climate change have directed world attention to environmental concerns. The climate change themes, in particular the role played by Greenhouse Gases (GHG) on global warming, have historically been of interest to niche players in the Socially Responsible Investment (SRI) field. Since the signing of the Kyoto Protocol and the arrival of the EU Emission Trading Scheme (EU-ETS), the broader investment community has had access to a formalised GHG market, resulting in an increase in thematic funds. The global community is increasingly aware of the environmental importance of decreasing emissions and has been instrumental in the introduction of programmes to place a financial charge on them.

The Index has been created in order to facilitate access to the emissions markets and to allow participation from the outset in this innovative financial development.

1.0.1 The Kyoto Protocol

The Kyoto Protocol is an amendment to the 1992 United Nations Framework Convention on Climate Change (UNFCCC), the original treaty on global warming ratified by all the major Greenhouse Gas (GHG) emitting countries in the developed world (with the exception of the United States, China, India and Australia).

The Kyoto Protocol was signed in 1997 and was ratified by 165 countries by August 2006 (notably excluding Australia and the United States). The Protocol foresees the global reduction of GHG emissions, through the implementation of a cost effective solution in the form of a "Cap and Trade" system.

According to a press release from the United Nations Environment Programme⁸:

"The Kyoto Protocol is an agreement under which industrialised countries will reduce their collective emissions of greenhouse gases by 5.2% compared to the year 1990 ⁹. The goal is to lower overall emissions of six greenhouse gases – Carbon Dioxide, Methane, Nitrous Oxide, Sulphur Hexafluoride, HFCs, and PFCs – calculated as an average over the five-year period of 2008–2012. National targets range from 8% reductions for the European Union and some others to 7% for the US, 6% for Japan, 0% for Russia, and permitted increases of 8% for Australia and 10% for Iceland."

⁷ Under certain market conditions. There can be no assurance that any historical patterns of commodity market performance will be repeated, or that commodity market returns will outperform the returns on any other market sector. Further, there is no guarantee that future emissions market performance will follow any historical performance of commodity markets.

⁸ United Nations Environment Programme <http://countryprofiles.unep.org/profiles/ER/profile/indicators>.

⁹ Compared to the emissions levels that would be expected by 2010 without the Protocol, this target represents a 29% cut.

Under the “Cap and Trade” system, which is the backbone of the Kyoto Protocol and a number of other emission reduction programmes, an environmental regulator establishes a “cap” that limits the emissions of a selected group of polluters and is subsequently reduced with each periodical revision. This cap is then divided up into individual certificates (also called permits) that represent the right to emit specified amount of GHG (usually equal to one metric ton). Because there is a cost associated with alternative means of GHG disposal, these permits take on financial value.

Introducing a “Cap and Trade” system, allows the more technologically efficient industries, for which reductions can be achieved in an easy and cost-effective manner, to sell unused permits to other less efficient industries. At the origin of the market for emission certificates, is this financial incentive to reduce emissions and improve efficiency. The market is expected to become more liquid as more industries and countries start compliance with the Kyoto Protocol, progressively increasing the volume of traded certificates.

Although Kyoto creates a framework and a set of rules for a global GHG market, there are in practice a number of distinct schemes operating with varying degrees of interaction. For example, Kyoto Protocol has enabled a number of countries to join the EU-ETS and be treated as a single entity for compliance purposes with an overall emissions cap.

1.0.2 The European Trading Scheme (EU-ETS)

The EU-ETS provides a formal and binding framework for the regulation of the European emissions market. The European Commission has allocated Emissions Allowances to Member States requiring up to 11,400 polluting installations ¹⁰ to submit their audited emissions registers once a year.

The EU-ETS includes three main mechanisms for achieving compliance:

- The “Cap and Trade” mechanism,
- The Clean Development Mechanism (CDM) ¹¹ and,
- The Joint Implementation (JI) ¹¹.

1.0.2.1 “Cap and Trade” Mechanism

The scheme operates under a “cap and trade” mechanism which sets the maximum emissions amount per compliance period. Companies are credited with allowance certificates representing their target or “Cap”. At the end of the period, the companies must surrender sufficient allowances to settle against their total emissions, each certificate permitting 1 metric tonne of Carbon Dioxide (CO₂) emission.

European Union Allowances (EUAs), also called certificates, are similar to registered securities. EUAs can be exchanged by participants and their prices are determined freely by market forces. Should a participant to the scheme hold an insufficient number of certificates to meet its total emissions for that period, it must purchase the difference in the market, and pay an additional fine of EUR 40 per excess tonne ¹². Conversely, if such a participant has reduced its emission level and has a surplus of allowances, it may sell the surplus.

Participants are utility companies, power plants (some of the largest coal fired power plants in Europe now actively take part in the scheme), petrochemical producers, factories and speculators. Participating companies are able to cover their associated financial exposure by buying CO₂ Futures contracts, traded on ECX, Nord-pool and EEX.

Critical to the success of this scheme is the enforcement and legitimacy of the EUAs, without which the certificates would have no value. The EU is tackling this problem by employing independent verifiers, private

¹⁰ European Commission http://ec.europa.eu/environment/news/efe/21/news_en.htm.

¹¹ See Appendix B. for details.

¹² The fine will increase to EUR 100 during the Phase II of the programme (2008–2012).

firms given the task of monitoring the emissions of each company involved in the scheme, similar to an accounting firm auditing financial statements.

Operators can transfer and receive allowances via registry accounts also used to record their annual emission data. Each Member State maintains a register related to the European Commission’s Community Independent Transaction Log (CITL). The CITL tracks all transactions and allows EUA to be transferred between the registries of different Member States.

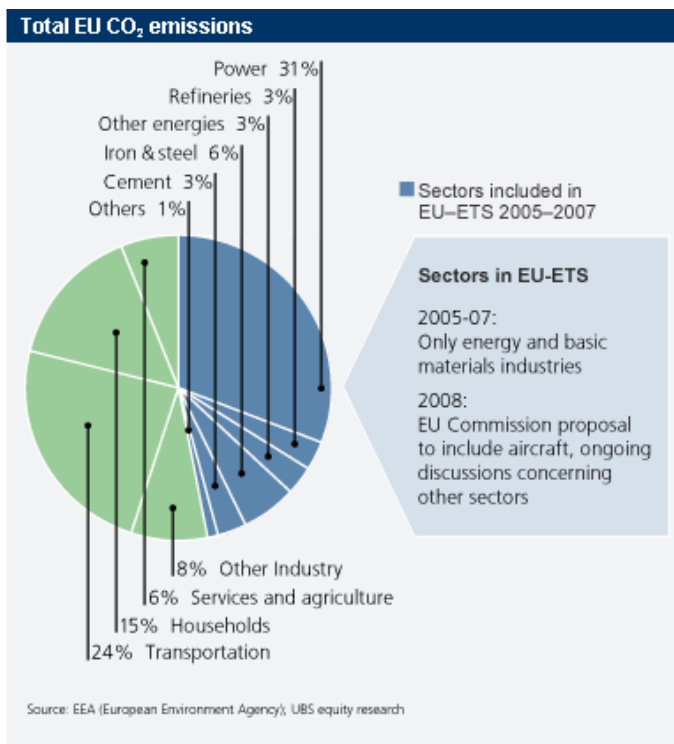
The EU-ETS is being applied in two consecutive phases.

1.0.2.2 EU-ETS Phase I, 2005–2007

Since January 2005, 25 European countries have been participating in Phase I of EU-ETS for the reduction of CO₂ emissions from specific industries. The phase was initially implemented to assist countries in reaching their targets for Phase II on time.

The EU-ETS is the largest CO₂ trading scheme of its kind and covers about 46% of European CO₂ emissions¹³ (Exhibit I).

Exhibit I. European Union Emissions by Type



Source: EEA (European Environment Agency), UBS Investment Bank equity research, WEMI Advisory Committee.

1.0.2.3 EU-ETS Phase II, 2008–2012

From 2008 onwards, the scheme could potentially see the addition of other GHGs to the platform such as Methane, Hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs).

From inception, the UBS World Emission Index will include some of the most liquid instruments traded under the CO₂ EU-ETS programme. CDMs and JIs are not included into the Index as they represent non-uniform markets, however, they will be monitored for future inclusion.

¹³ Point Carbon, 12 May 2006. Please refer to Appendix B. for further details.

1.0.3 US Emission Programmes

In the US, the electricity market is dominated by Coal, a “dirty” source of energy with high Sulphur Dioxide (SO₂) and CO₂ content and Natural Gas, a “cleaner” source with lower CO₂ content than fuels derived from Crude Oil.

The U.S. Environmental Protection Agency’s (EPA) Acid Rain Programme, which falls under Title IV of the 1990 Clean Air Act Amendments, provides a framework for the trading of SO₂ emission allowances. Like the EU-ETS, the EPA sets the guidelines for the trading of allowances, each authorising the emission of one metric ton (Mton) of SO₂ for a specified “vintage year” without penalty.

1.0.3.1 The Acid Rain Reduction Programme (EPA SO₂)

The Acid Rain reduction programme has been implemented in two phases.

Phase I began on 1 January, 1995 and affected 110 electric utilities, the majority of which were coal-burners with high historical emission levels. The annual regulatory emission reduction requirement was set to 10 million tons below the 1980 emissions levels (26 million Mtons per year) by 2000. The initial allocation of certificates was based on an emission rate of 2.5 pounds of SO₂/Mmbtu¹⁴.

In the current phase, Phase II, started on 1 January, 2000, EPA expanded the group of affected sources and tightened the allowance allocation to 1.2 pounds of SO₂/Mmbtu of heat input, multiplied by the unit’s base-line. Furthermore, only units in operation before 1996 were made eligible for an allocation of allowances, requiring new entrants to purchase them through the market system.

Beginning in 2010, the Act places a cap at 8.95 million on the number of allowances issued to participating units each year. This effectively caps emissions at 8.95 million tons annually and ensures that the mandated emissions reductions are maintained over time.

This programme does not pass the Index membership liquidity criteria so the WEMI Steering Committee has decided not to include it, but continues to monitor it for future inclusion.

1.0.3.2 The State Implementation Plan (EPA NO_x)

The State Implementation Plan (SIP), aiming to control summertime ozone pollution, is the Environment Protection Agency’s NO_x reduction programme under the 1990 Clean Air Act¹⁵ and sets emission targets for 19 Northeast states¹⁶.

NO_x allowances are allocated at the state level, each state then taking responsibility for subsequent distribution. There are approximately 520,000 tons per year available to participating industries across all 19 states.

Unused allowances can be banked but are subject to the Progressive Flow Control¹⁷ (PFC) mechanism which applies a discount to the value of banked allowances. The maximum penalty for non-compliance is USD 25,000 per ton and the loss of a quarter of the subsequent year’s annual allowance allocation.

This programme does not pass the Index membership criteria as it has an insufficient market value of the programme. The WEMI Steering Committee will continue to monitor the development of this programme and will consider it for inclusion as soon as it meets both primary and secondary eligibility requirements.

¹⁴ See Appendix B. for details.

¹⁵ The Clean Air Act was originally signed in 1963 and has since undergone a number of amendments, the most recent of which has take place in 1990.

¹⁶ Expected to expand to 23 states in 2009.

¹⁷ See Section 1.5.2.

1.0.3.3 United States and CO₂ programmes

A number of U.S. companies have signed up to the EPA's Climate Leaders programme, which aims to help companies track their emissions levels, but as the United States has yet to ratify the Kyoto Protocol, statewide compulsory programmes limiting emissions of CO₂ are not yet a reality.

As of August 2006, approximately 70 companies have become involved in the programme, with some 30 participants setting Greenhouse Gas targets on a voluntary basis. Another attempt to formalise a CO₂ market in the U.S. was the establishment of the Chicago Climate Exchange (CCX), a voluntary, self-regulating exchange aiming to reduce emissions through the trading of GHGs.

To date, none of the existing U.S. CO₂ programmes meet the Index primary requirements, as stated in Section 2.1. hereafter. Despite its relatively brief existence, the WEMI Advisory Committee considers this programme as one of the most promising Emission Programmes in the United States and will continue to monitor its development and support its implementation for potential inclusion in the Index.

1.0.4 Other Programmes

1.0.4.1 Australia

According to the United Nations Framework Convention on Climate Change (UNFCCC) status of ratification, Australia has signed but has not ratified the Kyoto Protocol ¹⁸.

The only Australian compulsory programme is the Greenhouse Gas Abatement Scheme (GGAS) which only covers New South Wales (NSW). The scheme was established in 2003 and is still in place despite the current administration's apparent disinterest in emissions trading as a credible solution to climate change. GGAS ¹⁹ aims to reduce GHGs emissions associated with the production and use of electricity through project-based activities to offset the emission of GHG.

Following the example of NSW, the National Emissions Trading Scheme (NETS) was established as an initiative of the State and Territory Governments of Australia to create an intra-state CO₂ trading scheme. In Australia, where environmental matters fall under the jurisdiction of the States, NETS aims to increase the acceptance of the Kyoto Protocol at the Federal level.

In their current form Australian emission reduction programmes do not meet the Index's primary requirements, as set forth in Section 2.1. hereafter, and the WEMI Steering Committee decision is to not include it at this stage.

1.0.4.2 Canada

Canada ratified the Kyoto Protocol on 17 December 2002, but issues of both domestic and international nature have prevented its implementation.

In the North American region, U.S. and Canadian companies share the same power grid and regularly compete for the same markets. It is perceived that U.S. companies, not exposed to the Kyoto Protocol and therefore not bearing the cost of emission reduction requirements, would benefit from an unfair trade advantage. This results in fierce opposition to the implementation of the Protocol in Canada generally and the State of Alberta, Canada's primary oil and gas producer, in particular.

Canada's historic relationship with the United States also complicates the implementation of a policy that opposes the United States's current foreign policy. Despite these difficulties, Canada is likely to establish its own internal GHG market as soon as 2008 with plans to directly relate it to the EU-ETS.

¹⁸ http://unfccc.int/files/essential_background/convention/status_of_ratification/application/pdf/ratlist.pdf.

¹⁹ See appendix B. for details.

At this time, as the Canadian emission programme does not pass the Index primary criteria, as set forth in Section 2.1. hereafter, it is not included in the Index. The ongoing developments will be monitored by the WEMI Advisory Committee for potential future inclusion.

1.1 The purpose of the WEMI Technical Document

In this Technical Description UBS defines the set of rules and mechanisms that determine the structure of the Index.

The WEMI is designed as a “tradable” benchmark for global investment in the emissions markets. The Index is built primarily on the basis of the underlying Currency Emission Programme Value (CEPV), a concept aimed at measuring the relative economic importance of each of the programmes included in the Index. Because emissions markets are likely to evolve dramatically in the next few years, this basis provides the fundamental statistical evidence necessary to establish technical confidence in the Index, but liquidity remains a key to most investment decisions. Secondary rules based on programme value, liquidity, market depth and open interest, provide the necessary link between fundamental and financial reality and help to establish the WEMI as a stable, reliable and relevant benchmark.

UBS is aware that no rules or mechanisms, even if precise and specifically drafted, can accommodate any changes that may affect emissions markets in the years ahead. The high international political focus, combined with the obvious geopolitical and environmental implications, make it impossible to foresee all developments. UBS is committed to use all publicly available resources and research to allow this technical framework to evolve when market shifting events occur, with the aim of maintaining the WEMI’s stability and accurate representation of emissions markets.

For the benefit of the Index and all market participants, UBS will also use its proprietary market knowledge to effect necessary changes to the Index. This will be achieved by introducing a set of rules and procedures that include the flexibility to make changes to the composition or methodology of the Index. Necessary changes will be made in order to meet the objectives of the Index as a tradable benchmark of the emissions market.

The WEMI Steering Committee leaves itself the flexibility to apply judgment that may include amending rules detailed in this Technical Description (for example with respect to including or excluding a component from the Index). UBS realises that applying intelligent but rigid rules without being sufficiently mindful of the overall objectives of the Index can contradict its original philosophy and design. Changing circumstances (including technological and political) may require a different interpretation of the rules to preserve the integrity of the Index. Therefore, UBS, in consultation with the WEMI Steering Committee, retains the right to modify or deviate from the rules regarding the Index if, in its reasonable judgment, such action is necessary or advisable in order to protect or advance the goals of the Index.

When necessary, new rules are added by UBS to the Technical Description, and existing rules may be modified. All modifications, decisions and rules affecting the WEMI, including those to be taken in periods of extraordinary circumstances such as “market emergency” and “force majeure” (please refer to Section 3), are to be taken by UBS, in consultation with the WEMI Steering Committee. UBS reserves the right to make changes to the Technical Description. A “market emergency” or event of “force majeure” may be declared if UBS, in consultation with the WEMI Steering Committee, determines that certain circumstances are likely to adversely affect the tradability of the Index or its ability to serve as a benchmark for the emissions market.

