Four questions before the offer expires

At nine on a Monday morning an operator is offered a cargo of iron ore from Brazil to Rotterdam, with a reply due by noon. Before it answers, it needs the EU carbon cost of the voyage, and that cost changes every time the offer does: a slower speed, a buyer in China instead of Europe, a freight quoted with the carbon included. This case follows the four questions the morning brings, with the figure the desk gives for each and the time it takes to get it.

1 · THE OFFER

A hypothetical operator has a Capesize of about 180,000 dwt on time charter at €20,000 a day, open at Tubarão. A mining company offers 170,000 t of iron ore, Tubarão to Rotterdam, at €11.50 per tonne. The charter-party description gives about 13 kn on about 40 t of HFO a day laden and 36 t in ballast. The operator, the miner and the ship are invented; the voyage, the distance and the rules are real.

Route and distance on the desk	**Tubarão → Rotterdam · 5,066 nm · one EU end, 50% in scope**
Vessel, from the charter-party description	**13.0 kn · 40 t/day laden · 36 t/day ballast · HFO**
Commercial terms	**€11.50/t · hire €20,000/day · port and canal €150,000 · 5 port days · commission 3.75%**
Market	**EUA €85 · HFO €600/t · FuelEU at the 2026 target**

2 · FOUR QUESTIONS, FOUR ANSWERS

THE QUESTION	WHAT CHANGES ON THE DESK	THE ANSWER
1. What does the offer carry in EU carbon, and what does it earn?	Ports, cargo, speed, vessel description and terms entered once	EU ETS €87,312 + FuelEU €18,066 = **€105,378**, or €0.62 per tonne of cargo. Voyage result €812k; €58.2k a day over 21.2 days; break-even €6.54/t.
2. The owner suggests 12 kn. Is it worth it?	Service speed 13 → 12	Carbon **€89,901** (−€15,477) and bunkers −€57,236, for 1.35 more days. Per day the two speeds earn the same, €58.0k against €58.2k, and the voyage CII moves from C to A.
3. The miner's buyer in China would take it at €18.50/t to Qingdao.	Discharge port → Qingdao; freight → 18.50	No EU carbon, but 11,074 nm, 40.5 days and €851,846 of bunkers: **€50.0k a day**. Europe earns €8.2k a day more even after its €105k of carbon. Qingdao would need €20.53/t to match.
4. The miner asks for one freight with the carbon included.	Nothing; one figure is read	€11.50 + €0.62 = **€12.12/t** at 13 kn (€12.03 at 12 kn). With an all-in rate the operator keeps the EUA price risk until surrender (Case study 1).

The answers to questions 1 to 3 are the desk's figures. The €20.53 in question 3 and the all-in rates in question 4 are simple arithmetic on them: the freight at which the Qingdao voyage earns the same per day, and the freight plus the regulated cost per tonne.

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3 · HOW LONG EACH ANSWER TOOK

QUESTION	DESK RECALCULATION	AT THE DESK, QUESTION TO WRITTEN ANSWER	WITHOUT A DESK, WHAT HAS TO BE REDONE
1 · First pricing	0.1 s per entry	**3 min 00 s**	Distance and EU scope for the port pair; fuel for the leg; CO_2e with the fuel's factors; the EUA price; the FuelEU deficit against the year's target; then the voyage result.
2 · 12 kn	0.12 s	**1 min 00 s**	Fuel at the new speed, then CO_2e, allowances, FuelEU, days and hire again.
3 · Qingdao at €18.50	0.13 s + 0.18 s	**1 min 30 s**	A new distance and a new scope (0%), fuel, days and result, then the comparison per day.
4 · All-in freight	none	**1 min 00 s**	The carbon cost divided by the cargo, at the speed agreed.
The morning		**6 min 30 s**	The same steps four times over, by hand.

Desk recalculation: from the change of one field to the new figures on screen, measured by RCA in a browser on 12 Nov 2026; the calculation itself takes 2–37 ms, the rest is drawing the screen. Time at the desk: from reading the question to having the answer written down, measured with a stopwatch on 12 Nov 2026 on a second run of the same morning, by one person typing at an unhurried pace; reading the figures and writing them down is most of it.

4 · HOW TO READ IT

- **The carbon is a tenth of the voyage cost here** (9%), enough to move the answer between two buyers but not enough to decide alone. It matters in the comparison, not in isolation.
- **Slow steaming saves carbon, not necessarily money.** At 12 kn the voyage burns 95 t less and owes €15,477 less in carbon, but takes 1.35 days longer; per day it earns the same, and the voyage rates A instead of C on the CII scale. Whether it is worth it depends on what the ship does next, which the desk shows but cannot decide.
- **A voyage outside the EU is not automatically cheaper.** Qingdao carries no EU carbon but twice the distance; at €18.50 it earns less per day than Rotterdam at €11.50 with its carbon paid.
- **An all-in freight is a price for a risk, not only a cost.** The €0.62 per tonne is the carbon at today's EUA; the allowances are bought months later.

The point of the exercise is the order of events. The four answers took six and a half minutes of a three-hour window, so every change to the offer reached the regulated cost while the offer was still open, and the reply at noon was made with the carbon in it rather than discovered after the fixture. MCCS runs on the desk's own computer; no fixture data leaves the office.

Basis. Hypothetical operator, miner and vessel; no index-provider data is used. Distances from the RCA reference carried by the desk: Tubarão → Rotterdam 5,066 nm, Tubarão → Qingdao 11,074 nm, laden legs only; the ship opens at Tubarão, so no ballast leg is priced. Consumption from the charter-party description, 40 t/day at 13 kn, scaled to 31.5 t/day at 12 kn by the cube law. HFO €600/t; EUA €85; EU ETS at 100% surrender for 2026 emissions; CO_2e as the ETS counts it from 2026; FuelEU at the 2026 target, 89.34 gCO_2e/MJ, shown as the voyage's share of a penalty that is settled on the ship's whole year. Hire, port and canal costs, port days and commission as in section 1, the same for both discharge ports. No demurrage, berth fuel or bunker price movement. The IMO Net-Zero Framework is not included: the desk shows about €45k for this voyage in 2028 if it is adopted. Voyage CII is the single-voyage AER against the 2026 required line, not the ship's annual rating. Figures from MCCS Charterer v4.24.7, run 12 Nov 2026. Illustrative; not freight, investment or legal advice.

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