



**BRIEFING - [November 2024]**

# **Making Waves**

The international impacts and opportunities of the EU's carbon market for shipping

# Summary

## Regional laws can play a beneficial role in global decarbonisation

This study examines the impact of the EU's Emissions Trading System (ETS) to global shipping. We demonstrate that the ETS has limited negative impact on Small Island Developing States (SIDS) and Least Developed Countries (LDCs) and could in fact be a net gain to those countries if the EU extends its carbon pricing mechanism to all ships calling at European ports, then distributes the extra revenues in the form of climate finance. Finally, the study proposes a novel concept, 'ETS-as-a-service', as a means for neighbouring countries to generate revenue and decarbonise their own shipping emissions. We find:

1. **The EU ETS will have a very limited impact on SIDS and LDCs.** The largest impact will be in a handful of West African countries, for whom between 15 and 19% of their total shipping traffic will be regulated by the ETS; while the impact will be zero or close to zero on shipping trade to the Asian and Pacific SIDS and LDCs;
2. Extending the ETS to the emissions the EU currently monitors, but doesn't price, could significantly contribute to climate finance. In 2030, we find closing exemptions (such as those for smaller ships or for ice-class ships) and extending the ETS to cover all EU voyages (that is, 100% of voyages between EEA and non-EEA ports, as opposed to 50% currently) **would raise enough revenue to cover 20% of the EU's share of the global 100 billion (USD) climate finance goal.**
3. By applying the EU ETS to voyages past ports in selected neighbouring countries, the EU could increase climate ambition while also generating revenue for those neighbouring countries, without them having to set up their own shipping carbon markets. Through such a system, which we call 'ETS-as-a-service', **the UK could regulate 59% of its shipping emissions; Morocco, 57%; Egypt, 41%; and Turkey, 30%.**

## 1. Context

The EU's shipping Emissions Trading System (ETS) is a key pillar in the bloc's plan to decarbonise its maritime sector. The ETS applies a price to emissions for ships travelling between ports in the European Economic Area (EEA, which is the EU Member States and Iceland, Norway and Liechtenstein) and 50% of emissions for ships travelling between EEA and non-EEA ports. It has influenced other countries, notably the UK and Turkey, to move forward with applying emissions pricing to their shipping sectors.

However, some stakeholders have suggested that the ETS will have negative impacts, in particular on Small Island Developing States (SIDS) and Least Developed Countries (LDCs). **This study aims to quantify that impact for the first time, while at the same time analysing the potential for the EU ETS to promote decarbonisation outside of Europe, either through revenue distribution or through third countries using the EU ETS.**

## 2. Impact of EU ETS on SIDS and LDCs

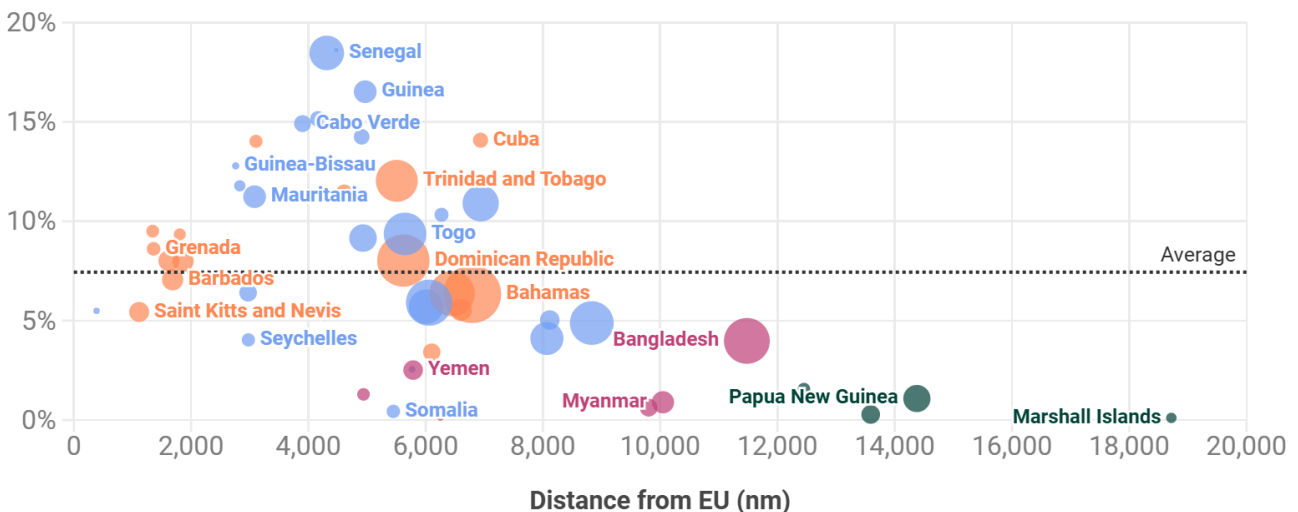
We analyse how much of the emissions from ships calling at selected countries are covered by the EU ETS. We do this by counting the emissions from maritime trips from these countries to countries up to five port stops away. The limit of five port calls means the analysis accounts for relevant trade routes while ignoring trips further away which are not relevant to each country's trade (after this number of port calls voyages are often return trips or a different service/route, see Annex for full explanation and sensitivity analyses using a different number of port calls).