1.2 The WEMI Steering Committee

In order to enhance transparency and independence of the WEMI UBS has established a committee (the WEMI Steering Committee), to oversee changes to composition and communication regarding the WEMI.

The WEMI Steering Committee is currently composed of personnel of UBS IB, and may in the future include individuals or representatives of companies not affiliated with UBS, such as academics, external counsels and market participants. The Steering Committee may include representatives of the research areas of UBS Bank knowledgeable in the commodities markets. In this case, these individuals are not involved in the trading businesses of UBS IB and are subject to certain information barriers between the research and trading businesses. As a result, they bring to the Steering Committee additional perspectives that are independent of the trading businesses of UBS IB.

Nevertheless, the involvement of UBS Bank personnel, including but not limited to those in the research and trading areas of UBS IB, in the WEMI Steering Committee could potentially give rise to certain conflicts of interest.

The WEMI Steering Committee is a consultative body, the role of which is to advise UBS IB on matters related to the Index.

As a committee comprised of individuals with substantial experience and expertise in the relevant markets, the WEMI Steering Committee plays a significant role in the oversight and management of the Index. All decisions related to the Index, however, are made by UBS. The WEMI Steering Committee holds Ordinary Meetings bi-annually around the second Friday of May and November, at which it discusses and considers potential changes to the Index methodology in light of market conditions and changes. The WEMI Steering Committee reviews the current and projected Index composition and component weights as well as other matters relating to the Index. In addition to the Ordinary Meetings, the WEMI Steering Committee convenes for Extraordinary Meetings at the request of UBS or of any two WEMI Steering Committee members to discuss potential “market emergency” and “force majeure” events or any other situation, requiring an Extraordinary Meeting (please refer to Section 3, market disruption events).

All questions regarding interpretation of the rules and procedures for the Index will be resolved by UBS, upon the advice of the WEMI Steering Committee where appropriate. Accordingly, any and all references in this Document to the WEMI Steering Committee or to decisions made or actions taken by the WEMI Steering Committee should be construed as referring to decisions made or actions taken by UBS in consultation with the WEMI Steering Committee.

The WEMI Steering Committee is assisted and supported by an advisory committee (the “WEMI Advisory Committee”) whose role is to prepare the agenda for annual and bi-annual meetings, promote and maintain the communication between WEMI Steering Committee members and manage all matters related to external communication on the WEMI.

The WEMI Steering Committee is presently composed as follows:

WEMI Steering Committee Members

Julie Hudson	Chairperson	Managing Director – UBS, Head of the Socially Responsible Investment (SRI) group
Per Lekander		Executive Director – UBS, Utilities Research Analyst
Liselotte Arni		Director – UBS, Group Functions – Group Environmental Policy
Jeff Schlesinger		Managing Director – UBS, Equities Research

The WEMI advisory Committee is presently composed as follows:

Advisory Committee Members

Emma Jenkin	Committee Advisor	Director – UBS, Commodity Index Trading
Katia Demekhina	Committee Coordinator	UBS, Commodity Index Structuring

Thomas Ulrich	Legal Advisor	Director – UBS, Traded Products – Legal Department
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Roderick Schutt	Secretary of the Committee	Executive Director – UBS
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1.3 Summary of Key Index Terms

AC	Adjusting Constant is the constant used to maintain continuity of the Price Index during re-weighting/re-balancing periods.
ACEPV	<p>The Average Currency Emission Programme Value is the weighted average of the last four calculated CEPV at the time of calculation, with the allocated weights being 45% for the most recent CEPV, 35%, 15% and 5%, respectively, for the remaining most ancient CEPVs. If the data available is insufficient, the weight allocation will be the following:</p> <ul style="list-style-type: none">• if there are only three six-month periods available the weights are CEPV(1) 65%, CEPV(2) 30%, CEPV(3) 5%,• if there are only two six-month periods available the weights are CEPV(1) 65%, CEPV(2) 35%,• if there is only one six-month period available then 100% of weight is allocated to CEPV(1).
ACMLV	<p>The Average Component Market Liquidity Value, as defined in Section 2.2.1.3., is the weighted average of the last four calculated CMLV at the time of calculation, with the allocated weights being 45% for the most recent CMLV, 35%, 15% and 5%, respectively, for the remaining most ancient CMLVs. If the data available is insufficient, the weight allocation will be the following:</p> <ul style="list-style-type: none">• if there are only three six-month periods available the weights are CMLV(1) 65%, CMLV(2) 30%, CMLV(3) 5%,• if there are only two six-month periods available the weights are CMLV(1) 65%, CMLV(2) 35%,• if there is only one six-month period available then 100% of weight is allocated to CMLV(1).
ACOIMVI	<p>The Average Combined Open Interest and Market Value Indicator, as defined in Section 2.2.4.2., is the weighted average of the four most recently calculated COIMVI at the time of calculation, with the allocated weights being 45% for the most recent COIMVI, and 35%, 15% and 5%, respectively, for the remaining most ancient COIMVIs. If the data available is insufficient, the weight allocation will be the following:</p> <ul style="list-style-type: none">• if there are only three six-month periods available the weights are COIMVI(1) 65%, COIMVI(2) 30%, COIMVI(3) 5%,• if there are only two six-month periods available the weights are COIMVI(1) 65%, COIMVI(2) 35%,• if there is only one six-month period available then 100% of weight is allocated to COIMVI(1).
ACOIV	<p>The Average Component Open Interest Value, as defined in Section 2.2.2.2., is the weighted average of the last four calculated COIV at the time of calculation, with the allocated weights being 45% for the most recent COIV, and 35%, 15% and 5%, respectively, for each of the remaining most ancient COIV. If the data available is insufficient, the weight allocation will be the following:</p> <ul style="list-style-type: none">• if there are only three six-month periods available the weights are COIV(1) 65%, COI (2) 30%, COIV(3) 5%,• if there are only two six-month periods available the weights are COIV(1) 65%, COIV(2) 35%,• if there is only one six-month period available then 100% of weight is allocated to COIV(1).
ARR	For any WEMI Business Day, the Available Reference Rate, is the rate of interest associated with the reference price source to which the Available reference rate adjustment is added.

ARRA & ARRS	Available Reference Rate Adjustment and Available Reference Rate Scalar, the rate adjustment and, the Scalar Factor used, when applicable, to reflect any particular funding cost or rate differential applicable and associated to an ICR for an AA+/AAA (S&P) and/or Aa1/Aaa (Moody's) issuer. The ARRA and ARRS can change periodically to reflect market conditions and are ratified by the WEMI Steering Committee.
BV	For an Index, the Basket Value is the sum of Daily Component Weight (DCV).
BVI	Is the Basket Value Initial, calculated according to the formula in Section 3.2.2.
BVF	Is the Basket Value Final, calculated according to the formula in Section 3.2.2.
BVR	Basket Value Ratio is the Basket Values in use on the day prior to the first roll day of the re-weighting/re-balancing periods. It is used in order to maintain continuity of the Price Index during transition periods.
CCYScalar	The CCY Scalar is the adjusting factor used in foreign currency conversion.
CEPV	Currency Emission Programme Value, as defined in Section 2.2.1.2., is obtained on the calculation date by multiplying (1) the VDA related to an Emission Programme, by (2) the sum of the last twelve first WEMI VYNP averaged over of the last three WEMI Business Days of each month, converted to USD using the daily currency exchange rate and divided by twelve. If twelve months of data are not available, the above calculations are performed for the number of months available.
CMLV	The Component Market Liquidity Value, as defined in Section 2.2.3.1., is the USD converted value of the average of the total daily component volume over the last six months period at the time of calculation. The purpose of the CMLV and related requirements is to enhance the tradability of the Index by ensuring the liquidity of its component instruments.
CNW	Component Nominal Weights are the nominal factors multiplied by the DNCP and calculated on the business day preceding the start of the roll period prior to each re-weighting/re-balancing period such that effective weights are equal to the defined target weights.
COIMVI	Combined Open Interest and Market Value Indicator governs the weight allocation between instruments sharing the same underlying Emission Programme and is based on the COIV and CMLV.
COIV	The Component Open Interest Value, as defined in Section 2.2.2.1., is the USD Converted value of the average of the daily WEMI reference contract open interest value over the last six months.
DCNP	Daily Component Nearby Price is the daily reference price used in the calculation of the Index. First and second WEMI nearbys are designated by the WEMI Steering Committee, and used in the Index calculation during the roll period.
DCV	The Daily Component Value is the product of currency adjusted Daily contract Nearby Prices and the Component Nominal Weight.
DEW	The Daily Effective Weight for each component is the ratio of, (1) the Daily Component Weight (DCV) and (2) the Basket Value (BV).
DITRF	Is the Daily Index Total Return Factor, calculated according to the formula in Section 3.3.1.
DOMW	The Daily Open Market Weight is the sum of Daily Effective Weights (DEW) adjusted for open markets. When all markets are open on a given WEMI Business Day, the DOMW is equal to 100%.
DRR	For any WEMI Business Day, the product of (1) the ARRS and (2) the sum of the ARR and the ARRA.

ER	Excess Return Index measures the uncollateralized returns of the WEMI basket of components.
FDCNP	Is the currency converted expression of the DCNP, calculated according to the formula in Appendix E.
FX	FX is the Foreign Currency Exchange Rate used to convert a Futures contract value expressed in its original currency to the currency in which the Index is quoted. The expression of FX is given according to market standard and practices, adjusted by the CCY factor defined for each CCY pair.
ICR	Index Currency Reference, the currency in which the Index is expressed: USD, EUR and CHF.
IDR	The Index Daily Return, is the daily composite basket return, weighted by the Maintenance Proportions (MPs) and Component Nominal Weights (CNWs) to reflect the assets held from one WEMI Business Day to the next.
IRR	Interest Rate Return is the return reflecting the fixed income performance of the Index in its designated currency from one WEMI Business Day to the next. The IRR is expressed as a Scalar Factor and is compounded with the IDR to produce the Daily Index Total Return Factor (DITRF). The mathematical expression of IRR is a function of the rate type which is in turn a function of ICR.
LOIW	Liquidity and Open Interest Weight is used in the calculation of the TWs and is the ratio of ACOIMVI of a specific trading platform to the total ACOIMVI of the Emission Programme to which the trading platform belongs.
Market Disruption Event Day	When a trading platform fails to publish a settlement price for a contract involved in the roll, the WEMI Business Day is deemed a Market Disruption Event Day.
MP	Maintenance Proportion, the proportion or weight associated, for each component, to the first and second WEMI nearby for each day of the roll period. During the roll period, the MP can take the values 1.0, 0.8, 0.6, 0.4, 0.2 and 0.0.
PEPW	Primary Emission Programme Weights which are calculated based on ACEPV.
P	Price Index is the simple measure of composite basket price level.
PTWs	Primary Target Weights which are calculated based on ACOIMVI.
Scalar Factor	Scalar Factor is a divisor used to adjust the reported volume and open interest of products traded over the counter (OTC) to assume consistency in volumes between OTC and futures transactions.
TOIQ	For futures instruments, TOIQ is the Total Open Interest Daily Quantity as reported by the trading platform facility on which such component is traded and/or to which such component is associated. It is measured as the number of open interest contracts multiplied by the number of units of GHG per contract. For OTC Instruments, TOIQ is the Total Open Interest Daily Quantity as calculated by UBS. It is measured as the number of outstanding units (respectively contracts) multiplied by the number of units of GHG per contract and divided by the Scalar Factor, which at Index inception was set equal to one.
TR	Total Return Index measures the collateralized returns of the WEMI basket in each currency.
TVQ	Total Volume Daily Quantity is measured daily by UBS as the number of contracts exchanged between buyers and sellers multiplied by the number of units of GHG per contract.

VDA	The Vintage Deliverable Allowances is for a given Emission Programme, the total number of GHG units per emission certificate or allowance, issued or in circulation, and deliverable in a designated vintage year, at the time of calculation of the Currency Emission Programme Value (CEPV). The vintage year for which the calculation is made, is the calendar year of the re-weighting month immediately following the WEMI Steering Committee.
VYNP	Vintage Year Nearby Price associated with an Emission Programme instrument featuring the highest liquidity and open interest as measured by ACOIMVI. The maturity/expiration of the VYNP is the one associated with VDA as described by Table II in Section 2.2.1.2.
WEMI Business Day	For each Index Currency Reference (ICR), a day for which at least the 80% Daily Open Market Weight (DOMW) criteria is met for the composite index expressed in USD.

1.4 Other abbreviations

1.4.1 Exchanges and trading platforms

BM&F	<p>Brazilian Mercantile & Futures Exchange, a host to BM&F Carbon Facility, which is the basis for MBRE.</p> <p>For more information, please visit http://www.bmf.com.br/</p>
CCE	<p>Canadian Climate Exchange was created by the parent company of the Winnipeg Commodity Exchange to provide market-based solutions for the reduction of GHG emissions in Canada.</p> <p>For more information, please visit http://www.canadianclimateexchange.com/about.asp</p>
CCFX	<p>Chicago Climate Futures Exchange, a wholly owned subsidiary of CCX, offers futures contracts on Sulfur Dioxide (SO₂) emissions allowances – SFI.</p>
CCX	<p>Chicago Climate Exchange.</p> <p>CCX is a legally binding multi-sectoral, rule-based and integrated greenhouse gas emissions registry, reduction and trading system in North America.</p> <p>For more information, please visit www.chicagoclimateexchange.com</p>
CEPA	<p>Canadian Environmental Protection Act is a 1999 “Act respecting pollution prevention and the protection of the environment and human health in order to contribute to sustainable development” (House of Commons Committees, Canada, www.parl.gc.ca).</p>
ECX	<p>The European Climate Exchange, a wholly-owned subsidiary of the Chicago Climate Exchange (CCX), manages sales and marketing for ECX Carbon Financial Instruments (ECX CFIs) in the EU-ETS system. Products are listed on ICE Futures.</p> <p>For more information, please visit http://www.ecxeurope.com</p>
EEX	<p>The European Energy Exchange is Germany’s power exchange for power, which features EU CO₂ allowance contracts.</p> <p>For more information, please visit http://www.eex.de/</p>
EUets.com	<p>EUets.com is an internet based CO₂ marketplace, which gives access to European CO₂ market.</p> <p>For more information, please visit http://www.euets.com</p>
EXAA	<p>The Energy Exchange Austria, Austria’s power exchange, originally set up as a trading platform for Austrian electricity market, but has extended its portfolio to include a CO₂ Emissions Certificates.</p> <p>For more information, please visit http://www.exaa.at/</p>
GERT	<p>Greenhouse Gas Emission Reduction Trading is a pilot emission trading scheme in Canada.</p>
GME	<p>Gestore del Mercato Elettrico is the platform for trading Green Certificates under the Italian Green Certificates (CV) scheme, which is designed to incentivise electricity generation from renewables.</p>
ICE	<p>The Inter Continental Exchange is an electronic marketplace for energy trading, covering oil, refined products, natural gas, power and emissions products.</p> <p>For more information, please visit https://www.theice.com</p>
IPE	<p>The International Petroleum Exchange. See ICE.</p>
KBB	<p>Komodnita Burza Bratislava.</p>
KCE	<p>Kladno Commodity Exchange.</p>

LFES	Large Final Emitters System is a federal system of emissions reduction in Canada which covers nine energy-intensive sectors.
MBRE	The Brazilian Carbon Market, launched in September 2005, is a joint initiative by BM&F and the Brazilian Ministry of Development, Industry and Foreign Trade (MDIC), whose main objective is to develop an efficient trading system for environmental certificates aligned with the principles underlying the Kyoto Protocol
MCX	Montreal Climate Exchange is a Canadian environmental products market established by The Montreal Exchange (MX) and CCX.
Nordpool	The Nordic Power Exchange is a multinational exchange trading power and emissions (EU-ETS), which is based in Norway. For more information, please visit http://www.nordpool.com
NVC	The New Values Climex Platform, based in Netherlands, provides cleared pan-European EUA spot trading, as well as DM and JI projects auctions. For more information, please visit http://corporate.newvalues.net
NYMEX	The New York Mercantile Exchange is a physical commodity futures exchange, which also covers emissions futures markets (NO _x and SO ₂). For more information, please visit www.nymex.com
PERT	Ontario Pilot Emissions Reduction Trading (PERT) is a voluntary industry-led, multi-stakeholder initiative, and that was established in 1996 and applied to GHGs and other air pollutants emitted in the Windsor - Québec City corridor. Members received credits and recognition from the Ontario Ministry of Environment for emissions reduced over and above what was required by regulation.
POPLX	Polish Power Exchange which covers the Green Certificates programme, under which, all power companies dealing with generation/trade of electricity are obliged to obtain and submit the certificates confirming that energy has been generated at renewable sources of energy.
Powernext	Powernext Carbon is a spot market of CO ₂ allowances. The market model is the result of a three-fold partnership between Powernext, Caisse des Dépôts and Euronext. Powernext Carbon counts 40 active members. For more information, please visit http://www.powernext.fr/
SENDECO2	Sendeco, the Spanish Exchange for CO ₂ allowances and Carbon Credits (CERs). For more information, please visit http://www.sendeco2.com

