INTRODUCTION

In October 2016, the International Emissions Trading Association (IETA) and the International Air Transport Association (IATA) welcomed the International Civil Aviation Organisation’s Resolution establishing the Carbon Offsetting and Reduction System for International Aviation, known as CORSIA.

The new mechanism will achieve the international civil aviation sector’s global goal of carbon-neutral growth from 2020, by requiring operators to offset all carbon emissions over and above a baseline of their average emissions in 2019-2020.

While we note that ICAO is developing its system for the monitoring, reporting and verification of emissions, as well as the criteria to select which offset types will be eligible for use, IETA has also decided to do its part.

IETA and IATA, the leading business organisations in their respective sectors, have decided to collaborate closely to bridge the gap between the aviation world and the carbon market by establishing a series of workshops to be held around the world (Nairobi, Geneva, Miami and Singapore), at which experts and industry participants can discuss preparations for the world’s first sectoral carbon market mechanism. These workshops aim to gather the best expertise from both worlds.
The IETA-IATA workshops are a unique and unprecedented opportunity for the aviation sector and the carbon markets community to get together to explore the way forward and opportunities to collaborate, learning from each other’s experiences, with the goal of jointly developing approaches to achieving compliance.

We would also like to thank to our platinum and gold sponsors for helping make these workshops possible. A special thank you goes to: CBL Markets, Climate Smart Group, Shell Trading, American Carbon Registry, ACRE Investment Management, AitherCO2, Althelia Ecosphere/Ecosphere+, First Climate, and VCS.

**WORKSHOP SUMMARY**

This workshop series has three main goals:

1. Assist airlines in the preparation for the implementation of CORSIA,
2. Provide guidance on the practical implications of the scheme,
3. Provide insights in carbon markets.

These three goals are functional to the main objective of bridging the gap between the aviation sector and carbon markets.

Before the start of the workshop, participants were reminded of IATA’s and IETA’s competition and anti-trust guidelines.

**SECTION 1: CORSIA, MRV AND EUC**

1. **BACKGROUND ON AVIATION’S CLIMATE ACTION**

Michel Adam, IATA

The presentation ([here](#)) reminded participants that the aviation sector has a strong track record for climate action. Historically, efficiency improvements in the aviation sector outperform the wider economy: since 1990, aviation efficiency has improved at almost twice the rate of the wider economy. Taking a longer-term view, CO₂ emissions efficiency per seat improved by 80% since the 1950s.

In 2009, the aviation industry adopted a climate strategy. The sector’s strategy to tackle the climate challenge consists of 3 global goals and 4 pillars of climate action. The three industry goals are:

1. Pre-2020 ambition: 1.5% annual average fuel efficiency improvement from 2009 to
2020;
2. In line with the next UNFCCC commitment period, stabilize net aviation CO₂ emissions at 2020 levels with carbon neutral growth;
3. On the 2°C pathway: reduce aviation’s net CO₂ emissions to 50% of what they were in 2005, by 2050.

The 4 pillars of climate action that will make it possible to achieve these goals are:
1. Technology, including sustainable alternative fuels
2. Operations
3. Infrastructure
4. A global market-based measure: CORSIA

The first 3 pillars are intended to achieve emissions reductions in the aviation sector thereby bringing it closer to achieving the three goals. The fourth pillar – a market-based measure – is intended to act as a “gap-filler” to offset those emissions that cannot be abated through the other 3 pillars. It represents a measure to ensure that the aviation sector meets its commitment, and this is why it has been actively supported by the aviation industry.

Another reason why the aviation industry is very supportive of CORSIA is that, being an international system, it has the advantage of avoiding a patchwork of regional measures and different pricing systems.

This workshop series is meant to specifically focus on the second goal, and on the fourth pillar.

2. BRIEFING ON CORSIA

Michel Adam, IATA

Phased-implementation

The presentation is available here (second presentation in the slide deck). The Carbon Offsetting and Reduction Scheme for International Aviation, known as CORSIA, was established in October 2016 by ICAO Resolution 39-3, as a global offsetting mechanism with the goal to address increases in international civil aviation emissions post-2020. Its scope covers only international flights. Domestic flights are within the scope of the Paris Agreement and are regulated by each Party’s Nationally Determined Contribution (NDC).