**We find that, on average, just above 7% of seaborne trade to SIDS and LDCs will be regulated under the EU's carbon market.** The median country would only see 6.4% of its seaborne trade affected. Location on a trade route is a relevant factor in the impact of the ETS: Senegal, lying on the path of shipping routes from South and West Africa, is the most impacted of all countries analysed. Importantly, though, no country has more than 18.5% of its shipping emissions regulated by the ETS. SIDS and LDCs further afield, such as those in Asia or the Pacific, are barely affected by the ETS (Pacific SIDS' shipping is affected less than 2.2%). This is partly because of distance, but also because there are a small number of ships going to these states (Fiji, for instance, receives port calls from less than 10 ships that call in Europe in the next 10 ports of call).

### Limited impact of EU shipping carbon market on low-income countries

● Africa ● Caribbean ● Asia ● Pacific

Share of country's shipping CO2 regulated by EU ETS (%)



Emissions and distance calculated by T&E based on AIS data. Country shipping CO2 defined as the CO2 of voyages up to 5 port stops away. CO2 regulated by EU ETS is 50% of CO2 emitted on EU inbound/outbound voyages, and 100% of CO2 emitted on intra-EU voyages. Bubble size is country shipping CO2.



### 3. EU ETS and shipping decarbonisation in SIDS and LDCs

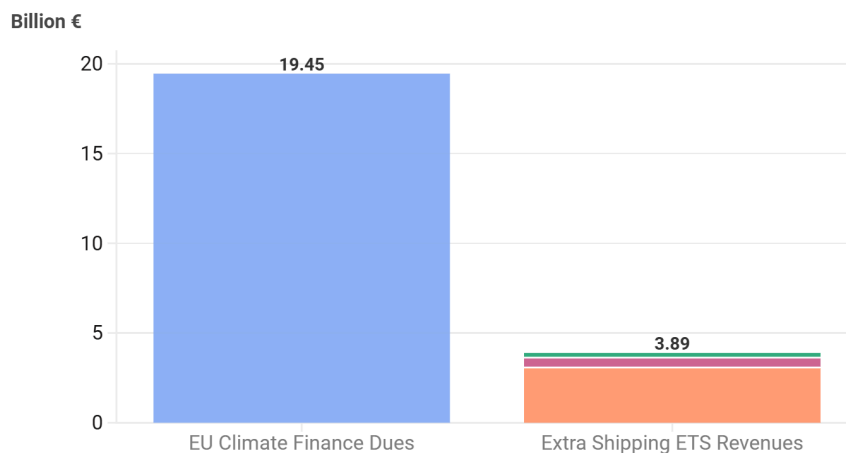
We then analysed the extra revenue generated by extending the EU ETS to all European shipping emissions and directing the extra revenue generated as climate finance. This is relevant given that shipping has historically not contributed its share in taxation and countries are now looking at shipping as a source of climate finance, for example through the [Global Solidarity Levies Task Force](#). In this Task Force, a collection of countries are looking at how national policy can generate climate revenue from shipping and other sectors. Extending the ETS to all the emissions the European Commission currently monitors under its Monitoring, Reporting and Verification (MRV) legislation and directing them to climate finance would demonstrate further that the national/regional policy like the ETS could have a positive impact on those countries. This means extending the ETS to the following, currently exempted, emissions:

- 100% of voyages between EEA and non-EEA ports (compared to 50% currently);
- ‘Smaller’ ships between 400 and 5000 GT;
- 5% discount for ice-class vessels (IA and IA Super);
- Voyages from the mainland to outermost regions and between outermost regions of the same country;
- Passenger ships and ro-pax domestic voyages to sparsely-populated islands [listed by the European Commission](#).

We find that just by extending the EU ETS to cover all European shipping voyages, the EU could cover close to 20% of its climate finance responsibilities. This is without considering other sectors or finance sources and demonstrates the untapped potential of shipping as a funding source.

#### Directing revenues from extending EU ETS could cover 1/5 of EU climate finance dues

Extending to all intl. EU voyages   Vessels 400-5000GT   Regional exemptions



Note: Global finance goal calculated from 100 billion USD goal divided by OECD countries share of emissions. Regional exemptions include islands, ice-class vessels and outermost regions.

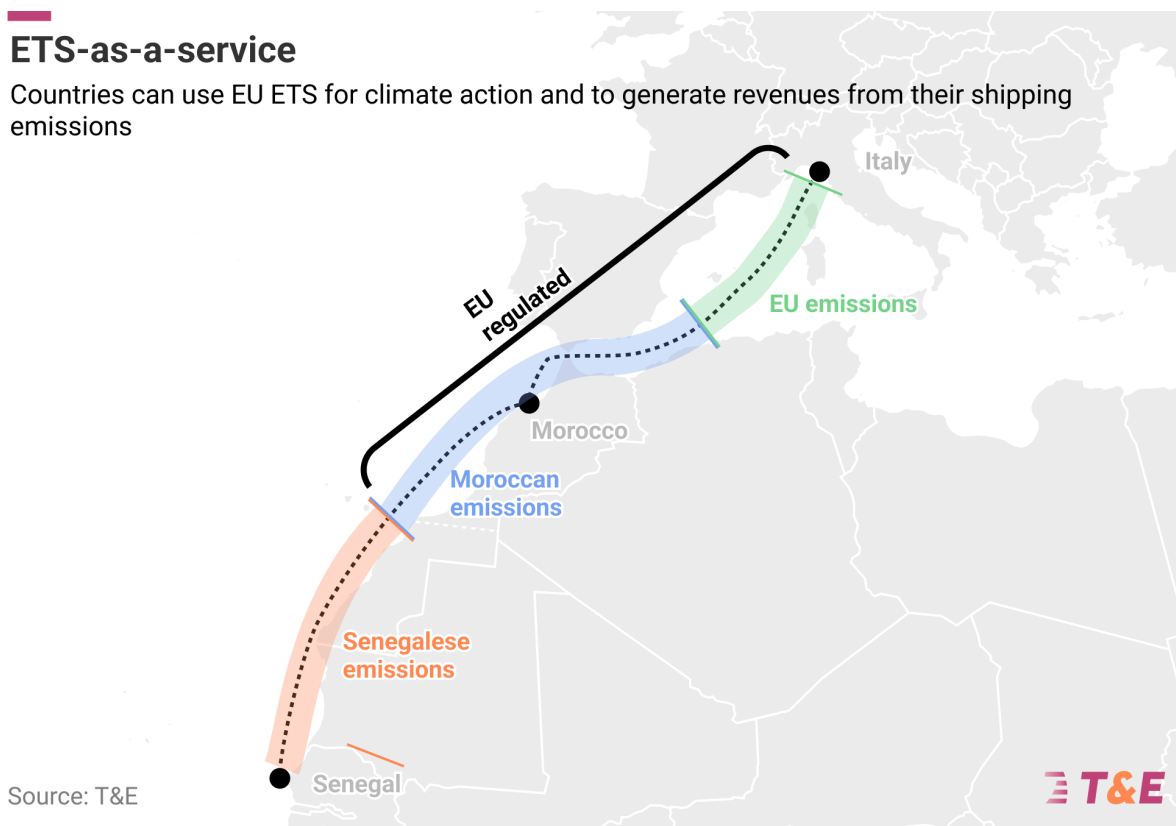