1.4.2 Other market abbreviations

ABT	Mobile Source Averaging, Banking and Trading Programme is the US programme which provides the manufacturers of certain mobile sources of emissions the flexibility to trade. The programme takes on average of emissions over engine families produced by manufacturer in the same model year and offsetting them against credits allocated. Credits can be banked and traded.
AIB	Association of Issuing Bodies issues the certificates for REC
ATS	Allowance Tracking System is the system that tracks the SO ₂ allowances under the EPA's Acid Rain Programme.
Carbon Credit	See Emissions Allowance.
CER	Certified Emission Reductions are considered the global currency in carbon trading and are issued by the Executive Board (EB) of the Clean Development Mechanism (CDM) under the United Nations Clean Development Mechanism - an arrangement under the Kyoto Protocol that allows national and corporate GHG reduction goals to be met through the use of CERs. The arrangement allows industrialized countries to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries.
CDM	Clean Development Mechanism is an arrangement under the Kyoto Protocol that allows industrialised countries with a greenhouse gas reduction commitment to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries. See Appendix B for further information.
CESAR	CESAR is the central register of ELCERTIFICATES on Nordpool.
CFI	Carbon Financial Instruments are future contracts on CO ₂ emissions allowances traded on CCX.
CH ₄	Methane, the simplest hydrocarbon, is a gas with a chemical formula of CH ₄ .
CITL	Community Independent Transaction Log is the emissions trading registry of the EU-ETS.
CO	Carbon Monoxide is a gas with the chemical formula CO.
CO ₂	Carbon Dioxide is a primary chemical compound defined as the combination of one carbon and two oxygen atoms.
DER	Discrete Emissions Reductions are granted under a state Open Market Trading System in the U.S. and are awarded by the regulator/market operator for emissions reductions that are not necessarily permanent and are on a voluntary basis. DERs can be earned by reduction of CO, SO ₂ and PM, as well as the more typically traded VOC and NO _x . DER markets are state-specific in nature, although the programmes tend to be similar in design.
ELCERTIFICATES	Elcertificates are the Swedish Green certificates on Nordpool, the Nordic power exchange.
Emissions Allowance	The permission to discharge into the atmosphere a specific quantity, generally a ton, of a regulated air pollutant, such as Carbon Dioxide (CO ₂), Sulphur Dioxide (SO ₂) or Nitrous Oxide (NO _x).
Emission Credit	See Emissions Allowance.
Emission Permit	See Emissions Allowance.
Emission Programme	See Underlying Emission Programme.
EPA	The U.S. Environmental Protection Agency, responsible for U.S. environmental acts including the Clean Air Act and the Acid Rain Programme.

ERC	Emissions Reduction Credits/Offsets are required for new major emissions sources (or sources undergoing major expansion) in the U.S. by various state air agencies in the regions that do not meet EPA's national ambient air quality standards. Offsets are available for a variety of pollutants, including NO _x , Volatile Organic Compounds (VOC), Carbon Monoxide (CO), Particulate Matter (PM) and Reactive Organic Gases (ROG).
EUA	Emissions Allowances issued within the EU-ETS are also called EU Allowances.
EU-ETS	The European Trading Scheme which came into effect on 1 January 2005 is the world's first multi-country trading system, controlling and regulating the European emissions market. Currently it is the largest CO ₂ trading scheme of its kind and covers about 46% of EU CO ₂ emissions. During the primary phase of the EU-ETS, only CO ₂ , seen as the largest contributor to the greenhouse effect, is regulated and traded as part of the scheme. The remaining five GHG will be considered for inclusion from 2008 onwards.
GCR	Green Certificates Register is the register of Polish Green Certificates programme.
GGAS	Greenhouse Gas Abatement Scheme is a greenhouse gas emissions trading scheme in Australia.
GHG	Greenhouse Gas refers to all the gases, that contribute to the greenhouse effect, including, but not limited to CO ₂ , methane (CH ₄), nitrous oxide (N ₂ O), sulfur hexafluoride (SF ₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).
HFCs	Hydrofluorocarbons are a group of chemical compounds consisting of alkanes, such as methane or ethane.
HGA	Houston/Galveston Area is a regional NO _x Emissions Allowance Programme in the U.S., adopted in December 2000 by the eight-county region comprising Harris, Galveston, Brazoria, Liberty, Montgomery, Fort Bend, Waller, and Chambers counties. It is a year-round programme under which allowances are freely traded and can be banked for one year only. In addition, facilities must use current vintage allowances prior to submitting banked allowances.
IPART	Independent Pricing and Regulatory Tribunal is an Australian body appointed to implement and administer the GGAS and has administrative and regulatory roles
Kyoto Protocol	Kyoto Protocol is an agreement made under the United Nations Framework Convention on climate change, whereby countries commit to reduce their emissions of CO ₂ and five other Greenhouse Gases (GHGs).
Member States	Countries which are the members of EU-ETS programme.
MRET	Commonwealth's Mandatory Renewable Energy Target is a national scheme in Australia that places a legal liability on wholesale purchasers of electricity to proportionately contribute towards the generation of an additional 9,500 GWh of renewable energy per year by 2010. This approach is commonly known as a Renewable Portfolio Standard.
N ₂ O	Nitrous Oxide Nitrous oxide is a chemical compound with chemical formula N ₂ O.
NAP	National Allocation Plan is the official name of the process responsible for allocation of allowances to European countries signatory to the Kyoto Protocol.
NETS	National Emissions Trading Scheme is an Australian initiative set up in order to establish an intra-Australian carbon trading scheme and to coordinate policy developments to facilitate this.

Norwegian ETS	Norway is not a party to EU-ETS and so manages its own emissions programme, Norwegian ETS, applicable to all participant companies with the exception of the petroleum industry that is instead subject to CO ₂ taxation. As a result its emissions allowances can only be traded domestically, limiting the market for Norwegian companies' allowances. Hence Norway has begun negotiations to link Norwegian ETS to EU-ETS, however, this is unlikely to be completed before Kyoto agreement compliance period starts in 2008.
NO _x	Nitrogen Oxide is a general term used to refer to any of oxides (oxygen compounds) of nitrogen, or to a mixture of them.
Ofgem	The Office of Gas and Electricity Markets provides a Register for ROC.
PFC	<p>Progressive Flow Control is a form of restriction imposed on banking of emission allowances under the EPA's SIP NO_x programme. PFC requires that there be discounted compliance value to banked NO_x allowances if the region-wide surplus of banked allowances exceeds 10% of that year's total allocation. The discount factor is not linear and is cumulative. For example, if the region-wide NO_x budget for 2005 is 500,000 tons and there is a bank of unused 2003 and 2004 vintage allowances of 75,000 tons, then PFC for 2005 is calculated as follows:</p> $PFC_{2005} = VTA_{E,t} \times \frac{0.1 \times Budget_{2005}}{BankedEAs_{2003-2004}} = \frac{0.1 \times 500,000}{75,000} = 0.67$ <p>What this means is that if you hold 100 vintage 2003 and 2004 allowances at the end of 2005, you can use the first 67 tons at a 1:1 rate for 2005 compliance. The remaining 33 tons can only be used at a 2:1 rate for 2005 compliance. So the effective yield of 2003 and 2004 vintage allowances for use in 2005 is $0.67 + (1 - 0.67)/2 = 0.835$. The official flow control ratio for use of banked allowances is usually not known until March of a given vintage year. This is typically when the EPA releases region-wide emissions data for the previous year and the size of the bank is revealed. If the PFC threshold has been reached, banked allowances will trade at a discounted price to current vintage. For example, if vintage 2005 allowances are trading for USD 4,000/ton and PFC is 0.67, then vintage 2003 or 2004 allowances will trade around (USD 4,000 * 0.835) or USD 3,340/ton.</p>
PFCs	Perfluorocarbons are compounds derived from hydrocarbons
PM	Particulate Matter, also referred to as Particulates, aerosols or fine particles, are tiny particles of solid (a smoke) or liquid (an aerosol) suspended in a gas. The biggest source of PM is the burning of fossil fuel.
REC	Renewable Energy Certificates is the US renewable energy programme. RECs are tradable units that represent the commodity formed by unbundling the environmental attributes of a unit of renewable energy. Under most programmes, one renewable energy certificate would be equivalent to the environmental attributes of one MWh (megawatt per hour) of electricity from a renewable generation source. As of 2004, 15 states have enacted some form of Renewable Portfolio Standards (RPS), however, only a limited number of these permit REC trading and can be considered to have formal compliance markets.

ROC	Renewable Obligation Certificates are awarded to accredited generators of eligible renewable electricity produced within the UK – solar energy (including photovoltaics), hydro, wave power, tidal energy, geothermal energy, biofuels (including energy crops) and on-and offshore wind. Companies that are unable or unwilling to source the required amounts have the option of “buying out” their Obligation. The “buy out” price is initially set at GBP 30/MWh (USD 43/MWh), where MWh stands for megawatt per hour, and will be adjusted annually in line with the retail price index. The amounts raised from companies “buying out” in this way are redistributed to companies that have met their Obligation, in proportion to the number of ROCs they presented in that year.
RTC	Reclaim Trading Credits is the Regional Clean Air Incentives Market (RECLAIM) started in 1994 in Southern California that controls the amount of NO _x and SO _x released (1 credit-to-1 pound NO _x emitted ratio). The scope of the programme is regional, it covers all sources in LA Basin that emit more than 4 tons of NO _x (SO ₂) per year and allows no banking of allowances.
SF ₆	Sulfur Hexafluorid is a chemical compound with the chemical formula of SF ₆ .
SFI	Sulfur Financial Instruments are futures contracts on SO ₂ emissions allowances traded on CCX.
SFT	The Norwegian Pollution Control Authority is a directorate under the Ministry of the Environment, which looks after the Norwegian ETS.
SIP	State Implementation Plan, which is EPA’s NO _x reduction programme (trades on NYMEX and OTC) covering 19 Northeast states (will expand to 23 states in 2009) under the EPA’s Clean Air Act. SIP controls summertime (May-Sept) ozone pollution in the region, allocating a total of approx. 520,000 tons of emission allowances at the state level, with each state controlling subsequent distribution. Unused allowances can be banked subject to Progressive Flow Control (PFC) under which a discount is applied to the value of banked allowances. The maximum penalty for non-compliance is USD 25,000 per ton and a charge of 3 allowances from the subsequent year’s allocation for each excess ton of emission.
SO ₂	Sulfur dioxide (also sulphur dioxide) is the chemical compound with the formula SO ₂ .
SO _x	Sulfur Oxide refers to any of the oxides of sulphur including SO, SO ₂ , SO ₃ etc.
Underlying Allowance Programme	See Underlying Emission Programme.
Underlying Allowance Market	See Underlying Emission Programme.
Underlying Emission Programme	Underlying Emission Programme refers to an emission reduction programme organised by a country or a group of countries (such as EU-ETS, US EPA SIP etc.), and can include a number of underlying trading platforms (exchanges).
VOC	Volatile Organic Compounds Volatile organic compounds (VOCs) are organic chemical compounds that have high enough vapour pressures under normal conditions to significantly vaporize and enter the atmosphere. VOCs include a wide range of carbon-based molecules, such as aldehydes, ketones, and hydrocarbons.

2. The WEMI Component Selection Process and WEMI Target Weights (TWs)

To be included in the WEMI, a component candidate must satisfy primary and secondary requirements.

2.1 Primary Eligibility Requirements of WEMI Component Candidates

Primary requirements are related to the nature of the underlying instrument's "Cap & Trade" programme as well as some technical aspects including country of origin, trading characteristics, and foreign exchange controls.

Table I. Index Candidate Components

Emission Programme ²⁰	Emission Programme Mnemonic ²¹	Instrument Mnemonic	Trading Platform ²²	Register ²³	Type	Instr. Type	Incl. 2007 WEMI?
EU							
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ ECX	ECX – ICE	CITL	Mult. Fed.	Fut.	YES
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NP	Nordpool	CITL	Mult. Fed.	Fut., Spot	YES
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EEX	EEX	CITL	Mult. Fed.	Cash (Auc)	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EXAA	EXAA	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ PN	Powernext	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ SND	SENDECO2	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NVC	NVC	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EUETS	Euets.com	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ KCE	KCE	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ KBB	KBB	CITL	Mult. Fed.	Cash	–
CO ₂ Euro Trading Scheme	CER ETS	CER NP	NordPool	CER ITL	Mult. Fed.	Fut., Spot	–
Green Certificates	GC	GC	POPLX	N/A	Mult. Fed.	Cash (Auc)	–
Green Certificates (CV)	GCERT	CV GME	GME	GCR	Regional	Cash	–
Swedish green certificates	ELCERT	ELCERT	Nordpool	CESAR	Regional	Cash, Fwd.	–
Norwegian ETS	CO ₂ NORW	CO ₂ NOR	OTC	SFT	Federal	Cash, Fwd.	–
UK Renewable Obligation Cert.	ROC	ROC	OTC	Ofgem	Federal	Cash	–
Renewable Energy Credits EU	REC EU	REC EU	OTC	AIB	Mult. Fed.	Cash	–

²⁰ Please refer to Section 1.5 for an explanation of codes and mnemonics

²¹ Houston/Galveston Area

²² NY: New York

²³ CT: Connecticut

Emission Programme ²⁰	Emission Programme Mnemonic ²¹	Instrument Mnemonic	Trading Platform ²²	Register ²³	Type	Instr. Type	Incl. 2007 WEMI?
U.S.							
EPA SO ₂ Emissions Allow U.S.	SO ₂ U.S.	CCX SFI	CCX	EPA	Federal	Cash	-
ECO ₂ Emissions U.S.	CO ₂ U.S.	CCX CFI	CCX	EPA	Regional	Cash	-
CO ₂ Emissions U.S.	CER U.S.	CCFX CER	CCFX	EPA	Regional	Fut	-
EPA SO ₂ Emissions Allow U.S.	SO ₂ U.S.	CCFX SFI	CCFX	EPA	Federal	Fut.	-
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	CCFX NO _x	CCFX	EPA	Federal	Fut.	-
EPA SO ₂ Emissions Allow U.S.	SO ₂ U.S.	SO ₂ OTC	OTC	EPA	Federal	Cash, Fwd.	-
EPA SO ₂ Emissions Allow U.S.	SO ₂ U.S.	SO ₂ NYX	NYMEX	EPA	Federal	Fut.	-
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	NO _x SIP OTC	OTC	EPA	Regional	Cash, Fwd.	-
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	NO _x SIP NYX	NYMEX	EPA	Regional	Fut.	-
HGA ²¹ NO _x Emissions Allow.U.S.	NO _x U.S.	NO _x HGA	OTC	Regional	Regional	Cash, Fwd.	-
Reclaim Trading Credits NO _x U.S.	NO _x U.S.	NO _x RTC	OTC	Regional	Regional	Cash, Fwd.	-
Reclaim Trading Credits SO _x U.S.	SO _x U.S.	SO _x RTC	OTC	Regional	Regional	Cash, Fwd.	-
Emiss. Red. Credits (Offsets) U.S.	ERC U.S.	ERC	OTC	Regional	Regional	Cash, Fwd.	-
Emiss. Red. Credits (Offsets) U.S.	ERC U.S.	CCX CFI	CCX	Regional	Regional	Cash, Fwd.	-
Discrete Emissions Reduction U.S.	DER U.S.	DER	OTC	Regional	Regional	Cash, Fwd.	-
Renewable Energy Credits U.S.	REC U.S.	REC	OTC	Regional	Regional	Cash, Fwd.	-
Mob. Source Averaging, Bank. & Trad. Prog.	ABT U.S.	ABT	OTC	Federal	Federal	Cash, Fwd.	-
NY ²² SO ₂ Emissions Allowance Market	NY SO ₂ U.S.	NY SO ₂	OTC	Regional	Regional	Cash, Fwd.	-
CT ²³ SO _x Emissions Allowance Market	CT SO ₂ U.S.	CT SO ₂	OTC	Regional	Regional	Cash, Fwd.	-
Texas NO _x Emissions Allowance Market	TX NO _x U.S.	TX NO _x	OTC	Regional	Regional	Cash, Fwd.	-
California NO _x Emissions Allowance Market	CA NO _x U.S.	CA NO _x	OTC	Regional	Regional	Cash, Fwd.	-
Other Programmes							
Greenhouse Gas Abatement Scheme	GGAS AU	CO ₂ AU	N/A	Regional	IPART	Cash	-
Ontario Pilot Emissions Reduction Trading	CO ₂ CAN	PERT	OTC	Regional	PERT	Cash	-
Greenhouse Gas Emission Reduction Trading	CO ₂ CAN	GERT	OTC	Regional	GERT	Cash	-
Large Final Emitters System	CO ₂ CAN	LFES	OTC	Federal	CEPA	Cash	-
Canadian Environmental Protection Act	CO ₂ CAN	CO ₂ MCX	MCX	Federal	CEPA	Cash	-
Canadian Environmental Protection Act	CO ₂ CAN	CO ₂ CCE	CCE	Federal	CEPA	Cash	-
Brazilian Carbon Market	CO ₂ BMF	CO ₂ BMF	BMF	Federal	Federal	Cash	-

Source: UBS Investment Bank, WEMI Advisory Committee

²⁰ Please refer to Section 1.5 for an explanation of codes and mnemonics

²¹ Houston/Galveston Area

²² NY: New York

²³ CT: Connecticut

2.1.1 Emissions Instruments

The components must be emissions trading instruments linked to an underlying emission certificate or allowance programme directly sponsored by a state or a group of states sharing the same emissions reduction programme.