Under the system, aircraft operators will be required to purchase carbon offsets, or “emission units”, to offset the growth in CO₂ emissions post-2020 covered by CORSIA. Carbon offsets are generated from a range of climate projects, often based in developing nations.
CORSIA will have a phased implementation: there will be a pilot phase, followed by a first phase. The phased implementation has been chosen to address the concerns of developing states and to take into account the concept of “special circumstances and respective capabilities” (SCRC), which is the ICAO equivalent of the concept of “common but differentiated responsibilities” (CBDR) under the UNFCCC process.

Under the phased implementation, in the pilot and first phases, from 2021 until 2026, CORSIA’s offsetting requirements will only apply to international flights between States that volunteer to participate in the pilot and/or first phase. This means that only flights between volunteering countries will be subject to offsetting requirements. Two airlines competing on the same route will be subject to the same obligation, irrespective of their country of origin – it’s a route-based approach.

In the second phase, from 2027, participation is mandatory for States meeting certain criteria, based on aviation activity and determined by revenue tonne-kilometre (RTK), which represents the level of traffic. One criterion is based on the individual share of RTK and the second on the cumulative share of total RTK. Least Developed Countries (LDCs), Small Island Developing States (SIDs) and Landlocked Developing Countries (LLDCs) are exempt, unless they volunteer to opt in.

In the second phase, CORSIA will apply to international flights between States that meet one of the following criteria:

- Individual share of international RTK in 2018 is more than 0.5% of total RTKs (except LDCs, SIDS, and LLDCs), or
- Cumulative share in the list of States from the highest to the lowest amount of RTKs reaches 90% of total RTKs (except LDCs, SIDS, and LLDCs), or
- States that do not meet the above criteria but volunteer to participate in the second phase.

As mentioned before, exempted states can decide to join, as long as they give sufficient notice to ICAO. The only requirement is to communicate to ICAO the intention to participate by 30 June of the preceding year. The same provision applies if states want to discontinue their participation, given that their participation is not mandatory.

**Determination of offsetting requirements**

The determination of offsetting requirements under CORSIA, which is the ‘size’ of each airline’s compliance obligation, is based on two different components:

- A sectoral component: based on the total CO₂ emissions of each operator, meaning that the sector’s growth is ‘shared’ between operators in proportion of their total CO₂ emissions; and
● An individual component: based on the growth in CO₂ emissions of each operator, meaning that each operator offsets its own growth in emissions.
In order to calculate the offset requirements, each airline needs:
● Its sectoral component, which is based on the industry’s sectoral factor and the operator’s total CO₂ emissions,
● Its individual component, which is based on the airline’s growth in CO₂ emissions above its own baseline.
Calculations only take into account the CO₂ emitted on routes that are covered by CORSIA (“phased-in”), while emissions on exempted routes are excluded from all calculations. Airlines need to report their emissions to states, states need to report to ICAO and ICAO is tasked with carrying out the calculations to determine the sector’s ‘growth factor’, which will then be communicated to States and then to airlines.
CORSIA will start with a determination of the offsetting requirements based on a 100% sectoral component in the period from 2020 to 2029. Then the share of the individual component used in the determination of the offsetting requirement will increase over time. In the period from 2030 to 2032 the individual share will be used to determine at least 20% of the offsetting requirement and from 2033 more than 70% of the offset obligation will be based on the individual component.

Next steps
The next steps in the ICAO process for the implementation of CORSIA will be the development of SARPs (International Standards and Recommended Practices). ICAO is currently developing SARPs and the related guidance, in a process that is expected to last until 2018. When ready, SARPs will adopted by the ICAO council. ICAO will consult its Member States in the adoption process and states, after the SARPs are adopted, are expected to develop their national regulatory framework. All airlines will be required to start monitoring CO₂ emissions from 2019.
As a later step, the ICAO Council will undertake a periodic review of CORSIA, for consideration by the Assembly, every three years starting from 2022.