## 4. ETS-as-a-service for neighbouring countries

Finally, we analysed separately whether the ETS could be used to have a climate and revenue benefit for countries neighbouring the EU. We modelled the impact of extending the EU ETS to 100% of voyages between EU and selected non-EEA countries as well as to the voyages past these countries. We call this 'ETS-as-a-service' to echo the system in place in the EU's Innovation Fund (IF), 'auctions-as-a-service', where individual Member States can opt-in to certain IF calls. The EU ETS already treats some non-EEA transshipment ports in Egypt and Morocco distinctly from other ports: stops at these ports are not considered port calls, so the ETS applies to voyages past these ports. The ETS-as-a-service concept would apply this system to all the ports in each selected neighbouring country, with the extra revenues generated redistributed to these countries.

### ETS-as-a-service

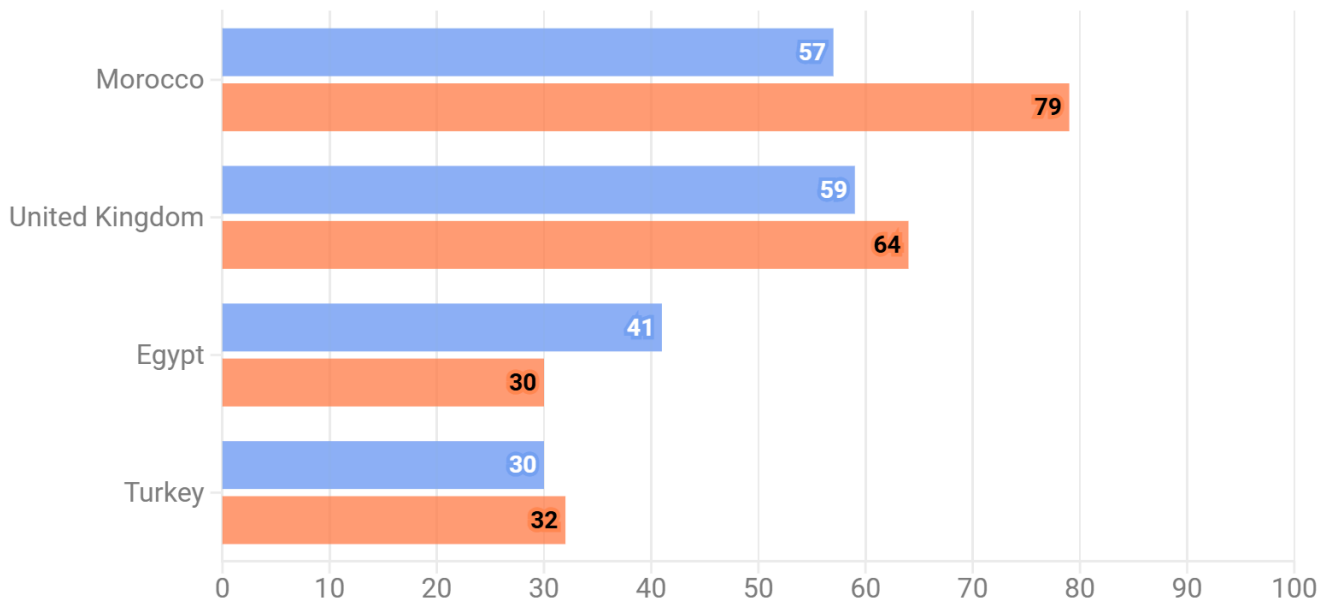
Countries can use EU ETS for climate action and to generate revenues from their shipping emissions



