

# CO<sub>2</sub>

A game for 1 to 5 players by Vital Lacerda. Condensed rules for 3 to 5 players by Eric Postpischil, <http://edp.org/>.

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## Introduction and Notes

**Goal:** Acquire points by constructing Green Power Plants, earning income from expertise, and other actions.

- Green Power Plants must be constructed soon enough to avoid global pollution causing everybody to lose.

### Carbon Emission Permits (CEPs)

- CEPs are paid to the bank except those sold directly to the market.
- CEPs are bought from the market.
- A player may pay a CEP from their hand or any region they control or, if none, must buy it from the market.
- Each region may only have as many CEPs as it has (empty or filled) energy demand spaces (places to build power plants). When a CEP would be moved to a full region, do not move the CEP.
- Anytime the market is empty and the bank has at least 2 CEP, raise the price by 1 (but not above 8) and move 2 CEPs from the bank to the market.

### Expertise

- When a player advances in expertise, give them the bonus, if any, shown in their new space. (Bonuses are 1 expertise in a particular energy source, 1 expertise in any source, 1 Tech Resource cube, or move 1 CEP from the market to any non-full region [not a player's hand].)
  - If a player reaches the maximum expertise in any energy source, additional gains in that source are wasted.
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## Setup

### Player components

Choose a start player. Give them the start player tile.

From the start player clockwise, give the players 3, 4, 4, 5, and 5 coins (stopping at the last player).

Choose a color for each player and put one disk of each color on the 0 of the scoring track (numbered 0 to 50).

- (When a player passes 50 points, wrap their disk to 0 and use a second disk on the pollution track to count 50s.)

Give each player all remaining disks of their color, 1 scientist pawn, and 2 CEP.

Put 3 scientist pawns of each color in the corner of the board marked with a pawn.

### Tiles

Shuffle the Fossil Fuel Power Plants and stack them facedown. Deal 1 face-up to the leftmost space of each region.

Separate the Green Power Plants by type (energy source), sort by cube cost with lowest at top, and place by board.

Separate the Project tiles by type (energy source) and place near board.

Shuffle the two-topic Summit tiles. Deal 1 to each of the 6 places near the center of the board.

Shuffle the remaining two-topic Summit tiles with the other Summit tiles and stack them facedown.

Shuffle the Regional Agenda tiles and deal 1 to the agenda space for each region. Remove the rest from the game.

- Moving these tiles closer to their regions than printed on the board may help remind players of them.

### Markers

Put the CEP market price indicator (red disk) on 3 on the market track (numbered ring around center of board).

Put the Decade counter (brown cylinder) on 1970 (corner of board).

Put the Round counter (yellow cylinder) on the spot marked with the number of players (below decade track).

Put the Global CO<sub>2</sub> Pollution Level counter (black cylinder) on the pollution level track at the total of the Fossil Fuel Power Plants dealt in the setup.

Put the Tech Resources (white cubes) in a corner of the board.

In each region, put 1 CEP for each empty energy demand space (places to build power plants).

Put 2 CEP in the market (center of board). Put the remaining CEP aside as a bank.

### Cards

Lobby cards (numbered 1 to 26):

- Shuffle and deal 5 to each player. Remove the rest from the game.
- For experienced players: Keep 1 and pass 4 right. Repeat with received cards until none are received.

Company Goal cards (numbered 27 to 33):

- In a 3-player game, remove card 30. In 4- and 5-player games, use all cards.
- Deal one to each player. Remove the rest from the game.

UN Goal cards (numbered 34 to 46): Shuffle and deal 10 face-up by the board. Remove the rest from the game.

Event cards (numbered 47 to 52): Shuffle facedown. Deal 1 face-up to event space. Turn 1 face-up on stack.

## Play

### Supply Phase (Skip this phase in the first decade.)

For each expertise track, pay income (top-left of each spot) to players in the first-place and second-place positions.

- Pay income in any combination of money and victory points the player chooses (player order unstated in rules).
- If multiple players are in first place, the second-place position still pays. Tied players receive full income.

Move one white Tech Resource cube from each region that has any to the supply.

For each region with an empty energy demand space for this decade, fill it with a new Fossil Fuel Power Plant.

- The second energy demand space is for the second decade (1980), the third for the third (1990), and so on.
- If a space is not shown on the board for the current decade, there is no more demand for this region.
- **The region pays 1 CEP to the bank (not market),** directly or via its controlling player.
  - If the player has no CEP in their hand or regions they control, they must buy a CEP from the market. If they are out of money, they pay 1 victory point per \$1 required (and may have negative victory points).
- Draw a Fossil Fuel Power Plant, put it in the space, and add its CO<sub>2</sub> output to the global level.

If the global CO<sub>2</sub> is 500 or higher, the game ends and everybody loses.