3. Monitoring, Reporting and Verification of CO₂ Emissions (MRV)
Michael Schneider, IATA

The presentation (available here, third presentation in the slide deck) highlighted that ICAO’s GMBM – the global market-based measure to tackle the sector’s growth in emissions, which has taken the form of CORSIA – is based on three fundamental principles:
● Simplicity and flexibility;
● Transparency and confidentiality; and
● Data integrity.

These three principles need to be mirrored in the Monitoring, Reporting and Verification (MRV) requirements to be developed under CORSIA.

To reflect the principle of simplicity, and to reduce the administrative burden, some technical exemptions are in place to exclude:

● Aircraft operators emitting less than 10,000 metric tonnes of CO2 from international aviation per year;
● Aircraft with less than 5,700 kg of MTOM (Maximum Take Off Mass)
● Humanitarian, medical and firefighting operations.
● Aircraft operators which commence an activity within the scope of CORSIA on or after its entry into force. Also called “new entrants”, these are exempted for three years, or until the year in which their annual emissions exceed 0.1% of total emissions in 2020.

All operators not excluded by these exemptions will need to develop an emissions monitoring plan and will be required to start monitoring CO2 emissions, starting from 2019.

CORSIA’s MRV requirements have to be seen as an opportunity by airlines because, as well as being essential for compliance, the mechanism will help them understand their exposure and optimise their operations, reduce inefficiencies and maximise profits.

The first step to meet MRV requirements will be for operators to develop an emissions monitoring plan (EMP) for their international flights, which should include:

● Operator identification;
● Fleet and operations data;
● Methods and means of calculation;
● Data management and data flow.

EMPs will need to be approved by the operator’s national authority. In case an EMP is subject to a material change, the operator will need to seek re-approval from its national authority.

For monitoring purposes, a two-tiered system is being considered, whereby:

● Tier 1 would require the monitoring of actual fuel consumption; and
● Tier 2, applicable only to small operators below a certain emissions threshold, would be based on data estimations (data modelling).
Operators with emissions below the aforementioned threshold would be allowed to adopt the Tier 2 simplified procedure for all flights, while operators with emissions above the threshold would have to apply the Tier 1 methodology for non-exempt flights, while they would be free to choose between Tier 1 and Tier 2 for their exempt flights.

By the end of each year ICAO would inform countries of the previous year’s sectoral CO₂ emissions. States, in turn, will use ICAO’s information to calculate and inform airlines of their previous year’s obligation. At the end of the first compliance cycle, operators will be informed of their compliance obligation and will have to submit their emissions units for compliance in the following month(s).

The emissions units eligible for compliance will be defined as part of the aforementioned SARPs, and will need to respect the following Emissions Units Criteria (EUC) aimed at ensuring environmental integrity, whereby units need to be:

- Traceable;
- Additional;
- Verified;
- Permanent.

Some of the credit types currently considered for compliance are the UNFCCC’s Certified Emissions Reduction (CER), the VCS’s Verified Emissions Reduction (VER), and the Gold Standard’s credits. ICAO is also considering the potential use of allowances from mandatory markets for compliance under CORSIA.
SECTION 2: CARBON MARKETS

1. GENERAL INTRODUCTION TO CARBON MARKETS

Urs Brodmann, First Climate

This presentation (available here) provided an overview of carbon markets and flexible mechanisms, with an emphasis on baseline scenarios & credit mechanisms.

Urs started by reviewing the development of carbon markets, from the Kyoto Protocol to the Paris Agreement and beyond. This included the use of flexible mechanisms - such as cap & trade and baseline & credit schemes - and how these mechanisms are used to link markets. Key market players for offset project development, financing and emissions trading were also introduced.

The session then took a more detailed look at baseline & credit mechanisms. Key concepts for baseline & credit mechanisms such as baselines, additionality and environmental integrity were introduced. The risk of double counting and provisions for the avoidance of double counting were addressed. An overview of the requirements, processes and procedures for the development of offset credits under both the Kyoto Protocol’s mechanisms and the voluntary carbon market was provided. A comparison of mechanisms and standards such as the CDM, JI, CAR, etc. were also discussed. The new project-based mechanism that is currently being developed under the provisions of Article 6.4 of the Paris Agreement was also presented.