We analysed the UK and Turkey, given that both are in the process of implementing their own shipping carbon markets, as well as Egypt and Morocco, given that some voyages past these countries are already included within the EU ETS. Our analysis shows the system could be effective for all four countries. The system could even cover a majority of emissions for the United Kingdom and Morocco given the high number of trips between these countries and the EEA. Egypt could cover a significant amount, at 41%, while for Turkey the number is 30%.

## States could cover a large share of shipping emissions through 'ETS-as-a-service'

■ Emissions (% of total CO2) ■ Voyages (% of total)



Note: Under 'ETS-as-a-service', the EU would not count port calls in selected countries as voyages, thereby extending the reach of the ETS, while directing revenues back to those countries.



## 5. Conclusions

This paper presents novel findings on the impact of the EU ETS. We find, firstly, that the EU ETS **will have a limited cost increase on LDCs/SIDS**, with a negligible impact on states geographically further away from the EEA, such as East Asia and the Pacific Islands. What's more, the shipping ETS can positively contribute to climate projects in SIDS and LDCs. We find that by extending the ETS to cover all the emissions that the EU currently monitors but does not price, the EU could cover a significant share - 20% - of the EU's global climate finance obligations each year.

Finally, we show that neighbouring countries could benefit from the EU's shipping ETS through an 'ETS-as-a-service' system. **The system would cover a majority of the shipping emissions from the United Kingdom (59%) and Morocco (57%) and a significant proportion of emissions of Egypt (41%) and Turkey (30%).** Implementing this system, these countries would avoid the bureaucratic burden of setting up their own systems (at least in the short term).

These results are relevant both in the context of the debate on whether regional shipping policy negatively influences equity and global shipping decarbonisation. We show that regional policy does not have large negative impacts on the need for innovative sources of climate finance.

They show that regional policy does not necessarily negatively impact SIDS/LDCs. This is important, because global climate policy should consider the policy of Common But Differentiated Responsibilities (CBDR), dictating that the Global North should move first and fast on climate action. **This paper shows that shipping policy can do that without negatively impacting low-income countries and at the same time generate a significant amount of revenues for climate finance.** Regional measures like the shipping ETSs can therefore sit alongside global policy like a shipping levy with joint benefits of emission reduction and revenue generation for climate-vulnerable regions.