If the global CO<sub>2</sub> is 350 or higher, a disaster occurs in the region shown in the event space.

- Any player that does not have a power plant in the region must contribute 1 Tech Resource cube to the region.
- If they cannot, they lose 2 victory points (and may go negative).

Discard the Event card (even if there is no disaster), move the top card to the event space, and turn the next card up.

### Operations Phase (Several rounds)

Play 4, 3, or 2 rounds for 3, 4, or 5 players, by starting the round marker in the indicated space on the board.

Each round consists of each player taking one turn, starting with the start player and proceeding clockwise.

Each turn, the player must do 1 Action, any number of free Moves (each before or after the Action), and scoring.

#### One Action—Propose, Install, or Construct

**Propose** a Project. (Shown as a \$ symbol on cards that refer to this action.)

1. Put any Project tile dark-side-up on any empty Project space in **a region with that energy source in its Agenda.**
2. Receive the grant depicted on the space. (Grants are \$1 per CEP in the region, but at least \$1; 2 Tech Resource cubes; or move or recruit a scientist). (Recruiting a scientist moves one of yours from the supply to your hand.)

**Install** a Project. (Shown as a wrench on cards that refer to this action.)

1. Pay 1 CEP to the bank (from your hand or any region you control) and flip the Project tile light-side-up.
2. If your scientist is on the Project, they may stay.
3. If another player's scientist is on the Project, pay them \$1. They must move the scientist to their hand and gain 1 expertise in the energy source or send them to a Summit topic (spot on a Summit tile) about the energy source.
4. Receive the benefits on the tile. (Benefits are Forestation: 2 CEP from market; Solar: 3 Tech Resource cubes; Cold Fusion: \$5 and 1 Tech Resource cube; Biomass: \$3, 1 Tech Resource cube, and 1 CEP from the market; Recycling: \$5 and 1 CEP from the market.)

**Construct** a power plant. (Shown as a crane on cards that refer to this action.)

1. You must construct the top Power Plant of the pile for the energy source of an installed Project in the region.
2. **Your expertise in the energy source must be at least the number of Tech Resource cubes on the plant.**
3. If the region has any Tech Resource cubes, take 1. (This will discount the Tech Resource cost for construction.)
4. Pay the money and Tech Resource cube construction costs shown on the plant being constructed.
5. Place the Power Plant tile in the leftmost empty energy demand space of the region.
  - If all spaces are full, replace the leftmost Fossil Fuel Plant with the new Green Plant, move 1 CEP from the market to the region (unless the region has as many CEP as it has demand spaces), remove the Fossil Fuel Plant from the game, and reduce the global CO<sub>2</sub> level by the CO<sub>2</sub> output of the removed Fossil Fuel Plant.
  - Green Plants cannot be replaced, so it is not possible to construct if all spaces are filled with Green Plants.
6. Score the number of points shown on the top-left of the Power Plant tile.
7. Gain 1 expertise in the energy source of the Power Plant.
8. Mark your ownership by putting one of your disks on the Power Plant.
9. You win control of the region (only when constructing a Power Plant; control does not change at other times) if:
  - There is no controlling player or you own **more types** of Power Plants in that region than they do.
  - If tied, your **highest type** in the region's Agenda is higher than theirs, or, if tied, your **second type** is higher.
  - If still tied, your **expertise in your highest type** in the Agenda is higher. (Ignore types you did not build.)
  - If still tied, consider expertise in your second highest type and, if still tied, your third highest type.
  - If still tied, you win.
  - If you win control, replace the current controller's disk with one of your own.
10. Move an installed Project (light-side-up) of the same energy source from the region to the supply.
11. Send any scientist that was on the Project away.

- If it is your scientist, you must use your free scientist move for the turn to move the scientist.
- If it is another player's, pay them \$1. They must move the scientist to their hand and gain 1 expertise in the energy source or send the scientist to a Summit topic (spot on a Summit tile) about the energy source.

### Free Moves

Once during a turn, you may move one of your scientists:

- Move a scientist from your hand or any Project to any Project without a scientist or your hand.
- Move a scientist from any Project to a Summit topic (spot on a Summit tile) **about the Project's energy source**.

Once during a turn, you may buy or sell 1 CEP in the market:

- Buy 1 CEP at the indicated price. (Put it in your hand, not in a region.)
  - If the market empties and the bank has 2 CEPs, move 2 to the market and raise the price 1 (but not above 8).
- Sell 1 CEP from your hand (not a region) at the indicated price. Lower the price by 1 (but not below 1).
- You may not sell if the price has changed during your turn. You may not both buy and sell during one turn.

Once during a turn, you may play or score 1 card:

- Play a Lobby card. If you performed the specific action indicated in the center during this turn, receive the main benefit in the center. Otherwise, receive the alternate benefit at the bottom. (See Lobby Cards on page 4.)
- Score a UN Goal card. Pay 1 Tech Resource cube to the bank, claim any UN Goal card whose Power Plant types you have all constructed, and score the number of points shown on the card.