The underlying allowance programme must be compulsory and state-recognised programme allowing free substitution and trading in each of the participating member states of the sponsoring country or group of countries. The programme must be enforced by a law or a treaty, and the non compliance must result in the payment of direct financial penalties. When multiple programmes for the same GHG co-exist in different states of the same country, each individual instrument is said to be participating in a common Emission Programme.

The underlying allowance programme must be of a “Cap and Trade” type, whereby a regulating body sets a maximum number of certificates available overall and/or for a given year, and allows participants to exchange or trade these certificates or allowances at a price set freely by market forces, whether those certificates can be carried forward or not.

The prices of the emission instruments are directly derived from the underlying programme of physical certificates or allowances.

2.1.2 Physical Delivery or Settlement of Underlying Certificates

In order to be included in the Index, an instrument must be physically deliverable into or settled against a physical asset (a physical reference) whose price is determined in a competitive market and through a tradable process directly linked to the underlying allowance market. Physical delivery of the instruments offers a reasonable guarantee of the convergence at maturity of the underlying asset and the instrument’s price.

Primary eligibility can be achieved for components whose instruments are cash settled against a physical referenced price such as the underlying instrument price itself, or any price reference deemed representative of the underlying market prices.

2.1.3 Geographical and Kyoto Protocol Requirements

Instruments included in the Index must be issued by a state or regulating body of a country belonging to the Organisation for Economic Cooperation and Development (OECD). Countries originating GHG or emissions allowances/certificates must be part of, and be co-signators to the Kyoto Protocol or any similar treaty, or be on the country eligibility list maintained by UBS for this purpose.

As of September 2006, the country eligibility list stands as follows:

- United States
- Canada
- Australia
- Member countries of the European Union
- Russia
- Ukraine
- China
- India
- Japan
- South Korea
- Any of the 159 countries co-signators of the 1997 Kyoto Protocol

The country eligibility list can be revised by UBS, in consultation with the WEMI Steering Committee. A country will be included on the eligibility list, even if it is not an OECD country, if it is considered appropriate for inclusion in light of the purposes and objectives of the Index. For this to occur two conditions must be satis-

fied: (i) the country must have an adequate system of law and regulation; and (ii) trading of the relevant commodity and instruments must be conducted in a manner that is consistent with the other requirements for inclusion in the Index. Conversely, countries included on the eligibility list may subsequently be deleted based upon these considerations.

2.1.4 Trading Requirements

To be eligible for in by participants in the relevant market, and daily settlement or closing price must be made available publicly or to UBS. Instrument prices must be determined freely by market forces and via a competitive process.

Listed instruments must be open for trading for at least two hours a day, and OTC (over the counter) instruments must be available for trading, in one form or another, for at least four hours a day, with at least one hour running from 8:00 AM, London time to 6:00 PM, New York time.

Instruments traded in OTC markets are suitable for inclusion in the WEMI if they satisfy the eligibility criteria and the Index sponsor, in consultation with the WEMI Steering Committee, determines that their inclusion is consistent with and will advance the purposes and objectives of the Index. In considering the inclusion of an OTC instrument, the WEMI Steering Committee will examine a variety of factors, such as the nature of the trading market and the availability and reliability of prices.

Instruments traded via auctions are excluded.

2.1.5 Additional Characteristics

2.1.5.1 “Hedge” Instruments

In order to be included in the Index, instruments must be futures (in the table as Futs.) or forward (in the table as Fwd.) instruments, and feature clearly specified expirations and terms of contract.

The instrument must be available for trading in a form acceptable by the Index sponsor, in consultation with the WEMI Steering Committee. For an instrument to be eligible for Index membership, its expiries (for futures) or maturities (for forwards) must be available for trading for at least six months before their expiration.

Cash instruments are not eligible for potential Index membership at this stage.

2.1.5.2 Foreign Exchange Control

The foreign exchange mechanisms associated with the currency of a component must be free of any temporary or permanent government constraints. An instrument cannot be eligible for Index membership if a currency board or a foreign exchange control of any form is in place, has been in place for the last seven years, or is likely to reappear in the future.

Both spot and forward foreign exchange transactions as well as borrowing and lending transactions must be possible in reasonable size, without delay and without any approval, clearance or quota process entitling them.

Profits (or losses) realized by investment in the underlying instrument must be freely transferable into USD, EUR and CHF by nationals or non-national participants without restriction.

2.2 Secondary Requirements: Emission Programme Value, Liquidity and Open Interest

UBS is committed to establishing the WEMI as the premier benchmark and an investor vehicle of choice for investing in the global emissions markets. Only emissions related instruments with reasonable commercial value can have underlying trading instruments included in the Index. In order to take into account the inherent seasonality of emissions markets as well as to maintain the stability of the composition of the Index, a few additional thresholds are introduced.

Component candidates meeting the initial requirement must satisfy a series of pure financial thresholds:

- Currency Emission Programme Value
- Liquidity
- Open interest

2.2.1 Currency Emission Programme Value (CEPV), Component Membership and Maintenance

2.2.1.1 Vintage Deliverable Allowances (VDA)

Vintage Deliverable Allowance (VDA) is for a given Emission Programme, the total number of GHG units per emission certificate or allowance, issued or in circulation, and deliverable in a designated vintage year, at the time of calculation of the Currency Emission Programme Value (CEPV). The vintage year for which the calculation is made, is the calendar year of the re-weighting month immediately following the WEMI Steering Committee (for example, for avoidance of doubt, if the calculation of VDA is made in November for the November 2006 WEMI Steering Committee, the re-weighting month is January 2007 and the vintage year is 2007. If the calculation of VDA is made in May for the May 2006 WEMI Steering Committee, the re-weighting month is July 2006 and the vintage year is 2006).

2.2.1.2 Definition of the Currency Emission Programme Value (CEPV)

The Currency Emission Programme Value (CEPV) for a given Emission Programme E is obtained on the calculation date, by multiplying, (1) the Vintage Deliverable Allowance (VDA) by (2) the sum of the last twelve WEMI Vintage Year Nearby Price (VYNP) averaged over the last three WEMI Business Days of each month, converted to USD using the daily currency exchange rate and divided by twelve. If the twelve months data is not available, the above calculations are performed for the number of months there are.

$$CEPV_{E,USD,t} = VDA_{E,t} \times \frac{1}{12} \left\{ \sum_{k=-12}^{-1} \frac{1}{3} \sum_{d=0}^2 \left(VYNP_{CCY,T_k-d} \times [FX_{USD,CCY,T_k-d}]^{CCYScalar_{USD,CCY}} \right) \right\}$$

where:

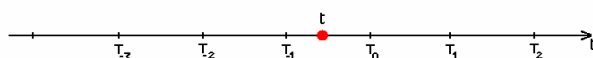
$VDA_{E,t}$ is the Vintage Deliverable Allowances for an Emission Programme E, at time t

VYNP is the Vintage Year Nearby Price associated with an Emission Programme instrument, that belongs to the Emission Program E, and featuring the highest liquidity and open interest as measured by ACOIMVI. The maturity/expiration of the Vintage Year Nearby Price is the one associated with VDA, as described by Table II

FX_{USD,CCY,T_k-d} is the currency exchange rate between the quotation currency of the emissions, component instrument (CCY) and the USD at time (Tk)k, as defined in Section 3

d is a WEMI Business Day

(Tk)k Is a function of fixed reference date (t) and is the last WEMI Business Day of a given month, as illustrated below. The k are indexed with respect to (t).



and where $CCYScalar_{USD,CCY}$ is +1 or -1 (see Table IV in Section 3 or Appendix A.).

Table II. Definition of WEMI Vintage Year Nearby Maturity

Emissions Instrument Mnemonic	Cal.month/Code (Reuters/Bloomberg)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CO ₂ ECX	0#CFI/MO	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1	Z+1
CO ₂ NP	0#EUA/NEUAAM	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1	Z+1

Source: UBS Investment Bank
 F: Jan, G: Feb, H: Mar, J: Apr, K: May, M:Jun, N:Jul, Q:Aug, U:Sep, V:Oct, X:Nov, Z:Dec, +1: denotes subsequent year.

2.2.1.3 Average Currency Emission Programme Value (ACEPV)

The Average Currency Emission Programme Value (ACEPV) is the weighted average of the last four calculated CEPVs at the time of calculation, with weights being 45% for the most recent CEPV, 35%, 15% and 5%, respectively, for the remaining most ancient CEPVs. If the data available is insufficient, the weight allocation will be the following:

- if there are only three six-month periods available the weights are CEPV(1) 65%, CEPV(2) 30%, CEPV(3) 5%,
- if there are only two six-month periods available the weights are CEPV(1) 65%, CEPV(2) 35%,
- if there is only one six-month period available then 100% of weight is allocated to CEPV(1).

2.2.1.4 Admission

In order to be included in the WEMI, the USD converted ACEPV value must be at least USD 10 billion at the time of calculation. Compliance with this requirement is determined prior to each WEMI Steering Committee meeting.

2.2.1.5 Maintenance

In order to remain a WEMI component member subsequent to its initial admission, a component’s ACEPV must remain at least equal to USD 6 billion at the time of each calculation by the WEMI advisory committee. Compliance with the maintenance requirement is assessed prior to each WEMI Steering Committee meeting.

2.2.2 Open Interest Calculations

2.2.2.1 Definition of Component Open Interest Value (COIV)

The Component Open Interest Value (COIV) is defined as the USD converted value of the average of the daily WEMI reference contract open interest value over the last six months.

$$COIV_{USD,t} = \frac{1}{NBD_{t-6m,t}} \left\{ \sum_{d=1}^{NBD_{t-6m,t}} TOIQ_{t-d} \times DCNP1_{CCY,t-d} [FX_{USD,CCY,t-d}]^{CCYScale_{USD,CCY}} \right\}$$

where:

- DCNP1 is the first Daily Contract Nearby Price for each component (both a member and non-member of the Index) and is the price of the first contract/instrument in the strip designated by the WEMI advisory committee
- d is in WEMI Business Days
- NBD_{a,b} is the number of business days between dates a and b (a < b)

For Futures Instruments:

- TOIQ is the Total Open Interest Daily Quantity of the underlying component as reported by the trading platform facility on which such component is traded and/or with which such component

is associated. It is measured as the total number of open interest contracts multiplied by the number of units of GHG per contract

For OTC Instruments:

TOIQ is the Total Open Interest Daily Quantity as calculated by UBS for such component, and measured as the number of outstanding units (or contracts) multiplied by one (or respectively by the number of units of GHG per contract) and divided by the Scalar Factor, which, at Index inception was set equal to one

2.2.2.2 Average Component Open Interest Value (ACOIV)

The Average Component Open Interest Value (ACOIV) is the weighted average of the last four calculated COIV at the time of calculation, with weights being 45% for the most recent COIV, and 35%, 15% and 5%, respectively, for each of the remaining most ancient COIV. If there is insufficient data, then the weights will be the following:

- if there are only three six-month periods available the weights are COIV(1) 65%, COI (2) 30%, COIV(3) 5%,
- if there are only two six-month periods available the weights are COIV(1) 65%, COIV(2) 35%,
- if there is only one six-month period available then 100% of weight is allocated to COIV(1).

2.2.2.3 Admission

In order to be included in the WEMI, the ACOIV must be at least USD 6 million at the time of calculation. Compliance with this requirement is determined prior to each WEMI Steering Committee meeting.

2.2.2.4 Maintenance

In order to remain in the WEMI subsequent to its initial admission, a component's underlying ACOIV must remain equal or above to USD 4 million at the time of each calculation by the WEMI advisory committee. Compliance with this maintenance requirement is assessed prior to each WEMI Steering Committee meeting.

2.2.3 Liquidity Requirements

2.2.3.1 Definition of Component Market Liquidity Value (CMLV)

Some markets see most of their transactions effected on an Over-The-Counter and cleared basis (OTC Cleared). Transactions are executed OTC and reported to the trading platform or clearing house for clearing so that no direct bilateral credit risk persists between the original parties after the respective "give up" is effected. In those markets, the OTC volume is usually a much better indicator of the actual market trading volume, but conventions for measuring such volume can differ dramatically between markets.

Without a clear and transparent definition, market liquidity remains a subjective measure. The Component Market Liquidity Value (CMLV) is calculated based on sources that UBS considers commercially reliable for such calculation (such as broker dealers reports in the relevant markets, market volume reports or official statistics). It is calculated on the basis of methodologies believed to be appropriate in light of purpose of the CMLV in determining the composition of the Index, and the objectives and the purpose of the Index itself. The WEMI Steering Committee defines the methodology used for the measure of liquidity for each market publicly available.

The CMLV, calculated for the purpose of WEMI Steering Committee, is defined as the USD converted value of the average of the total daily component volume (measured at the time of calculation as mentioned above) over the last six months. The purpose of the CMLV and related requirements is to enhance the tradability of the Index by ensuring the liquidity of its components.

We have the following expression:

$$CMLV_{USD,t} = \frac{1}{NBD_{t-6m,t}} \left\{ \sum_{d=1}^{NBD_{t-6m,t}} TVQ_{t-d} \times DCNP1_{CCY,t-d} [FX_{USD,CCY,t-d}]^{CCYScalar_{USD,CCY}} \right\}$$

where:

- TVQ is the Total Volume Daily Quantity measured daily by UBS as the number of contracts exchanged between buyers and sellers multiplied by the number of units of GHG per contract,
- DCNP1 is the first Daily Contract Nearby Price for each component (both a member and non-member of the Index) and is the price of the first contract/instrument in the strip designated by the WEMI advisory committee
- d is a WEMI Business day
- NBD_{a,b} is the number of business days between dates a and b (a < b)

2.2.3.2 Average Component Market Liquidity Value (ACMLV)

The Average Component Market Liquidity Value (ACMLV) is the weighted average of the last four calculated CMLV at the time of calculation, with weights being 45% for the most recent CMLV, 35%, 15% and 5%, respectively, for the remaining most ancient CMLVs. If there is insufficient data, then the weights will be the following:

- if there are only three six-month periods available the weights are CMLV(1) 65%, CMLV(2) 30%, CMLV(3) 5%,
- if there are only two six-month periods available the weights are CMLV(1) 65%, CMLV(2) 35%,
- if there is only one six-month period available then 100% of weight is allocated to CMLV(1).

2.2.3.3 Admission

In order to be admitted into the Index, the average daily liquidity of a contract, as measured by the ACMLV must represent at least 2.5% of the open interest value, as measured by the ACOIV, at the time of calculation. Compliance with this requirement is determined at the time of each WEMI Steering Committee meeting.

2.2.3.4 Maintenance

In order to remain in the Index, the underlying ACMLV of a contract must satisfy a maintenance test of 2% of the ACOIV at the time of each calculation following the initial admission calculation. Compliance with this maintenance requirement is determined for the purpose of each WEMI Steering Committee meeting.