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## Further information

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# Annex: Methodology

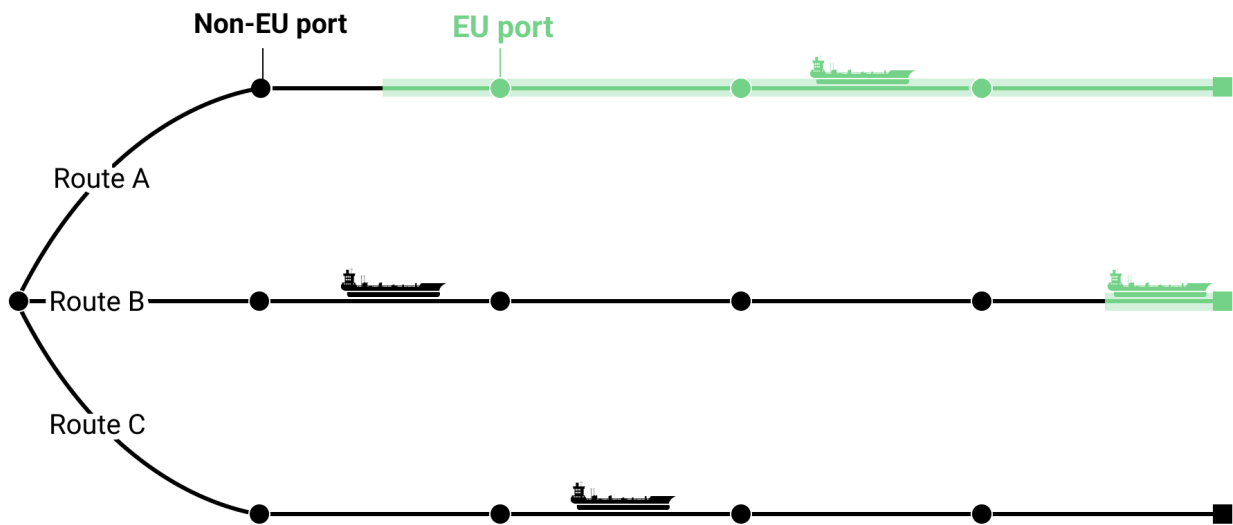
## 1. Impact of EU ETS on SIDS and LDCs

The list of SIDS and LDC follows the [UN classification](#), with Singapore excluded given its high GDP. We define shipping traffic between a target country and the EEA as trips with at most 5 ports of call. For trips to the EEA from a target country, we measure the trip from the last target country port of call to the last port of call in the EEA. The last port of call in the EEA is either the fifth port of call, or the last EEA port of call before a ship exits the EEA again.

For trips from the EEA to a target country, we measure the trip from the first EEA port of call to the first port of call in the target country. The first EEA port of call is either the first port of call in the trip, or the first EEA port of call if a ship enters the EEA and sails to a SIDS or LDC in less than 5 voyages. CO<sub>2</sub> emissions regulated by the EU ETS are 50% of the CO<sub>2</sub> emissions on direct outbound or inbound voyages between EEA and non-EEA countries, and 100% of CO<sub>2</sub> emissions for intra-EU voyages.

### Methodology for analysing seaborne trade regulated by the EU ETS

● Covered by EU ETS   ● Not covered by EU ETS   ○ Port   □ End port



Source: T&E



We perform a sensitivity analysis using 10 ports of call instead of 5 ports of call in our analysis. The results are similar to the ones obtained when doing 5 ports of call. The maximum values





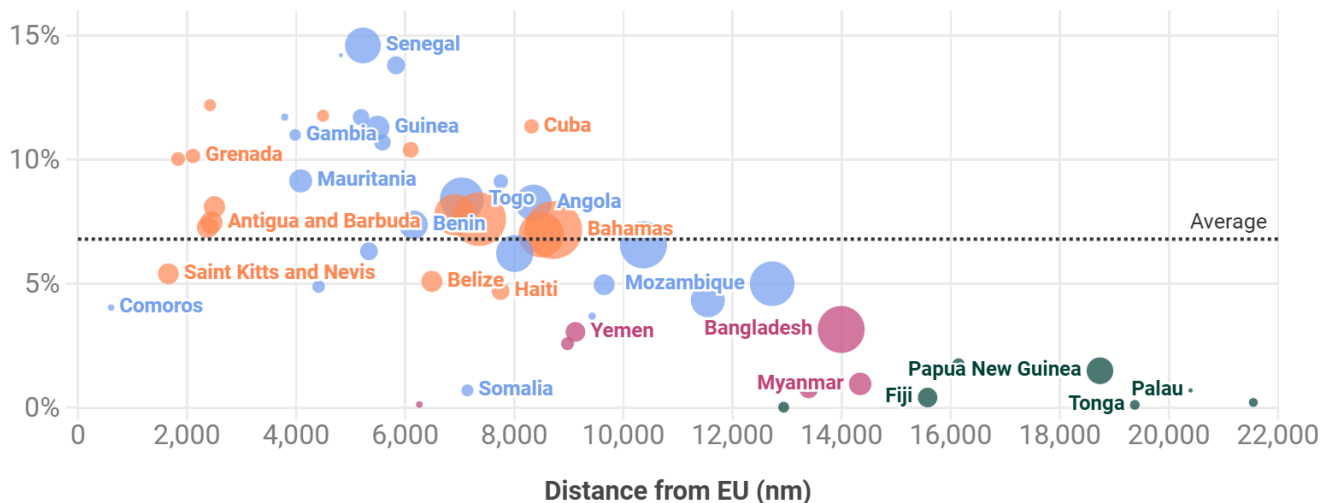
for the y-axis are smaller, with slightly less volatility (the standard deviation is 4.1, while the one obtained for 5 ports of calls is 5.3).

