

# CarbonSim

## Cheat Sheet

### WHAT IT IS

**CarbonSim** is a fun, artificial intelligence-enhanced, multi-lingual, multi-user, software application that uses riskless experiential learning to teach the principles of emissions trading systems (ETSs) and bring markets to life.

### HOW IT WORKS

Participants manage virtual companies with a surplus of carbon emissions and a shortage of emission rights. Players start *long* emissions and *short* emission rights.

### WHO IT'S FOR

- **Policymakers** use **CarbonSim** to see how choices they make affect the environmental and economic performance of an ETS.
- **Companies** use **CarbonSim** to learn how to develop and implement carbon portfolio management strategies.

### WHAT'S THE GOAL

As the carbon portfolio manager, by the end of each year players must reduce emissions and/or secure sufficient emission rights. The goal -- comply at the lowest possible cost.

## STRATEGIES

To do well you must spend the least money to eliminate the shortfall and comply each year. Here are some tips: abate early, participate in all markets, compare prices, make smart investments and consider **Allowances** and **Offsets** as revenue streams.

### ABATEMENTS

Before going to the **Market**, consider implementing technologies that reduce your emissions. Best are those that can be implemented in a short time, are within your budget, and which have a low marginal cost of control.

### MARKET

Depending on the cost, it may be prudent to resolve your emissions rights shortfall through **Auctions**, the **Exchange**, and the Over-the-Counter, or **OTC Market**. Similarly, you can use the market to sell surplus Allowances and Offsets.

## KEY TERMS

### CAP AND TRADE

The cap limits system-wide and facility specific emissions. Facilities that emit less than allowed can sell/trade surplus **Allowances** and **Offsets**. If you are short you can reduce emissions via **Abatements** or purchase **allowances** and **Offsets** through the **Market**.

### ALLOWANCE

A license issued by the government, to emit one ton of CO<sub>2</sub>. Issued in vintages which correspond to the years of the game. Year 1 **Allowances** can be used in Year 1 or banked for use in Year 2. Future year **Allowances** can be transacted, but cannot be used in prior years.

### OFFSETS

The holder of an **Offset** can emit one ton of CO<sub>2</sub>. Unlike an **Allowance**, an **Offset** results from an emission reduction from a source that is not covered by the ETS. **Offsets** do not have vintages and can be used in any year. The ETS likely will limit the number of **Offsets** that can be used.

### AUCTION MARKET

A means by which you can buy **Allowances** in government-sponsored sealed –bid, single-round auctions where all winning bids pay the same price. **Auctioned Allowances** are included in the **Cap**. There may be multiple **Auctions** each year and multiple vintages offered for sale in each **Auction**.

### EXCHANGE MARKET

Much like the stock market, the **Exchange Market** is the most efficient place to buy and sell **Allowances** and **Offsets**. Unlike the **OTC Market**, orders are matched against all others that are then active on the **Exchange**. You can transact using market, limit, and stop loss orders.

### OVER-THE-COUNTER MARKET

A **Market** where you can transact **Allowances** and **Offsets** through customized trades with other participants. The **OTC Market** is the least efficient of the three markets. The **OTC** and **Exchange Markets** make up the secondary market – whereas the **Auction** is the primary market.

*“CarbonSim is an experiential, fun, and risk-free tool that brings markets to life.”*



*“CarbonSim is wonderfully fun and very informative. It has undeniable teaching qualities that make it an incredible tool for the classroom.”*