Finally, a brief look at the current status of emissions trading schemes around the globe was presented, along with a high-level overview of carbon prices, emissions coverage and offset eligibility in emissions trading schemes. This was followed with a discussion of historical and forecasted supply of offset credits in both compliance and voluntary markets. The session ended with a look at anticipated demand from CORSIA’s requirement for climate neutral growth post 2020.

2. HOW TO ORGANISE THE COMPANY INTERNALLY?

Alastair Handley, Climate Smart Group

The presentation (available here) began by describing how in light of ICAO’s ambitious goal to cap airline emissions at 2020 levels, airlines need to look for cost-effective ways to reduce their output. As the world transitions to a low carbon economy, competitive advantage is figuring out early the best way to meet these new obligations. This means that reducing emissions is also about concrete goals mixed together with corporate goals and plans.
The presentation showed that carbon credits exist as a low-cost compliance option to help bridge the economic gap between today’s business environment and a low-carbon future. While improved technology and biofuels will solve the emissions problem in the future, today carbon credits are the most efficient and accessible way to manage the issue. Alastair highlighted that monitoring, reporting, and verification (MRV) is crucial for CORSIA compliance, but it is also about financial and environmental sustainability: there is no point in reducing emissions if a company goes out of business.

To use these emission reduction tools effectively every craftsman needs a plan. Alastair’s view is that the steps and strategies to achieving desired carbon emissions outcomes is achieved by instituting a Compliance Management Plan (CMP), collectively something called Climate Smart Aviation.

The purpose of a CMP is to clearly outline how a company will comply with emission reduction regulations, specifically answering What, Why, Who, When, How and How much? The plan is a 3- to 5-year personal, company roadmap. It’s amended annually or as needed to reflect operational changes and should be approved by upper management.

What a CMP can achieve:

1. Identify corporate stakeholders and the resources required to track and meet compliance obligations. Affected departments include finance, operations, information technology and regulatory affairs.

2. Document corporate KPI’s and set goals, roles and responsibilities. Who is ultimately responsible?

3. Document the process for quantifying and verifying annual emissions.

4. Document emission forecasts for 5 or more years.

5. Develop a cost-benefit analysis of available emission reduction options including biofuels, more fuel-efficient aircraft, better flight planning, load restrictions, supply chain emission reduction opportunities and carbon offset supply.

6. Document compliance risk and the preventative, detective and corrective controls that need to be implemented to mitigate risks.

7. Document strategy for acquiring offsets, such as “build or buy”, project type and project location.


Each airline has its own emission compliance requirements so there isn’t a single, boilerplate solution to apply across the industry. Every company requires a strategic emissions reduction plan tailored to their unique needs. These plans need to be institutionalised across the
company, but must be integrated into the thinking of the company’s executive leadership team. In that leadership team, it is important to have a champion who can be involved and help other business units in the company (legal, financial, operations, IT, etc.) implement the plan. It’s also important to ensure organisational integration of the plan in order for the company’s plan on reducing emissions to be properly communicated to both internal and external stakeholders. Having regular dialogue with regulators, industry associations and customers on the plan can help ensure that it is a success.

3. How to build an offset portfolio?

Jessica Verhagen, Ecosphere+

Jessica’s presentation (available here) covered a number of considerations for building an offset portfolio as part of a company’s compliance strategy with CORSIA.

Starting with forecasting the volume of offsets needed, the company determines the extent to which it is buying for its own compliance. The company can then determine if a buffer is necessary to cover the difference in forecasted emissions versus reality and if the company is purchasing solely for its own compliance or more involved in trading.

The company would then consider the timing of buying and potentially selling offsets, weighing the pros and cons of acting prior to the start of compliance.