### End of Turn Scoring

Gain 1 expertise in the energy source **of any 1 (just 1) of the Projects** (your choice) your scientists are working on.

If any Summit tiles are full:

- Award expertise **as stated below to each player** clockwise around the table, ending with the active player.
  - For each scientist at a full Summit, the player gains 1 expertise in the topic that scientist is on.
  - For each full Summit the player participated in, the player gains 1 expertise in a Summit topic of their choice.
- Return the scientists to the players' hands, discard the Summit tile, and replace it with a newly drawn tile.

### End of Round

After the round is complete, move the Round marker one space.

After all rounds are complete:

- Proceed with End of Game below if:
  - the fifth decade ended,
  - the fourth decade ended, and the global CO<sub>2</sub> level dropped from 350 or above to below 350, or
  - two or more regions are filled with only Green Power Plants.
- Advance the Decade marker one space. Reset the Round marker to the space for the number of players.
- Pass the start player tile to the left. Start the supply phase for the next decade.

### End of Game

The game ends at the first of:

- the end of the fifth decade,
- the end of the fourth decade if the global CO<sub>2</sub> level dropped from 350 or above to below 350,
- the end of a decade if two regions are filled with only Green Power Plants, or
- the end of a supply phase if the global CO<sub>2</sub> level is 500 or higher. In this case, everybody loses.

Add points for meeting your Company Goal (shown on card and in Company Goal Cards on page 4) or take \$8.

Add CEPs from regions you control to your hand. (If you have Company Goal card 31, score it before this.)

Sell all CEPs to the market at the indicated price, without adjusting the price.

Distribute income (in victory points) to players as in the supply phase but **to all positions**, not just first and second.

Add 1 point for each \$2 you have.

Add 3 for the player with the most Tech Resource cubes. (All tied players receive the full bonus.)

Add 3 points for the player with the most UN Goal cards. (All tied players receive the full bonus.)

In case of a tie, the tied player with the most Green Power Plants wins.

If there is still a tie, compare expertise in this order: Forestation, Solar, Cold Fusion, Biomass, Recycling.

If there is still a tie, the tied player controlling the most regions wins.

If there is still a tie, all tied players win.

## Card Information

### Lobby Cards

Card	If You Did This in the Current Turn	Then Get	Otherwise Get
01	Propose a project in Asia	\$3	1 Tech cube
02	Propose a project in Europe	\$3	1 Tech cube
03	Propose a project in North America	\$3	1 Tech cube
04	Propose a project in Africa	\$3	1 Tech cube
05	Propose a project in South America	\$3	1 Tech cube
06	Propose a project in Oceania	\$3	1 Tech cube
07	Propose in a recruit-a-scientist space	\$3	1 Tech cube
08	Propose in a dollars-for-CEP space	1 Tech cube	\$2
09	Propose in a Tech-cube space	\$3	Move a scientist
10	Install a solar project	\$3	1 CEP
11	Install a nuclear project	2 Tech cubes	1 CEP
12	Install a biomass project	\$2 or 2 Tech cubes	1 CEP
13	Install a forestation project	2 Tech cubes	1 CEP
14	Install a recycling project	2 Tech cubes	1 CEP
15	Construct a solar project	\$3 discount	1 Tech cube
16	Construct a nuclear project	\$3 discount	1 Tech cube
17	Construct a biomass project	\$3 discount	1 Tech cube
18	Construct a forestation project	\$3 discount	1 Tech cube
19	Construct a recycling project	\$3 discount	1 Tech cube
20	Send a scientist to solar summit topic	1 solar expertise	\$2
21	Send a scientist to nuclear summit topic	1 nuclear expertise	\$2
22	Send a scientist to biomass summit topic	1 biomass expertise	\$2
23	Send a scientist to forestation summit topic	1 forestation expertise	\$2
24	Send a scientist to recycling summit topic	1 recycling expertise	\$2
25	Buy a CEP from the market	2 victory points	Move a scientist
26	Sell a CEP to the market	\$3	Move a scientist

### Company Goal Cards

The rules say the player may choose to receive the calculated points (up to the maximum for that card) or \$8 (which becomes 4 points during scoring). This table shows the effective bounds for each card.

Card	Benefit	Potential Score
27	4 points for each region you control	4-16 points
28	3 points for each region where you built at least 1 Power Plant	4-15 points
29	3 points for each UN Goal Card you scored	4-15 points
30	3 points for each Power Plant you built after your first one	4-15 points
31	2 points for each CEP in your hand (before adding CEP from regions)	4-16 points
32	4 points for each energy source in which you are the leading expert (including ties)	4-16 points
33	3 points for each different energy source of Power Plant you have built	4-15 points