2.2.4 Combined Open Interest and Market Value Indicator (COIMVI)

2.2.4.1 Definition of Combined Open Interest and Market Value Indicator (COIMVI)

The COIMVI, calculated for the purpose of each scheduled WEMI Steering Committee meeting, is based on the COIV and CMLV, and takes the following expression:

$$COIMVI_t = \frac{1}{3} COIV_t + \frac{2}{3} CMLV_t$$

where:

- COIV_t is the Component Open Interest Value
- CMLV_t is the Component Market Liquidity Value

2.2.4.2 Average Combined Open Interest and Market Value Indicator (ACOIMVI)

The Average Combined Open Interest and Market Value Indicator (ACOIMVI), is the weighted average of the four most recently calculated COIMVI at the time of calculation, with weights being 45% for the most recent COIMVI, and 35%, 15% and 5%, respectively, for the remaining most ancient COIMVIs. If there is insufficient data, then the weights will be the following:

- if there are only three six-month periods available the weights are COIMVI(1) 65%, COIMVI(2) 30%, COIMVI(3) 5%,
- if there are only two six-month periods available the weights are COIMVI(1) 65%, COIMVI(2) 35%,
- if there is only one six-month period available then 100% of weight is allocated to COIMVI(1).

The ACOIMVI is used in the determination of Target Weights (TWs) and also governs the weight allocation process between instruments sharing the same Underlying Emission Programme.

2.2.5 Selection of Component Candidates Sharing the Same Underlying Emission Programme

Underlying Emission Programme refers to an emission reduction programme sponsored by a state or a group of states and can include a number of trading instruments. For example, EU-ETS CO₂ allowances are traded on a number of platforms, including ECX, Nordpool, EEX etc., each of them representing an instrument that belongs to the same Underlying Emission Programme.

As it is possible for two or more emissions trading instruments, or components, to share the same underlying emissions programme, the WEMI selection process foresees a weight allocation process based on liquidity and open interest, whereby the WEMI Steering Committee would initially select the instrument presenting the highest liquidity and/or open interest. Each of the components must independently satisfy the primary and secondary requirements.

If two or more instruments share the same underlying programme presenting similar liquidity and open interest, the Index sponsor, in consultation with the WEMI Steering Committee, can decide, but is not obliged to allocate a membership to each candidate instrument and allocate respective weights between them based on the pro rata of their respective ACOIMVIs.

2.3 WEMI Target Weights (TWs)

2.3.1 The selection process and the weight attribution process

WEMI Target Weights (TWs) reflect the regional importance of respective Emission Programmes and the currency value of the issued emissions certificates. The Target Weights are calculated on the basis of the methodology described below, comprising a number of sequential steps:

- (A) Select the instruments according to primary and secondary requirements,
- (B) Calculate Primary Emission Programme Weights (PEPW) for each Emission Programme based on ACEPV,
- (C) Obtain Emission Programme Weights (EPW) by excluding Emission Programmes with PEPW of less than 3% and reallocating their weight to remaining programmes,
- (D) Calculate Primary Target Weights (PTW) based on ACOIMVI for each instrument within the Emission Programmes,
- (E) Obtain the Target Weight by excluding the instruments with PTW of less than 5% and reallocating their weights to other instruments within the same Emission Programme.

Target Weights are established based on the respective Emission Programme value, open interest and trading volume, while also basing the determination of target weights on fundamental statistics of the underlying contracts. In this way UBS believes that it is possible to enhance the tradability of the Index and make it more representative of the relative importance of each of the constituent contracts in the emissions markets.

The Target Weights are revised twice per year in May and November by the WEMI Steering Committee with changes effected over the following January and July rebalancing periods. The automatic re-balancing methodology of the Index is designed to limit changes to the Index Target Weights to cases of eligible circumstance. Some of these circumstances are defined below, but are intended to be illustrative only and eligible circumstances are not limited to those on this list. The Index sponsor, in consultation with the WEMI Steering Committee, also has the ability to change the Target Weights at other times or under other circumstances if it determines that such action is necessary or advisable in order to protect or enhance the tradability of the Index:

- change in Emission Programme value, declining or rising trading volumes, instrument delisting or creation (when declining trading volumes are posing a threat to the WEMI stability and tradability),
- critical changes in allowance programmes,
- changes in foreign exchange regimes,
- in general, all types of legal changes, tax rulings and official decisions presenting a threat to WEMI investors and/or the Index sponsor or members of the WEMI Steering Committee.

In some special situations that are likely to adversely affect the WEMI and impact negatively on WEMI investors and/or members of the WEMI Steering Committee, the WEMI Steering Committee can also declare force majeure and can change any parameter of the Index with immediate effect.

2.3.2 Components Statistics and Index Membership: Calculation of Target Weights

A.1. Select Instruments According to Primary Requirements

Table III.A. above presents the analysis of emission instruments according to a number of primary eligibility criteria, defined in section 2.1. of this document. Only those instruments that pass these primary criteria are eligible to be tested under the secondary Index membership requirements.

Table III.A. Index Components: Primary Requirements

Emission Programme	Emission Programme Mnemonic	Instrument Mnemonic	Trading Platform	Emiss. Instr.	Deliv- erty	Geo. Test	Trad- ing	Hdg Instr.	FX Test
EU									
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ ECX	ECX – ICE	YES	PHYS	YES	YES	YES	YES
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NP	Nordpool	YES	PHYS	YES	YES	YES	YES
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EEX	EEX	YES	PHYS	YES	YES	YES	YES
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EXAA	EXAA	YES	PHYS	YES	YES	NO	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ PN	Powernext	YES	PHYS	YES	YES	NO	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ SND	SENDECO2	YES	PHYS	YES	YES	NO	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NVC	NVC	YES	PHYS	YES	YES	NO	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ NVC	NVC	YES	PHYS	YES	NO	–	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ EUETS	ECX – ICE	YES	PHYS	YES	NO	–	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ KBB	KBB	YES	PHYS	YES	NO	–	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	CO ₂ KCE	KCE	YES	PHYS	YES	NO	–	–
CO ₂ Euro Trading Scheme	CER ETS	CER NP	NordPool	YES	PHYS	YES	YES	YES	YES
Green Certificates	GC	GC	POPLX	YES	PHYS	YES	NO	–	–
Swedish green certificates	ELCERT	ELCERT	Nordpool	YES	PHYS	YES	YES	YES	YES
Norwegian ETS	CO ₂ NORW	CO ₂ NOR	OTC	YES	PHYS	NO	–	–	–
UK Renewable Obligation Certificates	ROC	ROC	OTC	YES	PHYS	YES	NO	–	–
Renewable Energy Credits EU	REC EU	REC EU	OTC	YES	PHYS	YES	NO	–	–

US									
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	CCX SFI	CCX	YES	PHYS	YES	YES	NO	–
CO ₂ Emissions Allow. U.S.	CO ₂ U.S.	CCX CFI	CCX	NO	–	–	–	–	YES
CO ₂ Emissions U.S.	CER U.S.	CCFX CER	CCFX	YES	PHYS	YES	YES	YES	YES
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	CCFX SFI	CCFX	YES	PHYS	YES	YES	YES	YES
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	CCX SFI	CCX	YES	PHYS	YES	YES	NO	–
EPA SIP NO _x Em. Allow.U.S.	NO _x U.S.	CCFX NO _x	CCFX	YES	PHYS	YES	YES	YES	YES
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	SO ₂ NYX	NYMEX	YES	PHYS	YES	YES	YES	YES
EPA SIP NO _x Emissions Allow. U.S.	NO _x U.S.	NO _x SIP	OTC OTC	YES	PHYS/ CASH	YES	YES	YES	YES
Houston/Galveston NO _x Emissions Allow U.S.	NO _x U.S.	NO _x HGA	OTC	YES	PHYS/ CASH	YES	NO	–	–
Reclaim Trading Credits NO _x U.S.	NO _x U.S.	NO _x RTC	OTC	YES	PHYS/ CASH	YES	NO	–	–
Reclaim Trading Credits SO _x U.S.	SO _x U.S.	SO _x RTC	OTC	YES	PHYS/ CASH	YES	NO	–	–
Emissions Reduction Credits (Offsets) U.S.	ERC U.S.	ERC	OTC	YES	PHYS/ CASH	YES	NO	–	–
Emissions Reduction Credits (Offsets) U.S.	ERC U.S.	CCX CFI	CCX	YES	PHYS	YES	NO	–	–
Discrete Emissions Reduction U.S.	DER U.S.	DER	OTC	NO	–	–	–	–	–
Renewable Energy Credits U.S.	REC U.S.	REC	OTC	YES	PHYS/ CASH	YES	NO	–	–
Mob. Source Averaging, Bank. & Trad. Prog.	ABT U.S.	ABT	OTC	YES	PHYS	YES	NO	–	–
NY SO ₂ Emissions Allowance Market	NY SO ₂ U.S.	NY SO ₂	OTC	YES	PHYS	YES	NO	–	–
CT SO ₂ Emissions Allowance Market	CT SO ₂ U.S.	CT SO ₂	OTC	YES	PHYS	YES	NO	–	–
Texas NO _x Emissions Allowance Market	TX NO _x U.S.	TX NO _x	OTC	YES	PHYS	YES	NO	–	–
California NO _x Emissions Allowance Market	CA NO _x U.S.	CA NO _x	OTC	YES	PHYS	YES	NO	–	–
Other									
Greenhouse Gas Abatement Scheme	GGAS AU	CO ₂ AU	OTC	YES	PHYS	YES	NO	–	–
Ontario Pilot Emissions Reduction Trading	CO ₂ CAN	PERT	OTC	NO	–	–	–	–	–
Greenhouse Gas Emission Reduction Trading	CO ₂ CAN	GERT	OTC	NO	–	–	–	–	–
Large Final Emitters System	CO ₂ CAN	LFES	OTC	YES	PHYS	YES	YES	–	–
Canadian Environmental Protection Act	CO ₂ CAN	CO ₂ MCX	MCX	YES	PHYS	YES	YES	–	–
Canadian Environmental Protection Act	CO ₂ CAN	CO ₂ CCE	CCE	YES	PHYS	YES	YES	–	–
Brazilian Carbon Market	CO ₂ BMF	CO ₂ BMF	BMF	YES	PHYS	YES	NO	–	–

Source: UBS Investment Bank, WEMI Advisory Committee.

The programmes which comply with all the primary criteria are the EU-ETS CO₂, Swedish green certificates, U.S. EPA SO₂ and U.S. EPA NO_x programmes. These programmes and their underlying trading platforms would be analysed according to secondary conditions of WEMI membership in Table III.B. on the next page.

A.2. Select Instruments According to Secondary Requirements

Table III.B. below presents the calculations on the secondary eligibility criteria for the programmes that have passed the primary Index membership requirements, as discussed in Table III.A.

Table III.B. Index Components: Secondary Requirements

Emission Programme Mnemonic	Instrument Mnemonic	Trading Platform	Emissions Programme Value ACEPV (USD)	Open Interest ACOIV (USD)	Market Liquidity ACMLV (USD)	ACOIMVI (USD)	Pass secondary Requirement
CO ₂ ETS	CO ₂ ECX	ECX – ICE	32,463,339,398	644,945,922	20,404,901	226,503,438	YES
CO ₂ ETS	CO ₂ NP	Nordpool	33,253,024,371	132,580,053	4,609,602	46,839,851	YES
CO ₂ ETS	CO ₂ EEX	EEX	26,603,244,740	15,291,510	141,720	–	NO
CO ₂ ETS	CER ETS	CER NP	*	–	–	–	NO
ELCERT	ELCERT	Nordpool	359,078,954	–	–	–	NO
SO ₂ U.S.	CCFX SFI	CCFX	6,531,309,736	–	–	–	NO
NO _x U.S.	CCFX NO _x	CCFX	**	–	–	–	NO
CO ₂ U.S.	CER U.S.	CCFX CER	***	–	–	–	NO
SO ₂ U.S.	SO ₂ OTC	OTC	4,703,411,458.33	N/A ²⁴	–	–	NO
SO ₂ U.S.	SO ₂ NYX	NYMEX	4,703,411,458.33	0	–	–	NO
NO _x U.S.	NO _x SIP OTC	OTC	n/a	–	–	–	NO
NO _x U.S.	NO _x SIP NYX	NYMEX	****	–	–	–	NO

Source: UBS Investment Bank, WEMI Advisory Committee.

Data Sources: Nordpool, ECX, EEX, CCFX, NYMEX, Evolution.

* CER futures on Nordpool have only been launched on 1 June 2007, so there is not enough data available yet to carry out the secondary requirements analysis

** CCFX NO_x contract was only started on 23 February 2007, so there is not enough data available yet to carry out the secondary requirements analysis

*** CER futures contracts have only been launched on 23 August 2007, so there is not enough data available yet to carry out the secondary requirements analysis

**** NYMEX have not been publishing any NO_x prices since 10 July 2006 as there was no trading of the underlying futures

²⁴ No reliable data source available

A.3. Summary of Instruments included and excluded from the Index

Table III.C. below represents a summary of findings from primary and secondary analysis of the emissions instruments that were considered for WEMI membership. As at July 2007, only two instruments (CO₂ ECX and CO₂ NP) belonging to the same emissions programme (EU-ETS) have passed all the inclusion requirements. The other instruments do not qualify for index membership at this time, but are observed continuously by UBS and shall be considered for inclusion if they succeed to develop the required characteristics and meet primary and secondary requirements.

Table III.C. Index Components: Inclusion Into WEMI 2007

Emission Programme	Emission Programme Mnemonic	Platform	Included 2007 WEMI?	Reason for Exclusion	Observations
EU					
CO ₂ Euro Trading Scheme	CO ₂ ETS	ECX – ICE	YES	–	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	Nordpool	YES	–	–
CO ₂ Euro Trading Scheme	CO ₂ ETS	EEX	NO	Secondary requirements	Insufficient liquidity
CO ₂ Euro Trading Scheme	CO ₂ ETS	EXAA	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CO ₂ ETS	Powernext	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CO ₂ ETS	Sendeco	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CO ₂ ETS	NVC	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CO ₂ ETS	Euets.com	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CO ₂ ETS	KBB	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CO ₂ ETS	KCE	NO	Primary requirements	Not a Hedge instrument
CO ₂ Euro Trading Scheme	CER ETS	Nordpool	NO	Secondary requirements	Insufficient data available
CO ₂ Euro Trading Scheme	Green Cert.	GME	NO	Primary requirements	Not a Hedge instrument
Green Certificates	GC	POPLX	NO	Primary requirements	Not a Hedge instrument
Swedish green certificates	ELCERT	Nordpool	NO	Secondary requirements	Insufficient programme value
Norwegian ETS	CO ₂ NORW	OTC	NO	Primary requirements	Trading requirements
UK Renewable Obligation Certificates	ROC	OTC	NO	Primary requirements	Not a Hedge instrument
Renewable Energy Credits EU	REC EU	OTC	NO	Primary requirements	Not a Hedge instrument
US					
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	CCX	NO	Primary requirements	Not a Hedge instrument
CO ₂ Emissions Allow. U.S.	CO ₂ U.S.	CCX	NO	Primary requirements	Not a Hedge instrument
CO ₂ Emissions U.S.	CER U.S.	CCFX	NO	Secondary requirements	Insufficient data available
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	CCFX	NO	Secondary requirements	Insufficient liquidity
EPA SIP NO _x Em. Allow. U.S.	NO _x U.S.	CCFX	NO	Secondary requirements	Insufficient programme value
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	OTC	NO	Secondary requirements	Insufficient liquidity
EPA SO ₂ Emissions Allow. U.S.	SO ₂ U.S.	NYMEX	NO	Secondary requirements	Insufficient liquidity
EPA SIP NO _x Emissions Allow. U.S.	NO _x U.S.	OTC	NO	Secondary requirements	Insufficient programme value
EPA SIP NO _x Emissions Allow. U.S.	NO _x U.S.	NYMEX	NO	Secondary requirements	Insufficient programme value
HGA NO _x Emissions Allow. U.S.	NO _x U.S.	OTC	NO	Primary requirements	Trading requirements
Reclaim Trading Credits NO _x U.S.	NO _x U.S.	OTC	NO	Primary requirements	Trading requirements
Reclaim Trading Credits SO _x U.S.	SO _x U.S.	OTC	NO	Primary requirements	Trading requirements
Emissions Reduction Credits (Offsets) U.S.	ERC U.S.	OTC	NO	Primary requirements	Trading requirements

Emission Programme	Emission Programme Mnemonic	Platform	Included 2007 WEMI?	Reason for Exclusion	Observations
Emissions Reduction Credits (Offsets) U.S.	ERC U.S.	CCX	NO	Primary requirements	Trading requirements
Discrete Emissions Reduction U.S.	DER U.S.	OTC	NO	Primary requirements	Trading requirements
Renewable Energy Credits U.S.	REC U.S.	OTC	NO	Primary requirements	Trading requirements
Mob. Source Averaging, Bank. & Trad. Prog.	ABTU.S.	OTC	NO	Primary requirements	Trading requirements
NY SO ₂ Emissions Allowance Market	NY SO ₂ U.S.	OTC	NO	Primary requirements	Trading requirements
CT SO ₂ Emissions Allowance Market	CT SO ₂ U.S.	OTC	NO	Primary requirements	Trading requirements
Texas NO _x Emissions Allowance Market	TX NO _x U.S.	OTC	NO	Primary requirements	Trading requirements
California NO _x Emissions Allowance Market	CA NO _x U.S.	OTC	NO	Primary requirements	Trading requirements
Other Programmes					
Greenhouse Gas Abatement Scheme	GGAS AU	N/A	NO	Primary requirements	Not a Hedge instrument
Ontario Pilot Emissions Reduction Trading	CO ₂ CAN	OTC	NO	Primary requirements	Not compulsory
Greenhouse Gas Emission Reduction Trading	CO ₂ CAN	OTC	NO	Primary requirements	Not compulsory
Large Final Emitters System	CO ₂ CAN	OTC	NO	Primary requirements	Trading requirements
Canadian Environmental Protection Act	CO ₂ CAN	MCX	NO	Primary requirements	Trading requirements
Canadian Environmental Protection Act	CO ₂ CAN	CCE	NO	Primary requirements	Trading requirements
Brazilian Carbon Market	CO ₂ BMF	CO ₂ BMF	NO	Primary requirements	Trading requirements

Source: UBS Investment Bank, WEMI Advisory Committee.