Another consideration is a preference for particular offset project types. While offsets are required for compliance, there are many benefits beyond carbon that different project types offer. Carbon offsets can also align with other areas of a company’s strategy, such as their marketing plan and staff engagement.

Finally, the company needs to define its risk profile: what instruments will they use to buy the carbon credits? The presentation provided an overview of different tools, such as Emission Reduction Purchase Agreements’ templates that are provided by IETA, purchasing at fixed or floating prices, bonds and other structured products and commodity bundling.

Using an example offset portfolio dashboard, the presentation described a case study tying together all the different considerations and reviews the next steps companies can take from here.
4. HOW TO MANAGE COMPLIANCE EFFECTIVELY

Peter Zaman, Reed Smith

The presentation is available here. Peter stated that compliance under CORSIA requires an understanding by the relevant airline operator of the applicable MRV process, the criteria for use of Emissions Unit Criteria (EUC) and the use of the registry system. These factors will influence the development of an effective compliance strategy.

There are many unknowns at this stage of the process, relating to MRV, EUC and Registries. Although processes such as the ICAO regional seminars and the work carried out under the Country Action Plans are a significant source of information and capacity development.

Among the MRV unknowns, there are key questions about how carbon leakage between participating country airlines and non-participating country airlines will be managed, whether one participating countries airline gains an advantage over another participating country’s airline due to differentiated approaches of national implementing or enforcing bodies, etc.

Among the EUC unknowns, there are key questions about the types of offsets that will be allowed and how prescriptive the list is. Also, is it safe to assume that UNFCCC credits will be allowed? There are still unknowns regarding the issuance years and vintages that will be allowed. How will sectoral accounting issues be addressed? Can offsets for a base year before 2020 be allowed?

Among the Registry unknowns, there are questions about what role the national registry plays vis a vis the consolidated central registry? What happens in the pilot phases if national registries are not established in time? How are national registries linked to the CDM registry?

The absence of an understanding in relation to the above makes it challenging to develop a firm compliance strategy at this point in time. However, any strategy should anticipate the challenges likely to be thrown up by the above issues and the experiences gained from existing carbon markets.

5. WHAT ARE THE KEY TRADING STRATEGIES TO FOLLOW?

Jacopo Visetti and Corrado Catania, Aither CO₂

The presentation (available here) argued that emission credits in aviation should be treated as a market-based asset that surcharges the cost of fuel used. A corporate purchasing policy must then be adopted, taking into account different factors to hedge the sourcing risk, such as: price optimisation, the selection of a reliable supplier, the choice of the product that best fits the
corporate needs (among the different credit categories) and the choice of the most suitable timing to fulfil the cash out.

The presentation also demonstrated the various options available to market participants for trading within the global carbon markets. It gave an overview of three of the main strategies for trading or sourcing emission units:

- via the spot/cash market,
- via off-take agreement for future delivery, and
- via a futures contract (a financial derivative product available via commodity exchanges).

The presentation also set out the pros and cons of each option, trying to remain as objective as possible and without being prescriptive about any one solution. Airlines may use one or a combination of these markets to purchase (and/or sell) emission when meeting their compliance obligations under CORSIA.

### 6. EXPERIENCES FROM THE CDM AND VOLUNTARY CARBON MARKETS

Ingo Puhl, the South Pole Group

To illustrate some experiences from the CDM and voluntary carbon markets, South Pole Group presented (presentation available [here](#)) seven concrete examples of already-implemented carbon projects. The presentation aimed at strengthening the audience’s understanding about what a “carbon credit” stands for. The examples include projects in Asia, Africa and South America; projects registered under the Clean Development Mechanism (CDM) and a range of voluntary carbon standards; and several project types (energy efficiency, forestry and renewable energy).

Dispensers for Safe Water provide community-run chlorine dispensers for drinking water treatment in rural Uganda contributing to forest and climate protection by decreasing the need to boil water. Toyola Clean Cookstoves in Ghana provides fuel-efficient charcoal cookstoves resulting in cleaner air, less deforestation and healthier people. The two community-based projects benefit approximately 2 million people each.