## Limited impact of EU shipping carbon market on low-income countries

Sensitivity analysis with 10 ports of call

● Africa ● Caribbean ● Asia ● Pacific

Share of country's shipping CO2 regulated by EU ETS (%)



Note: Emissions and distance calculated by T&E based on AIS data. Country shipping CO2 defined as the CO2 of voyages up to 10 port stops away. CO2 regulated by EU ETS is 50% of CO2 emitted on EU inbound/outbound voyages, and 100% of CO2 emitted on intra-EU voyages. Bubble size is country shipping CO2.



## 2. Extension of EU ETS on shipping decarbonisation of SIDS and LDCs

We calculate the total revenues from ending exemption based on total revenues calculated as CO<sub>2</sub> emitted multiplied by CO<sub>2</sub> price (estimated by the [European Commission](#) at 75 €/tCO<sub>2</sub>). At each iteration we remove one exemption and recalculate total revenues. The difference between the previous iteration's raised revenues and the current iteration's raised revenues is the revenue increase from extending the EU ETS.

ETS extension	Additional revenues raised (million €)
Ships 400-5000 GT	551
Small islands in the EU	60
EU outermost regions	140
Ice class vessel design	61

All international voyages (i.e. regulating 100% rather than 50% of these voyages)	3,079
<b>Total</b>	<b>3,893</b>

We then estimate the EU’s share of the global climate finance goal of 100 billion USD per year. This will likely change in COP29, but we use this number as a placeholder until the new amount is committed. We break down the EU’s share using the EU’s [share of emissions](#) in contrast to that from other [‘Annex 1’ \(or high-income\)](#) countries defined by the UN. USD to EUR exchange rate is used as 1.09.

### 3. ETS-as-a-Service

We simulate the impact of the extension of the ETS to four neighbouring states of the EU (UK, Morocco, Turkey, Egypt). For those countries, we calculate the share of their shipping sector’s CO<sub>2</sub> emissions that could be covered by the “ETS-as-a-Service” proposal. We define CO<sub>2</sub> emitted by the shipping sector as the CO<sub>2</sub> emitted during domestic, outbound and inbound voyages (i.e. 50% of CO<sub>2</sub> emitted during international voyages and 100% during domestic voyages).

The “ETS-as-a-Service” expands the current coverage (50% of CO<sub>2</sub> emissions for voyages between the EU and the neighbouring countries) by adding three additional sources of CO<sub>2</sub> emissions currently not covered by the EU ETS:

- 50% of all CO<sub>2</sub> emitted in voyages between the EU and a neighbouring state (A);
- 50% of all CO<sub>2</sub> emitted on the voyage before/after a voyage between the EU and a neighbouring state, provided it is an international voyage (B).
- 50% of all CO<sub>2</sub> emitted during port stops in a neighbouring state, provided the stops are between a EU-related voyage and an international voyage (C).
- E.g. for a ship sailing from Bayonne, USA to Rotterdam, NL, with a stop in between in Felixstowe, UK, we count 50% of the CO<sub>2</sub> emissions from the US - UK voyage (A), from the stop in Felixstowe (C), and from the UK - NL voyage (B);
- However, if the ship sails from Portsmouth, UK to Rotterdam, NL with a stop in Felixstowe, UK, we only count 50% of emissions for the UK - NL voyage (A).

Country	UK	Turkey	Morocco	Egypt
CO <sub>2</sub> covered	58.5%	29.5%	56.7%	41.1%
Voyages covered	63.5%	32%	79.1%	30.4%