B. Calculate Primary Emission Programme Weights (PEPW) based on ACEPV

For each Emission Programme, we first calculate Primary Emission Programme Weights (PEPW). The allocation is based on ACEPV and as follows:

$$PEPW_i = \frac{ACEPV_i}{\sum_{i=1}^p ACEPV_i}$$

where:

- i represents the Emission Programme i
- ACEPV is the Average Currency Emission Programme Value
- P is the number of Emission Programmes represented in the Index

Table IV.A. Primary Emission Programme Weights

Emission Programme Mnemonic	EPW
EU-ETS	100%

Source: UBS Investment Bank, WEMI Advisory Committee.

Currently, only one emissions programme, EU-ETS, satisfies both the primary and secondary requirements of WEMI membership described in Section 2.1. and 2.2. Therefore, the EU-ETS is the only Emission Programme introduced into the Index as of November 2006 (with no further changes after May 2007 Steering Committee meeting) and consequently has 100% of the PEPW.

The reasons why other programmes considered were not included in the Index are presented in Table IV.C. above. Most of the programmes did not pass because of non-compliance with primary requirements (i.e. defined as non compulsory programmes, cash instrument and/or not passing the trading requirements). Several of the US EPA programmes (SO₂ and NO_x), as well as the Swedish Green Certificates programme, passed all the primary requirements, but failed either on the programme size or on liquidity.

All of the Emission Programmes that did not satisfy the Index membership requirements will be constantly observed for inclusion at a later stage as their eligibility changes.

C. Obtain Emission Programme Weights (EPWs) by Excluding Emission Programmes with less than 3% PEPWs and Reallocating their Weight to Other Programmes

We exclude Emission Programmes with less than 3% fundamental weights, and we uniformly reallocate the excluded weights to other components to obtain Emission Programme Weights (EPW). This is done in order to exclude from the Index programmes, or underlying instruments, that would have only a fractional representation, thereby adversely affecting the tradability of the Index.

Table IV.B. Emission Programme Weights

Emission Programme Mnemonic	EPW
EU-ETS	100%

Source: UBS Investment Bank, WEMI Advisory Committee.

D. Calculate the Primary Target Weights (PTW)

For each instrument with a given Emission Programme, calculate Primary Target Weights (PTW) based on ACOIMVI:

$$PTW_{c,c \in P} = EPW_P \times LOIW_c$$

where

$$LOIW_{c,c \in P} = \frac{ACOIMVI_c}{\sum_{k=1}^K ACOIMVI_{k \in P}}$$

and where

- c is the emissions instrument or component c associated to Emission Programme P
- P a given Emission Programme P
- K the number of emissions instruments in the Programme P

Table IV.C. Primary Target Weights

Instrument Mnemonic	EPW	ACOIMVI (USD)	LOIW	PTW
CO ₂ ECX	100%	226,503,438	82.86409%	82.86409%
CO ₂ NP	100%	46,839,851	17.13591%	17.13591%

Source: UBS Investment Bank, WEMI Advisory Committee.

E. Obtain Target Weights (TW) by excluding components with less than 5% PTWs and reallocation to other components within the same emissions programme

We exclude components with less than 5% PTWs, and we reallocate the excluded weights to other components within the same emissions programme. This is done in order to exclude from the Index those contacts that would have only a small representation, thereby adversely affecting the tradability of the Index.

Table IV.D. Target Weights

Instrument Mnemonic	PTW	Included	TW
CO ₂ ECX	82.86409%	YES	82.86409%
CO ₂ NP	17.13591%	YES	17.13591%

Source: UBS Investment Bank, WEMI Advisory Committee.

The final composition of the WEMI Index as at July 2007 includes two components (both representing the EU-ETS CO₂ programme), with the weights being distributed according to liquidity and open interest in such a way that CO₂ ECX represents 83.18% of the Index and CO₂ NP constitutes the other 16.82%.

3. The WEMI Calculation Methodology

UBS IB calculates and publishes three indices:

- The Price Index (WEMI-PI),
- The Excess Return (WEMI-ER),
- The Total Return (WEMI-TR).

3.1 The WEMI-Price Index (WEMI-PI)

3.1.1 The Price Index during Non-maintenance Periods

The WEMI Price Index (WEMI-PI) is a representation of price levels. It is calculated on the basis of the prices of the first and second WEMI nearby contracts of the relevant instruments (as defined by Table V. below). During non-roll periods, the index is composed of first nearby prices solely such that the change of the value of the Price Index reflects – on each component – price returns and curve slope (the difference in price between the two contract series) on a single contract. During roll-periods, the index is calculated based on first and second nearby prices and first nearby contract positions are replaced gradually with positions in the second nearby²⁵. In the absence of price moves during the roll periods, the change in value of the Price Index reflects the difference in price between the two contracts for each component. The monthly rebalancing realigns – for each component – the effective weights that have gradually drifted over the month, to the Target Weights.

The WEMI-PI is obtained from the division of the Basket Value (BV) by the Adjusting Constant (AC). The AC is used to prevent any discontinuity of the Price Index associated with changes in nominal weights over time. Nominal weights change as a result of the WEMI maintenance mechanisms (re-weighting, re-balancing). The BV for any given non-maintenance date is calculated as the Sum of Daily Component Nearby Prices (DCNP), multiplied by the respective Component Nominal Weights (CNW) of each contract. The DCNP are adjusted by price scalars reflecting reference currency rates versus, for example, the USD, such that all DCNP are expressed in a reference currency. For non-roll days, the methodology is as follows:

$$WEMI - PI_{USD,t} = \frac{\sum_{c=1,N} DCV_{USD,c,t}}{AC_{USD}} = \frac{BV_{USD,t}}{AC_{USD}} \quad (1)$$

$$DCV_{USD,t} = DCNP_{c,t} \times CNW_{c,t} \times [FX_{USD,c,t}]^{CCYScalar_{USD,ccy}} \quad (2)$$

where:

BV	is the Basket Value, the sum of Daily Component Values
DCV	is the Daily component Value
CNW	is the Component Nominal Weight for each Index Component
DCNP	is the Daily Component Nearby Price
AC	is the Adjusting Constant
$FX_{USD,c,t}$	is the Currency exchange rate between the quotation currency of the component instrument and the Index Currency Reference (ICR) in which the Index is expressed. For official settlement price, the WEMI uses a direct or a USD cross fixing price. For the USD direct rate quotes, the price source is set to Bloomberg on page CCY Curncy HP <GO> (Note the Lo-

²⁵ Note the formulas are provided in a generic form and for any monthly period.

ation Time zone is set to New-York). Cross rates are calculated (see Appendix A) so that the foreign exchange adjustment within the Index allows no theoretical arbitrage. $CCYScalar_{USD,CCY}$ is +1 or -1 (see table I.B below). The WEMI-PI is set equal to 1000 on 2 November, 2006

The Index is calculated in U.S. Dollar (USD), Euro (EUR) and Swiss Franc (CHF). Table V. features the WEMI FX price/rate sources (Please see Appendix A. for further details).

Table V. Definition CCY Exchange Rates, CCY Scalars Definitions, and Cross Rates Calculations.

CCY	CCY		Quotation	USD: CCY Scalar _{USD,CCY}	Rate Source
USD	USD	-	-	1	-
AUD ²⁶	AUD	AUD-USD	USD per AUD	-1	BB: AUD Currency HP <GO>
EUR	EUR	EUR-USD	USD per EUR	-1	BB: EUR Currency HP <GO>
CAD ²⁷	CAD	USD-CAD	CAD per USD	1	BB: CAD Currency HP <GO>
CHF	CHF	USD-CHF	CHF per USD	1	BB: CHF Currency HP <GO>

Source : UBS Investment Bank, WEMI Advisory Committee.

The generic expression for any Index Currency Reference (ICR) is:

$$WEMI - PI_{ICR,t} = \frac{\sum_{c=1,N} DCV_{ICR,t,c}}{AC_{ICR}} = \frac{BV_{ICR,t}}{AC_{ICR}} \quad (3)$$

where:

$$DCV_{ICR,c,t} = DCNP_{c,t} \times CNW_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,CCY}} \quad (4)$$

For the purposes of these calculations the price of the WEMI first nearby Future/Forward is defined, for any given month, as the next available delivery month after the month in which the determination is being made. This is provided that the maturity or expiry for that delivery month is the first liquid and economically significant future or forward maturity contract in the available contract strip as determined by UBS, in consultation with the WEMI Steering Committee.

The second WEMI Nearby Future/Forward is the next available delivery month immediately following the first nearby maturity or expiry as defined by Table VI.

Table VI. Definition of WEMI First Nearby Contracts

Instrument Mnemonic	Cal.month/Code (Reuters/Bloomberg)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CO ₂ ECX	0#CFI/MO	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1	Z+1
CO ₂ NP	0#EUA/NEUAAM	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1	Z+1

F: Jan, G: Feb, H: Mar, J: Apr, K: May, M:Jun, N:Jul, Q:Aug, U:Sep, V:Oct, X:Nov, Z:Dec, +1: denotes subsequent year.
Source : UBS Investment Bank, WEMI Advisory Committee.

For example, the October-07 WEMI first nearby Future rolling over the last three business days of October 2007 is MOZ7. The October-07 WEMI second nearby Future during that same period is the same as the November-07 WEMI first nearby Future and is MOZ8 such that in October, the Index reference of CO₂ ECX-MO changes from MOZ7 to MOZ8.

²⁶ Australian Dollar

²⁷ Canadian Dollar

Keeping in mind that one twelve's (1/12) of the index exposure is rolled monthly from first nearby to second nearby, the January-08 WEMI first nearby Future rolling over the last three business days of January 2008 is MOZ8, and the January-08 WEMI second nearby Future is also MOZ9 such that by the end of January roll, the Index references 3/12th of MOZ9 and 9/12th of MOZ8.

Table VIII. below provides standard specifications for the components included in the Index. The criteria for inclusion are featured in Section 2. WEMI component selection process.

Table VII. Standard Specifications, CNWS, Price Scalars and Current %Target Weights

Instrument Mnemonic	Ticker (Reuters/Bloomberg)	Trading Platform	Contract Size	Unit	Contract Scalar	CCY	2007 Target Weights %
CO ₂ EXC	0#CFI / MO	ECX	1000	M/ton	1	EUR	82.86409%
CO ₂ NP	0#EUA / NEUAAM	Nordpool	1000	M/ton	1	EUR	17.13591%

Source : UBS Investment Bank, WEMI Advisory Committee.

3.1.2 The Maintenance Period

In the WEMI, two principal maintenance procedures are carried out each month;

- the roll, which happens on monthly basis for 1/12th of the Index exposure, is effected over the last three business days of the roll month,
- the rebalancing effected on a monthly basis.

The re-weighting is effected on a semi-annual basis.

3.1.2.1 The Roll Period

During the monthly roll period, the composition of the WEMI basket is adjusted daily so that 1/12th of the WEMI exposure is rolled over the course of three last business days of the months, so that we take one third more of the WEMI second nearby and one third less of the WEMI first nearby, in such a way that the Index rolls progressively into the WEMI second nearby future contract.

During the roll period the calculation of the WEMI Price Index takes the following expression:

$$WEMI - PI_{ICR,t} = \frac{SCV_{ICR,t}}{AC_{ICR}} \quad (3)$$

$$SCV_{ICR,t} = \sum_{c=1,N} (MP1_{c,t} \times DCNP1_{c,t} \times CNW1_{ICR,c,t} + MP2_{c,t} \times DCNP2_{c,t} \times CNW2_{ICR,c,t}) \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,cy}} \quad (5)$$

where:

- CNW1_{ICR,c} denotes the Component Nominal Weight for component c and for the current monthly period
 CNW2_{ICR,c} denotes the Component Nominal Weight for component c, and for the period starting immediately after the roll is completed

On the first maintenance day through the last WEMI Business Day of the month, the Maintenance Proportions (MPs) for the 1/12th of the Index exposure being rolled are adjusted daily from 1.0/0.0 to 0.666/0.333, 0.333/0.666, and 0.0/1.0 respectively. On the last WEMI Business Day, the maintenance is completed unless the maintenance period is extended with respect to a particular component contract. This would occur as a result of a market disruption event, which may include the closing price of a contract being a limit price representing the maximum high or low price of the contract for the relevant day or any other event that, in

judgment of the Index sponsor, in consultation with the WEMI Steering Committee, has resulted in the termination or suspension of trading in the relevant contract or in material disruption of such trading.

In order to account for market disruption events during the maintenance period, the MPs are defined as functions of each component and are noted $MP1_{c,t}$, and $MP2_{c,t}$, where $MP2_{c,t} = 1 - MP1_{c,t}$.

If a market disruption event occurs during the maintenance period, the percentage amount being rolled on such a day is deemed to be rolled on the following WEMI Business Day. If there is a disruption event on or beyond the last business day of the Month, the cumulative amount to be rolled will be carried forward until the next WEMI Business Day.

Table VIII. below shows an example of values taken by MP1 and MP2 for a single specific component, for both the PI and the ER Index over the January 2008 roll period.

Table VIII. WEMI Roll Matrix

Theoretical maintenance			First maint. day	Second maint. day	Last maint. day				
Index	\day	Jan 25	Jan 28	Jan 29	Jan 30	Jan 31	Feb 01	Feb 04	Feb 05
PI	MP1	1.00	1.00	0.666	0.333	0.00	1.00	1.00	1.00
	MP2	0.00	0.00	0.333	0.666	1.00	0.00	0.00	0.00
ER	MP1	1.00	1.00	1.00	0.666	0.333	0.00	1.00	1.00
	MP2	0.00	0.00	0.00	0.333	0.666	1.00	0.00	0.00

Source: UBS Investment Bank, WEMI Advisory Committee.

3.1.2.2 Re-weighting and Index Continuity Maintenance

In January and July, the WEMI will potentially roll into new Target Weights (TWs), as defined by the WEMI Steering Committee, with new Component Nominal Weights (CNWs) and Adjusting Constants (ACs). For the purpose of each monthly rebalancing period, the WEMI will also roll into newly calculated CNWs and ACs. On the day before the start of the roll period, the WEMI is calculated based on the old CNWs (reflecting old TWs) and ACs of the current WEMI period.

During these maintenance periods, the first part of the formula must be adjusted to reflect changes in the Adjusting Constant and multiplied by the Basket Value Ratio (BVR), reflecting the change in BV resulting from the shift to the new TWs (and therefore new CNWs).

The calculation formula for BV during the roll becomes:

$$SCV_{ICR,t} = \frac{AC_{ICR,new}}{AC_{ICR,old}} \left[\sum_{c=1,N} CNW_{ICR,c,old} \times MP1_{c,t} \times DCNP1_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}} \right] + \sum_{c=1,N} CNW_{ICR,c,new} \times MP2_{c,t} \times DCNP2_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}, \quad (6)$$

New Adjusting Constants (ACs) are calculated at the close of business on the WEMI Business Day immediately preceding the first roll or rebalancing day, and their values used for subsequent calculations:

$$BVR_{ICR,t} = \frac{\sum_{c=1,N} CNW_{ICR,c,new} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}}{\sum_{c=1,N} CNW_{ICR,c,old} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}}, \quad (7)$$

where $DCNP_{c,t}$ denotes the first WEMI nearby price

such that

$$AC_{ICR,new} = BVR_{ICR,t} \times AC_{ICR,old}, \quad (8)$$

3.1.3 The Index Re-balancing Mechanism

The WEMI Index uses a self re-balancing methodology.