Kariba REDD+ ensures the protection of forest and wildlife, including the endangered Black Rhino, on the southern shores of Zimbabwe’s Lake Kariba (more than 780,000 hectares of conserved land) and the Cáceres and Cravo Norte Restoration Project contributes to the permanent reforestation of forests located in northern Colombia, with a particular focus on biodiversity. Both forestry projects support the independence of local communities and promote a sustainable management of forest resources.
Two small-scale hydropower projects, Huoshui and Hubei Pankou Hydro, generate clean renewable electricity for China’s ever-growing economy. The projects contribute to mitigating greenhouse gas emissions by generating hydroelectric power rather than burning coal and make a substantial difference to the lives of local communities. The Prony Wind Power Project in New Caledonia is using world first technology to provide sustainable energy whilst also tackling several environmental and societal issues.

The presentation finished by highlighting the fact that the wider the eligibility use criteria is under CORSIA, then the more likely will there be activity and liquidity in the carbon market which can help keep costs more manageable for aircraft operators.

7. OVERVIEW OF REGISTRIES AND CARBON MARKET EXCHANGES

Rene Velasquez, CBL Markets

The presentation (available here) demonstrated that registries play an integral role within environmental markets. Registries are essentially secure databases used to track environmental credits throughout their life cycle. Importantly, registries provide the institutional, legal and operating infrastructure necessary to ensure efficient and transparent recording of emissions units, reportable emissions, and compliance actions in order to ensure accountability and environmental integrity of compliance systems such as CORSIA.

The presentation also provided details on all of the critical aspects of a well-designed registry (or system of registries) and how they should be integrated with one another as well as environmental exchanges. Registries can store, track, and help refine credits. They play an important part in the overall carbon marketplace as they provide security, transparency and integrity of the carbon market. It’s important to think of registries like a bank account: units are stored and are used by the owner of the account. Each unit has a unique serial number that can also be tracked. Registries in different carbon markets (compliance, voluntary and the registry to be used for CORSIA) also need to communicate between each other in order to avoid any issues of double-counting. Eventually an interconnected registry system between compliance carbon markets, voluntary carbon markets, CORSIA and the UNFCCC will need to be established.

A well-designed exchange should provide an easy to use interface that allows users to source a wide range of emission reduction credits, with low fees, price transparency and anonymity. The presentation detailed how CBL Markets provides market participants with access to the world’s environmental commodity markets.
SECTION 3: UNFCCC’S UPDATE ON CARBON MARKETS, AIRLINES MRV AND SCENARIO SIMULATION

1. UNFCCC’S UPDATE ON CARBON MARKETS

Jens Radschinski, UNFCCC Secretariat

The UNFCCC presented (presentation available here) aviation-specific updates on the status of the negotiations on UNFCCC mechanisms and addressed how CORSIA units are aligned under the Paris Agreement carbon markets.

The presentation further discussed the current pipeline of CDM projects and programmes across the globe and highlight benefits related to the use of Certified Emission Reduction units through voluntary cancellation by aviation sector players to meet their commitments under CORSIA.

In addition, the presentation focused on two aviation-specific methodologies developed by the CDM Executive Board with support from ICAO for developing projects and/or programmes related to the aviation sector. The presentation listed a number of mitigation projects that can be developed by airline companies and/or airport management companies or authorities, such as:

a. Use of solar power for at-gate operations;

b. Use of e-taxiing device for taxiing;

c. Use of renewable energy for airport operations;

d. Use of energy-efficient lighting and air-conditioning equipment and technologies for airport operations;

e. Fuel switch in vehicles used for internal aviation activities such as passenger and cargo movement.

The presentation also highlighted how the UNFCCC’s regional collaboration centres will provide support to aviation players in developing mitigation projects and/or using CERs for voluntary cancellation purposes to meet commitments under CORSIA. As part of this, the UNFCCC will be looking into ways of how the UNFCCC registry can communicate and cooperate with other registries where units eligible under CORSIA can be stored.
2. **Airlines MRV**

Shamsul Leman, Singapore Airlines

The presentation (available here) covered Singapore Airlines’ experiences with MRV. Singapore Airlines has been subject to MRV requirements under the EU ETS since 2010. Singapore Airlines has therefore undertaken annual MRV since 2010, regulated by the UK Environment Agency, and started to surrender allowances in 2012.

