

An ETS training tool for policymakers and companies

Environmental Defense Fund’s carbon simulation tool (aka, **CarbonSim**) was designed with two beneficiaries in mind—policymakers responsible for the design, administration, and management of the emissions trading system (ETS) and the companies that are covered by the ETS. This brief describes how this tool can be used to advance ETS development objectives.

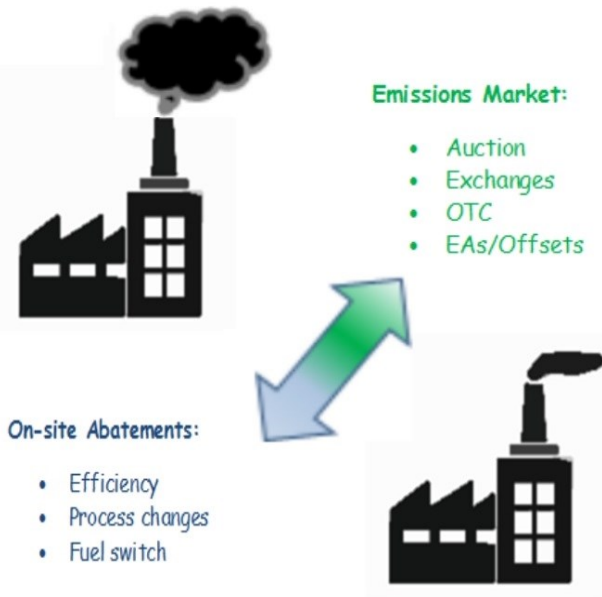
Building Capacity for Policymakers and Companies

CarbonSim can be used to assist policymakers and companies to gain the capacity that they need to make smart decisions.

Prior to launching an **ETS**, **policymakers** must decide the goals of the ETS and the best means to achieve them. Goals include requisite emission reductions and the date by which they must be realized. Design decisions include cap size, number of companies, required reductions, allowance distribution, registry administration, market oversight, and penalties and enforcement. Market related decisions touch on auctions, reserve, price floors/ceilings, offset restrictions, and spot/forward trading restrictions, auction frequency and design, exchange use, as well as intervals and means of government intervention against market failure.



CarbonSim allows policymakers to experiment with different ETS designs to achieve a defined goal



*With **CarbonSim**, students can practice using onsite abatement and/or the emissions market*

Companies faced with an ETS-related compliance mandate have two sets of options – on-site abatements or the carbon market. On-site abatements can involve efficiency improvements, process changes, fuel switches, end-of-stack controls, or simply shutdown of operations. The carbon market offers government sponsored allowance auctions, multi-party exchanges, or over the counter (OTC) trading. Typically, two different products can be used – government issued allowances or private sector created (and government approved) offsets. Both abatements and market-related options have different capital requirements and returns.

CarbonSim provides a **risk-free, fun, and fast-paced learning environment** where policymakers and companies can gain valuable ETS experience. The game highlights choices, provides a framework for decisions, and serves as a platform for experiments. Each run of the simulation provides insights and lessons that illustrate the consequences of choices. Through the game, players gain a working understanding of how they can use an ETS to manage carbon liabilities and capitalize on opportunities.

Policymakers can use **CarbonSim** to see how the choices that they make – about both program design and administration – could affect the performance of the ETS. **Industry carbon managers** have an opportunity to deploy a variety of strategies – involving production changes, the use of abatements, and trading – to satisfy ETS obligations.



The ability to run “what-if” scenarios and get immediate feedback helps policymakers make better choices

How is CarbonSim Unique?

- Accommodates 1 – 100+ players
- Allows policymakers to try-out different ETS designs
- Allows play against other students as well as hundreds of Artificial Intelligence-driven virtual players
- Encourages players to control, adjust operations, and trade carbon assets
- Allow players to manage one or more facilities across multiple ETS jurisdictions
- Demonstrates environmental performance and cost-savings that are achievable through an ETS
- Allows administrator to “turn on and off” features to tailor the simulation to the player’s level of experience
- Appropriate for people with different backgrounds and levels of experience
- Demonstrates value of long term planning
- Road tested and improved with the help of 3000 players from 30 countries representing companies with >3 billion tonnes CO₂e
- Government-recognized training tool
- Allows policymakers to both design the ETS and play by their own rules
- Can be played in a morning or over 10 months
- Can be run with or without internet access
- Can be remotely administered
- Can be customized with real data
- Allows simultaneous play in six languages and multiple currencies
- Can be run in AI mode only to quickly test different ETS designs
- Is fun, engaging and fosters collaboration

And those who play both roles – ETS designer *and* facility manager – can use **CarbonSim** to get the eye-opening opportunity to **play by their own rules**. The end result – participating in this learning laboratory is fun, risk-free, and just may contribute to more enlightened policy-making.

The fine print. Currently **CarbonSim** has four limitations that restrict its utility as a policymaking tool. **First**, the game draws upon a data set that reflects generic information about the facilities and the type and costs of abatements that are available to covered enterprises. **Second**, the game provides the opportunity to set a limited number of economic parameters. **Third**, players have the opportunity to access the spot market (risk hedging products and derivative markets cannot currently be accessed). So, while **CarbonSim** can provide players with an interesting and fun learning experience, it is necessary to await enhancements before it can be used by to reliably predict real-world policy outcomes. **Fourth**, currently **CarbonSim** can be played in English, Chinese, Korean, Spanish, Korean, Japanese, and Thai. Other languages are forthcoming.