Because the Index is weighted in part based on the prices of each of the constituent instruments, it naturally over-weights the best performing assets and under-weights the least performing ones. Moreover, as trends develop and market prices fluctuate, the effective weights of the constituent instruments drift from their initial Target Weights. As a result, it is necessary to re-balance the Index periodically to maintain its original weighting. This is accomplished by resetting the underlying instrument weights towards component TWs during each rebalancing period.

The calculation of the new CNWs occurs monthly, at the close of business on the business day immediately preceding the first roll day (i.e. the sixth last business day of the month).

On that day, the new CNWs are set such that the calculated effective weights match the component TWs defined by the Index sponsor, in consultation with the WEMI Steering Committee.

On the close of business on the day prior to the first roll day, using known WEMI settlement or closing prices, we solve for the new CNWs. Without loss of generality we first define $CNW_{ICR,N,New} = x$, which is an arbitrary constant, then we also define $DCNP_{c,t}$ as the second WEMI nearby price.

Solving for:

$$\frac{CNW_{ICR,c,new} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}}{\sum_{c=1,N} CNW_{ICR,c,new} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}} - TW_{c,\%} = 0 \quad (9)$$

Note that:

$$TW_1 + TW_2 + \dots + TW_N = 1$$

For notation purposes, we introduce currency denominated quantities:

$$DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}} = FDCNP_{ICR,c} = FDCNP_c$$

As shown in Appendix F, this system has the following analytic solution:

$$\begin{aligned} CNW_{ICR,1,new} &= \frac{TW_1 FDCNP_N}{TW_N FDCNP_1} x \\ CNW_{ICR,2,new} &= \frac{TW_2 FDCNP_N}{TW_N FDCNP_2} x \\ CNW_{ICR,3,new} &= \frac{TW_3 FDCNP_N}{TW_N FDCNP_3} x \\ &\vdots \\ CNW_{ICR,N,new} &= x \end{aligned} \quad (10)$$

Once the new CNWs are calibrated, the new AC is calculated as per (8) above.

3.2 The WEMI-Excess Return (WEMI-ER)

3.2.1 Calculation During Non-maintenance Periods

The WEMI Excess Return Index (WEMI-ER) is calculated on each WEMI Business Day and represents the uncollateralized return of the WEMI basket. The Index has the following expression:

$$WEMI-ER_t = WEMI-ER_{t-1} \times (1 + IDR_t) \quad (11)$$

with:

$$IDR_t = \frac{BVF_t}{BVI_{t-1}} - 1 \quad (12)$$

$$BVI_{ICR,t-1} = \sum_{c=1,N} FDCNP_{ICR,c,t-1} \times CNW_{ICR,c,t-1}$$

$$BVF_{ICR,t} = \sum_{c=1,N} FDCNP_{ICR,c,t} \times CNW_{ICR,c,t-1}$$

and where:

BVF is the Basket Value Final

BVI is the Basket Value Initial

CNW are both indexed by t-1, as component weight during the calculation of the WEMI-ER remain equal to the previous days Price Index weights.

The WEMI-ER is set equal to 1000 on 2 November, 2006.

3.2.2 Calculation during Maintenance Periods

The Index Daily Return (IDR) is defined as the percentage change in Basket Value (BV) from one WEMI Business Day to the next. It reflects the return that would have been realised by holding positions in the first and second WEMI nearby instruments appropriately weighted to reflect the CNWs (and TWs), from the closing of the trading platform on one WEMI Business Day prior to the calculation day to the closing of the trading platform on the next WEMI Business Day.

During a standard maintenance period from the first to the last WEMI Business Day of such a period we have:

$$BVI_{ICR,t-1} = \frac{AC_{ICR,new}}{AC_{ICR,old}} \left[\sum_{c=1,N} CNW_{ICR,c,old,t-1} \times MP1_{c,t-1} \times FDCNP1_{ICR,c,t-1} \right] + \sum_{c=1,N} CNW_{ICR,c,new,t-1} \times MP2_{c,t-1} \times FDCNP2_{ICR,c,t-1} \quad (13)$$

and

$$BVF_{ICR,t} = \frac{AC_{ICR,new}}{AC_{ICR,old}} \left[\sum_{c=1,N} CNW_{ICR,c,old,t-1} \times MP1_{c,t-1} \times FDCNP1_{ICR,c,t} \right] + \sum_{c=1,N} CNW_{ICR,c,new,t-1} \times MP2_{c,t-1} \times FDCNP2_{ICR,c,t} \quad (14)$$

where MPs can take the following values

$$MP_{1,c,t-1} = \{1.0, 4/5, 3/5, 2/5, 1/5, 0.0\}, \quad MP_{2,c,t-1} = \{0.0, 1/5, 2/5, 3/5, 4/5, 1.0\}$$

An important aspect of the calculation is that the daily Maintenance Proportions (MPs) used to calculate BVI and BVF are the one used to calculate the WEMI-PI on the WEMI Business Day immediately preceding the calculation date of the WEMI-ER.

3.3 The WEMI-Total Return (WEMI-TR)

3.3.1 Calculation of the Total Return Index

The WEMI Total Return Index (WEMI-TR) is derived from the WEMI Excess Return Index (WEMI-ER). In addition to uncollateralized returns generated from the WEMI basket, a daily fixed income return is added such that the Index value takes the following expression:

$$WEMI - TR_{ICR,t} = WEMI - TR_{ICR,t-1} \times DITRF_{ICR,t} \quad (15)$$

Where DITRF is the Daily Index Total Return Factor, calculated as:

$$DITRF_{ICR,t} = (1 + IDR_{ICR,t} + IRR_{ICR,t}) \quad (15b)$$

IDR Index Daily Return, as per Section 3.2.1.1.

IRR Interest Rate Return, is the compounding factor calculated for each Index Currency reference

The WEMI-TR is set equal to 1000 on 2 November, 2006.

The fixed income return component of the WEMI-TR reflects the interest earned on securities theoretically deposited as a margin for hypothetical positions in the instruments comprising the Index.

3.3.2 Available Reference Rates

Available Reference Rates used for the calculation of the respective WEMI-TR indices.

Below:

calcdays refers to the integer number of calendar days from the previous WEMI Business Day to the WEMI Business Day on which the calculation is made.

DRR Daily Reference Rate, is a function of the rate available on the immediately preceding WEMI Business Day (ARR), the ARRA and ARRS. The form of the compounding expression is a function of the Index Currency Reference (ICR) defined below, DRR takes the following form:

$$DRR_{ICR,t} = ARRS_{ICR,t} (ARR_{ICR,t} + ARRA_{ICR,t}) \quad (16)$$

ARRA & ARRS Available Reference Rate Adjustment, and Available Reference Rate Scalar are respectively the rate adjustment and Scalar Factor used - when applicable - to reflect any particular funding cost or rate differential applicable and associated to an ICR for an AA+/AAA (S&P) and/or AA1/AAA (Moody's) issuer. The ARRA and ARRS can change periodically to reflect market conditions and are ratified by the WEMI Steering Committee.

USD

ARR 91-Day U.S. Treasury Bill (3 Months) auction rate, designated as high Rate as published by the treasury security auction Results report, published by the Bureau of public Debt currently available on the web site <http://www.publicdebt.treas.gov/of/ofaucrt.htm> and <http://www.publicdebt.treas.gov/AI/OFBills> or Bloomberg USB3MTA Index <GO> or Reuters USAUCTION9.

The rate is generally published once per week on Monday and effected on the WEMI Business Day immediately following.

ARRA

ARRS 1.0

$$IRR_{USD,t} = \left[\frac{1}{1 - \frac{91}{360} \times DRR_{USD,t-1}} \right]^{\frac{caldays}{91}} - 1, \quad (17a)$$

EUR

ARR The 3 month Euro Libor (Euribor) fixing rate as published daily by the British Banker Association, and made available on Bloomberg page BBAM (Ticker EE0003M Index <GO>) or Reuters EURIBOR01, ric EUR3MFSR=.

The rate is published daily at 11:30 AM London time and effected on the WEMI Business Day immediately following.

ARRA 0.0%

ARRS 0.90

$$IRR_{EUR,t} = \left[\frac{1}{1 - \frac{90}{360} \times DRR_{EUR,t-1}} \right]^{\frac{caldays}{90}} - 1, \quad (17b)$$

CHF

ARR The 3 month Swiss Libor fixing rate as published daily by the British Banker Association, and made available on Bloomberg page BBAM (Ticker SF0003M Index <GO>) or Reuters CHFLIBOR, ric CHF3MFSR=.

The rate is published daily at 11:30 AM London time and effected on the WEMI Business Day immediately following.

ARRA 0.0%

ARRS 0.90

$$IRR_{CHF,t} = \left[\frac{1}{1 - \frac{90}{360} \times DRR_{CHF,t-1}} \right]^{\frac{caldays}{90}} - 1, \quad (17c)$$

Also please see section 3.4.4. for the definition of Interest rate disruption events.

3.4 WEMI Business Day Conventions

3.4.1 Daily Effective Weight (DEW) and Daily Open Market Weight (DOMW)

For each Index Currency Reference (ICR), a WEMI Business Day is a day for which at least the 80% Daily Open Market Weight (DOMW) criteria is met for the composite Index. A business day is one on which 80% of the Index components, by daily effective weight are available for trading immediately prior to the calculation date, and for which a settlement price is published or for which UBS can determine an official closing level. The price used for instruments not available for trading will be the most recently available settlement or closing price.

The Daily Effective Weight (DEW) adjusted for open market is calculated as follows:

$$DEW_{ICR,c,t} = \frac{CNW_{Old,ICR,c,t} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}}{\sum_{c=1,N} CNW_{Old,ICR,c,t} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}} \quad (18)$$

The Daily Open Market Weight (DOMW) calculated to determine whether the WEMI is open takes the following value:

$$DOMW_{ICR} = \sum_{c=1,N} DEW_{ICR,c,t-1} \times OPEN_{c,t} \quad (19)$$

$OPEN_{c,t}$ is equal to 0 when the trading platform facility associated to the component c is closed for trading, as a result of a normal and foreseeable closing schedule published publicly by such facility (holidays, bank holidays, etc.).

A day is deemed an open WEMI Business Day if the minimum DOMW calculated across all Index currency reference is equal to or greater than 80%.

$$1_{WEMI-Bu \text{ sin } essDay_t} / \min_{ICR=1,K} [DOWM_{ICR,t}] \geq 0.8 \quad (20)$$

3.4.2 Adjustments for Market Disruption Event Day

When a trading platform fails, for a given instrument, to publish a settlement or closing price for a contract involved either in the roll or rebalancing, the WEMI Business Day is deemed a Market Disruption Event Day.

The WEMI mechanism foresees that the components involved are not subject to a maintenance process on that day. For those instruments or components, the MPs remain identical to the value they had on the WEMI Business Day immediately preceding the Market Disruption Event Day in such a way that the roll or rebalancing period is extended for as long as no settlement or closing price is made available by the trading platform, or by UBS.

Table IX. below shows an example of values taken by MP1 and MP2 for a single specific component for both the PI and the ER Index over the January 2008 maintenance period if 29 January is deemed a market disruption event day such that no usual price is made available on that day.

Table IX. WEMI Maintenance upon the Occurrence of Market Disruption Event

Theoretical maintenance				First maint. day	Second maint. day	Last maint. day			
Effective maintenance				First & Second maint. day		Last maint. day			
Index	\day	Jan 25	Jan 28	Jan 29	Jan 30	Jan 31	Feb 01	Feb 04	Feb 05
PI	MP1	1.00		1.00	0.333	0.00	1.00	1.00	1.00
	MP2	0.00		0.00	0.666	1.00	0.00	0.00	0.00
ER	MP1	1.00	1.00	1.00	1.00	0.333	0.00	1.00	1.00
	MP2	0.00	0.00	0.00	0.00	0.666	1.00	0.00	0.00

Source : UBS Investment Bank

If, after a period of five WEMI Business Days, no settlement or closing price has been made available by the affected trading platform, UBS will determine, in good faith, taking into account the objectives of the Index and both the interest of investors and market participants, the one or more trading platform settlement or closing prices necessary for the rolling or the rebalancing of the component and the calculation of the Index.

When a Market Disruption Event Day falls during a non maintenance period, the Index is calculated using the last available trading price available on the trading platform, obtained by UBS from commercially reasonable sources in the market, or determined in good faith by UBS.

3.4.3 Adjustments for FX Market Disruption Event Day

In the event of a referenced price source failing to publish a valid fixing rate for a referenced currency exchange rate, the WEMI Business Day is deemed an FX Market Disruption Event Day.

If no fixing price has been made available by the defaulting price source, the one or more foreign exchange currency rates fixing prices necessary for the calculation of the Index will be obtained by UBS from commercially reasonable sources in the market, otherwise it will be determined in good faith, bearing in mind both the interest of investors and market participants, with the aim of maintaining and enhancing the position of the WEMI as a leading tradable emissions benchmark.

A commercially reasonable method would be for example, but is not limited to, the averaging of three foreign exchange broker-dealer quotes at the approximate time the fixing would have been determined by the price source.

In the event of the rate source becoming permanently deficient, the Index sponsor, in consultation with the WEMI Steering Committee, can deem the event a force majeure event and decide to replace it by a new source with immediate effect.

3.4.4 Interest Rate Disruption Event

In the event of a holiday, a Market Disruption Event Day affecting the release of an interest rate reference or another disruption in treasury auction calendars, the last available rate is used until the next rate becomes available.

In the event of the interest rate source becoming permanently deficient, the Index sponsor, in consultation with the WEMI Steering Committee, can deem the event a force majeure event and decide to replace it by a new source with immediate effect.

3.5 Market Emergency and Force Majeure

In some extraordinary circumstances, UBS in consultation with the WEMI Steering Committee can deem the situation a market emergency and force majeure case.

Such extraordinary circumstances include the following if, in any of these cases, the circumstances are reasonably likely, in the judgement of the Index sponsor in consultation with the WEMI Steering Committee, to have a materially adverse effect on the Index, the tradability of the Index or the ability of the Index to serve as a tradable benchmark for the emissions market:

- The imposition of a currency control mechanism.
- The adoption or issuance of tax related rules, regulations, orders or other actions.
- An announcement or other public action regarding scientific discoveries or events related to the emissions markets that may cause a significant change in Emission Programmes.
- An addition of new emission instruments that is very significant to the emissions market.
- A government, regulatory or public announcement that is reasonably likely to affect commodities or emissions markets.
- Any climate or weather related emergencies.
- A war.
- A terrorist event.
- Any event other than those specifically identified herein making the calculation of the WEMI impossible on a technical basis or otherwise.
- Any event that makes the WEMI non-representative of the market prices, undermines the realisation of the objectives of the Index or creates a situation adverse to the interest of WEMI Steering Committee and/or market participants.
- Any unexpected significant changes during the move from Phase I to Phase II of the EU ETS or during the start of Kyoto Protocol compliance in 2008.
- Any situation creating a situation of unfair advantage or disadvantage for, any or group of market participant or the Index sponsor.

Whenever a market emergency or force majeure event has been identified / declared, the Index sponsor, in consultation with the WEMI Steering Committee, can decide to take any appropriate action, such as, but not limited to:

- the replacement of a DCNP when there is an obvious and manifest error in the official settlement or closing price or when a market abuse (please see the U.K. Financial Services Authority (FSA) definitions) is likely to have taken place.
- the temporary or final revoking of the membership of a component in the Index.
- the immediate change of an Index parameter.
- the suspension of the calculation of the Index, a sub Index, or a currency series.
- in general, any action necessary to preserve the reputation of the WEMI as fair and tradable benchmark.

Appendix

A. Foreign Exchange Conversion Methodology

The Index is calculated in U.S. Dollars (USD), Euro (EUR), and Swiss Franc (CHF). Table A. below provides the WEMI FX price/rate sources as well as cross rate reference calculations.

Table A. Definition CCY Exchange Rates, CCY Scalars Definitions and Cross Rates Calculations.