The EU ETS requirements are changing and evolving, but the overall compliance process is quite similar to the compliance process under CORSIA.

In their experience with the EU ETS compliance, Singapore Airlines encountered a number of challenges:

- Evolving EU ETS requirements and legislative process
- New fuel monitoring procedures (Method A/B)
- Data continuity
- Validation against Eurocontrol vis-à-vis own flight records
- Dealing with exceptions, missing data and outliers

At the same time, the experience with MRV requirements under the EU ETS allowed Singapore Airlines to take stock of the following lessons learnt:

- Support from industry partners e.g. IATA, AAPA and Star Alliance are critical
- Centralised IT system is essential to consolidate data and perform analysis
- Built in controls to minimise data errors and quality checks
- Historical average fuel consumption to cover data gaps and improve accuracy
- Fuel quantity measurement in mass using on-board systems (density not required)

Therefore, in light of these experiences and lessons learnt, Singapore Airlines will take into account the following best practices in the preparation for CORSIA:

- Develop emissions monitoring plan early based on ICAO SARP
- Identify primary data sources and find IT means to integrate data
- Determine fuel consumption methodology from menu of options
- Consider flight-by-flight fuel monitoring
- Get support from aviation authority, AAPA and IATA
3. **Carbon Markets Scenario Simulation**

Facilitated by Thomas Schroder and Ingo Puhl, the South Pole Group

This session consisted of:

i. Introductory presentation ([here](#)), identifying best practices in the airline sector and related industries,

ii. Break-out session: Group simulation assuming the roles of one of three possible (hypothetical) scenarios to come up with a recommended offset strategy,

iii. Presentation of the results of the different groups of the break-out session and general discussion

The purpose of this session was to share experiences and recommendations on how to establish a high impact and effective offsetting strategy. Following an introduction by the South Pole Group, including some examples of best practice, participants were divided into smaller groups in which they will consider and discussed some hypothetical situations and real world examples of carbon credits that they could choose from in determining their approach.

During the report back, there was a discussion about the advantages and disadvantages of different choices.

Some of the recurring reasons that motivated groups to opt for one offsetting strategy over the others were:

- The willingness to expand in a new market, where the offset project was located;
- The specific offset project offered a good marketing opportunity thanks to its characteristics;
- The offset project offered a good communication potential;
- The offset project offered a set of co-benefits that were in line with the requirements of the scenario description;
- The offset credits offered low prices and low risks at the same time;
- The geographical location of the offset project.
4. **Carbon Markets Trading Simulation**

Facilitated by Kate Yu Juan, BP

The ‘carbon markets trading simulation’ was run by the BP team. Workshop attendees were divided in teams of 2-3 people each. Each team represented a market participant and received a laptop through which they could trade and follow market evolutions. When the simulation started, teams had to go through compliance cycles, trade with each other to cover for their emissions, buy and sell allowances according to price fluctuations and react to regulatory interventions and market fluctuations. At the end of the simulation exercise, the team that managed to maximise its carbon asset value was the winner.
ANNEX I: AGENDA

IATA & IETA Workshop Agenda, Singapore (22-23 March)
Carbon Offset and Reduction Scheme for International Aviation (CORSIA)

22 March: 10.30 – 18.30

1. Welcome and Introduction
   Conrad Clifford, IATA (15 minutes)
2. Background on Aviation’s Climate Action
   Michel Adam, IATA (15 minutes)
3. Introduction to CORSIA
   Michel Adam, IATA (1h15)
   i. Phased-implementation
   ii. Determination of offsetting requirements
4. Monitoring, Reporting and Verification of CO₂ Emissions (MRV)
   Michael Schneider, IATA (1 hour)

   13:15: Networking Lunch (1 hour)

5. General Introduction to Carbon Markets
   Urs Brodmann, First Climate (30 minutes)
   a) What is a carbon credit?
      i. Types of credits
      ii. Credit standards
      iii. Who are the key actors in a carbon market?
      iv. Overview of carbon markets to date
      v. Supply and demand scenarios/considerations for CORSIA

   Coffee Break (15 minutes)

   b) Carbon market compliance
      i. How to organize the company internally?
         Alastair Handley, Climate Smart Group (30 minutes)
      ii. How to build an offset portfolio?
         Jessica Verhagen, Ecosphere+ (30 minutes)
      iii. How to manage compliance effectively
         Peter Zaman, Reed Smith (30 minutes)
      iv. What are the key trading strategies to follow?
         Jacopo Visetti and Corrado Catania, Aither CO₂ (30 minutes)

6. Experiences from the CDM and voluntary carbon markets
   Ingo Puhl, the South Pole Group (30 minutes)
7. Overview of registries and carbon market exchanges
   Rene Velasquez, CBL Markets (30 minutes)
23 March: 08.30 – 13:00

1. UNFCCC Update on Carbon Markets  
   Jens Radschinski, UNFCCC Secretariat (45 minutes)

2. Airline Presentation: experiences with MRV  
   Shamsul Leman, Singapore Airlines (45 minutes)

3. IETA Carbon Markets Scenario Simulation facilitated by Thomas Schroder and Ingo Puhl, the South Pole Group (1 hour)  
   This session consists of:
   i. Introductory presentation, identifying best practices in the airline sector and related industries
   ii. Break-out session: Group simulation assuming the roles of one of three possible (hypothetical) scenarios to come up with a recommended offset strategy
   iii. Presentation of the results of the different groups of the break-out session and general discussion
   
   Coffee Break

4. Carbon Markets Trading Simulation facilitated by BP (1.5 hours)
## ANNEX II: LIST OF PARTICIPANTS

### IETA Invitees

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<td>Jessica Verhagen</td>
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<thead>
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<td>Andrew Herdman</td>
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<td>Sue Chin Ng</td>
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<td>Deborah Lim</td>
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⇒ ACRE INVESTMENT MANAGEMENT

ACRE Investment Management (AIM) is the parent company to four operating entities working in concert to drive conservation through reforestation and restoration on a scale that will stem climate change, restore biodiversity, clean and preserve water resources, and empower individual consumers to drive restoration within their daily business transactions. AIM’s four entities are Big River Cottonwood Nursery, Forest Green, GreenTrees, and Conservation+. AIM is the ideal partner for businesses desiring a reduced carbon footprint, a new channel for engaging consumers, or an opportunity to demonstrate a strong commitment to environmental stewardship. Learn more at www.acre-investment.com.

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We are at the forefront on climate change issues and the EU-ETS developments. Since 2010, we provide independent professional advisory on environmental policies and offer strategic solutions for trading and hedging needs while helping companies managing their exposure to the world’s carbon markets. With offices on all continents, we are at the forefront in global environmental commodities, optimizing CO2 portfolios and reducing the impact of our Clients in the skies. Sustaining our planet is the commitment we take and a promise we want to maintain.

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ALTHELIA ECOSPHERE / ECOSPHERE+

Ecosphere+ is a new venture founded by the Althelia Climate Fund created to build markets that put a value on carbon and incentivise sustainable business models. It is our mission to scale up financing to protect our most valuable climate assets, forest landscapes. Alongside a transition to a low-carbon energy system, we simply cannot achieve a safe climate without significant efforts to halt and reverse land-based emissions. Doing this will not only deliver much needed emissions reductions but also major environmental and societal benefits too. The critical tool is a price on carbon coupled with responsible supply-chains.

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FIRST CLIMATE

First Climate – Dedicated, Naturally

Founded in 1999, First Climate initially served as a developer of global carbon reduction projects. While broadening its portfolio of products and services, the company has evolved to become one of the leading service providers in the field of sustainability solutions for companies and organizations. First Climate’s core competencies cover products and services relating to carbon neutrality, green energy, water management, green investments, and project development. For public sector clients, First Climate provides consulting in industry best-practice as well as emissions trading services.

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