ICR	CCY	CCY Pair	Quotation	CCYScalar _{ICR,CCY}	Rate Source
USD	USD			1	
	AUD ²⁸	AUD-USD	USD per AUD	1	BB: AUD Currency HP <GO>
	EUR	EUR-USD	USD per EUR	1	BB: EUR Currency HP <GO>
	CAD ²⁹	USD-CAD	CAD per USD	-1	BB: CAD Currency HP <GO>
	CHF	USD-CHF	CHF per USD	-1	BB: CHF Currency HP <GO>
EUR	EUR			1	
	AUD	AUD-EUR	AUD per EUR	-1	EUR-USD/AUD-USD
	USD	EUR-USD	USD per EUR	-1	
	CAD	EUR-CAD	CAD per EUR	-1	USD-CAD x EUR-USD
	CHF	EUR-CHF	CHF per EUR	-1	USD-CHF x EUR-USD
CHF	CHF			1	
	USD	USD-CHF	CHF per USD	1	
	AUD	AUD-CHF	CHF per AUD	1	USD-CHF x AUD-USD
	EUR	EUR-CHF	CHF per EUR	1	USD-CHF x EUR-USD
	CAD	CAD-CHF	CHF per CAD	1	USD-CHF/USD-CAD
CAD	CAD			1	
	USD	USD-CAD	CAD per USD	1	
	EUR	EUR-CAD	CAD per EUR	1	USD-CAD x EUR-USD
	CHF	CAD-CHF	CHF per CAD	-1	USD-CHF/USD-CAD
AUD	AUD			1	
	USD	AUD-USD	USD per AUD	-1	
	CHF	AUD-CHF	CHF per AUD	-1	USD-CHF x AUD-USD
	EUR	AUD-EUR	EUR per AUD	-1	AUD-USD/EUR-USD

From (3), we know the generic expression for any Index Currency Reference (ICR).

$$WEMI - PI_{ICR,t} = \frac{\sum_{c=1,N} DCV_{ICR,t}}{AC_{ICR}} = \frac{BV_{ICR,t}}{AC_{ICR}} \quad (3)$$

where:

$$DCV_{ICR,t} = DCNP_{c,t} \times CNW_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}} \quad (4)$$

²⁸: Australian Dollar

²⁹: Canadian Dollar

If ICR is EUR, a CAD component will be using the following conversion:

$$DCV_{EUR,t} = DCNP_{c,t} \times CNW_{c,t} \times [(USD - CAD \times EUR - USD)]^{(-1)}$$

B. Further Details on U.S. and EU and Other Emissions Programmes.

B.1. Joint Implementation (JI)

The term Joint Implementation (JI) refers to a flexible mechanism in the Kyoto Protocol according to which a country is awarded credit for emission reductions when it implements energy efficiency measures in a comparable host country. In other words, JI makes it possible for an investor country to become active where corresponding effects can be achieved at lower cost. As a consequence, the host country profits from the sale of the emission quotas it no longer needs as well as from the technology transfer from the investor country. This is in line with the Kyoto philosophy, where the key aim is to reduce emissions globally. In practice, JI-projects are mainly expected to take place in the former Soviet Union, in particular in Russia and Ukraine.

B.2. Clean Development Mechanism (CDM)

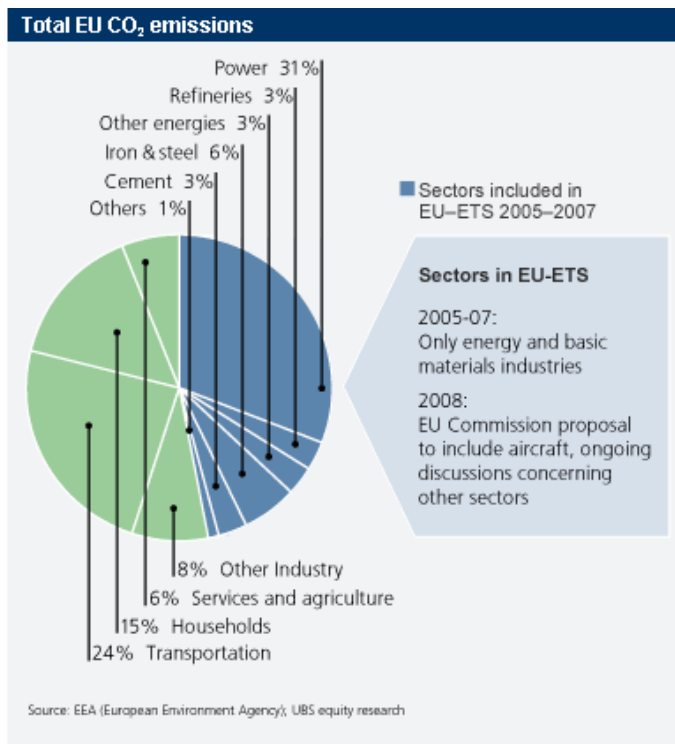
The Clean Development Mechanism (CDM) is one of the Kyoto Protocol's flexible mechanisms. It allows Governments from developed countries to claim credit for the reduction in emissions achieved if a developed country provides environmental support to a third world country. The intended purpose of the CDM is to ensure that climate protection measures are also implemented in developing countries and that a technology transfer takes place that promotes environmentally compatible economic development. Even though CDM applies to developing countries globally, the key markets to date are South Korea, Brazil and, recently, China and India.

B.3. EU-ETS

Since January 2005, 25 European countries are participating in Phase I of EU-ETS for the reduction of Carbon Dioxide (CO₂). The phase was initially implemented to assist countries in reaching their targets for Phase II on time. Phase I currently only covers specific industries and is limited to CO₂.

The EU-ETS is the largest CO₂ trading scheme of its kind and covers about 46% of European CO₂ emissions (Exhibit I).

Exhibit I. European Union Emissions by Type



Source: EEA (European Environment Agency), UBS Investment Bank equity research, WEMI Advisory Committee.

Please see also, Point Carbon, 12 May 2006:

http://www.pointcarbon.com/wimages/Press_release_Point_Carbon_12_May_2006_1.pdf#search=%22%20EU%20ETS%20covers%20about%2046%25%20of%20EU%20CO2%22.

B.4. The Acid Rain Reduction Programme (EPA SO₂)

The Acid Rain reduction programme was implemented in two phases.

Phase I began on 1 January, 1995 and affected 110 electric utilities, the majority of which were coal-burners with high historical emission levels. The annual regulatory emission reduction requirement was set to 10 million tons below the 1980 emissions levels (26 million tons a year) by 2000.

The exact initial allocation of certificates has been based on an emission rate of 2.5 pounds of SO₂/Mmbtu (Million British Thermal Units) of heat input multiplied by the unit's baseline consumption with the average fossil fuel consumption measured from 1985 to 1987.

In the current phase, Phase II, started on 1 January, 2000, EPA expanded the group of affected sources to include virtually all units over 25 MW in generating capacity, and tightened the allowance allocation. EPA allocated allowances to each unit at an emission rate of 1.2 pounds of SO₂/ Mmbtu of heat input, multiplied by the unit's baseline. Also, only the units in operation before 1996 are eligible for an allocation of allowances and new entrants are required to purchase them through the market system.

The Certificates are issued on a vintage year basis, thirty years into the future, each vintage year beginning on 1 July. Allowances can be banked (i.e. allowing prior year allowances to be carried forward) and the penalty for non-compliance is USD 2,977.81 per ton plus the loss of the next vintage year allocations.

Beginning in 2010, the programme places a cap at 8.95 million on the number of allowances issued to participating units each year. This effectively caps emissions at 8.95 million tons annually and ensures that the mandated emissions reductions are maintained over time.

B.5. Australia

Australia has signed, but not ratified the Kyoto protocol, so their only compulsory programme is the Greenhouse Gas Abatement Scheme (GGAS) which only covers New South Wales (NSW). The scheme was established in 2003 and is still in place despite a recent fall in favour regarding emissions trading as a credible solution to climate change. GGAS aims to reduce GHGs emissions associated with the production and use of electricity. This is achieved via project-based activities to offset the emission of Greenhouse Gases.

GGAS establishes an annual state-wide Greenhouse Gas reduction target and requires individual electricity retailers and certain other parties to meet mandatory benchmarks based on the size of their market share. Participants can reduce their average emissions intensity or surrender abatement certificates purchased directly in the market to the Independent Pricing and Regulatory Tribunal (IPART), the compliance regulator and scheme administrator.

Benchmark participants can also claim credit for surrendering Renewable Energy Certificates (RECs) under the Commonwealth's Mandatory Renewable Energy Target (MRET). If they fail to reach their benchmark targets, they are charged a penalty.

Following the example of NSW, the National Emissions Trading Scheme (NETS) has been established as an initiative of the State and Territory Governments of Australia. The purpose of NETS is to give rise to an Australian intra-state Carbon Dioxide (CO₂) trading scheme and to coordinate policy developments to this end. In Australia, environmental matters are under the jurisdiction of the States. NETS aims to increase the acceptance of the Kyoto Protocol at the Federal level.

At Index inception, the existing emission reduction programmes in Australia do not meet the primary requirements for Index membership. The WEMI Advisory Committee will continue to monitor the development of these programmes and will consider them for inclusion as soon as they meet both primary and secondary eligibility requirements.

C. Details of Calculations and Assumptions

- As National Allocation Plans (NAP) for emission allowances within the EU-ETS are done on a 3 year basis, we assume that each year approximately a third of the total allocated certificates in circulation are available to be surrendered against the actual emission levels.
- The Scalar Factor used to adjust the reported volume and open interest of products traded over the counter (OTC) to assume consistency in volumes between OTC and futures transactions was chosen to have the value of 1 as all OTC transactions are exchange-cleared.
- The data used in ECX calculations is dated from 22 April 2005 until 29 September 2006.
- The data used in Nordpool calculations is dated from 11 February 2005 until 29 September 2006.
- The data used in EEX calculations is dated from 4 October 2005 until 29 September 2006.
- The data used for the U.S. EPA SO₂ and NO_x allocations calculations was based on October 2006 figures, provided by the EPA.

D. Various data sources

- European Union portal "EUROPA" http://ec.europa.eu/environment/climat/emission_plans.htm
- Department for Environment and Rural Affairs <http://www.defra.gov.uk/environment/>
- International Emissions Trading Association <http://www.ieta.org/>
- Platts reports www.platts.com
- Argus Reports
- Norwegian Pollution Control Authority <http://www.sft.no/english/>
- Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC) <http://unfccc.int>
- Environmental Protection Agency (EPA) <http://www.epa.gov/>
- Evolution Markets Inc. <http://www.evomarkets.com/>
- Environment Canada <http://www.ec.gc.ca/>
- Regional Greenhouse Gas Initiative <http://www.rggi.org/>
- Greenhouse Gas Abatement Scheme <http://www.greenhousegas.nsw.gov.au>
- Government of Canada Climate Change <http://www.climatechange.gc.ca/>
- CO2e.com <http://www.co2e.com/trading/>
- Point Carbon <http://www.pointcarbon.com/>
- Energy Information Administration www.eia.doe.gov
- International Panel on Climate Change (IPCC) <http://www.ipcc.ch/>
- G8 Gleneagles 2005 <http://www.g8.gov.uk/>
- United Nations Environment Program <http://countryprofiles.unep.org/profiles/ER/profile/indicators>
- Point Carbon, 12 May http://www.pointcarbon.com/wimages/Press_release_Point_Carbon_12_May_2006_1.pdf#search=%22%20EU%20ETS%20covers%20about%2046%25%20of%20EU%20CO2%22

Trading platforms:

- European Climate Exchange (ECX) http://www.europeanclimateexchange.com/index_flash.php
- European Energy Exchange (EEX) <http://www.eex.de/>
- Energy Exchange Austria (EXAA) <http://www.exaa.at/>
- Nordpool (NP) <http://www.nordpool.com/>
- New Values <http://community.newvalues.net/>
- Polish Power Exchange (POPLX) <http://www.polpx.pl/>
- Powernext <http://www.powernext.fr>
- SENDECO2 <http://www.sendeco2.com>
- Gestore Mercato Elettrico (GME) <http://www.mercatoelettrico.org/GmeWebInglese/Default.aspx>
- EUETS.COM <http://www.euets.com/>
- New York Mercantile Exchange (NYMEX) http://www.nymex.com/ef_main.aspx
- Chicago climate Exchange (CCX) <http://www.chicagoclimatex.com/>
- Canadian Climate Exchange (CCE) <http://www.canadianclimateexchange.com>

E. Market liquidity measurement assumptions

The following roll matrix has been used for all liquidity and open interest calculations.

Emissions Instrument Mnemonic	Cal.month/Code (Reuters/Bloomberg)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CO ₂ ECX	0#CFI/MO	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1	Z+1
CO ₂ NP	0#EUA/NEUAAM	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z	Z+1	Z+1

Source: UBS Investment Bank.

F: Jan, G: Feb, H: Mar, J: Apr, K: May, M: Jun, N: Jul, Q: Aug, U: Sep, V: Oct, X: Nov, Z: Dec, +1: denotes subsequent year.

F. Index re-balancing mechanism: detailed computations

For each commodity ("c" being the mute counter index here), we require:

$$\frac{CNW_{ICR,c,new} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}}{\sum_{c=1,N} CNW_{ICR,c,new} \times DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}}} - TW_{c,\%} = 0 \quad (9)$$

For notation purposes, one introduces currency denominated quantities:

$$DCNP_{c,t} \times [FX_{ICR,c,t}]^{CCYScalar_{ICR,ccy}} = FDCNP_{ICR,c} = FDCNP_c$$

Then for each of the N commodities in the index, one can rewrite the previous equation as:

$$\begin{aligned} & (1 - TW_c) FDCNP_c \cdot CNW_{ICR,c,new} \\ & - (TW_1 \cdot FDCNP_1 \cdot CNW_{ICR,1,new} + \dots + TW_{c-1} FDCNP_{c-1} \cdot CNW_{ICR,c-1,new}) \\ & - (TW_{c+1} \cdot FDCNP_{c+1} \cdot CNW_{ICR,c+1,new} + \dots + TW_N FDCNP_N \cdot CNW_{ICR,N,new}) = 0 \end{aligned}$$

We thus obtain a system

- of N linear equations
- with N unknowns (i.e.). $(CNW_{ICR,c,new})_{1 \leq c \leq N}$

This system can be expressed as the following matrix equation:

$$\begin{bmatrix} (1 - TW_1) & -TW_1 & \dots & -TW_1 \\ -TW_2 & (1 - TW_2) & \dots & -TW_2 \\ \dots & \dots & \dots & \dots \\ -TW_N & \dots & -TW_N & (1 - TW_N) \end{bmatrix} \begin{pmatrix} FDCNP_1 \times CNW_{ICR,1,new} \\ \vdots \\ \vdots \\ FDCNP_N \times CNW_{ICR,N,new} \end{pmatrix} = 0$$

If one further defines:

$$\text{the matrix } M = \begin{bmatrix} TW_1 & TW_1 & \dots & TW_1 \\ TW_2 & TW_2 & \dots & TW_2 \\ \vdots & \vdots & \dots & \vdots \\ TW_N & \dots & TW_N & TW_N \end{bmatrix} \quad \text{and the vector } z = \begin{pmatrix} FDCNP_1 \times CNW_{ICR,1,new} \\ \vdots \\ \vdots \\ FDCNP_N \times CNW_{ICR,N,new} \end{pmatrix}$$

it all comes down to:

$$Mz = z$$

which amounts to finding an eigenvector associated to eigenvalue 1 for M. Note M obviously has rank 1 and is a projection on the line generated by z (in the vector space sense). Any component Z_i belonging to any such given eigenvector z would then satisfy:

$$TW_i \left(\sum_{k=1}^N z_k \right) = z_i$$

implying that:

$$\left(\sum_{k=1}^N z_k \right) = \frac{z_i}{TW_i} = \frac{z_j}{TW_j} , \quad \forall i, j , \quad 1 \leq i, j \leq N$$

Note the left hand side of the equation doesn't depend on i or j. On the other hand, the vector from the initial equation has to satisfy this relationship since all eigenvectors do. This reads:

$$\frac{FDCNP_i}{TW_i} CNW_{ICR,i,new} = \frac{FDCNP_j}{TW_j} CNW_{ICR,j,new} , \quad \forall i, j , \quad 1 \leq i, j \leq N$$

To find a unique solution (as opposed to a "line" of solutions) one has to fix one end of the inputs, hence the use of x. If one decides (without loss of generality) to set:

$$CNW_{ICR,N,new} = x$$

Then the corresponding unique solution satisfying the previous constraint is given by:

$$CNW_{ICR,i,new} = \frac{FDCNP_N}{FDCNP_i} \frac{TW_i}{TW_N} x , \quad \forall i, j , \quad 1 \leq i, j \leq N$$