Verification of Greenhouse Gases Emissions

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INTERCARGO
International Association of Dry Cargo Shipowners

Executive Committee Meeting
London, 04.10.2016

Shipping MRV / Aviation ETS: Similar stories

Content

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- Transportation and GHG
- MRV Regulation
- Experience from similar implementation in aviation sector
- News
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Greenhouse Gas Emissions

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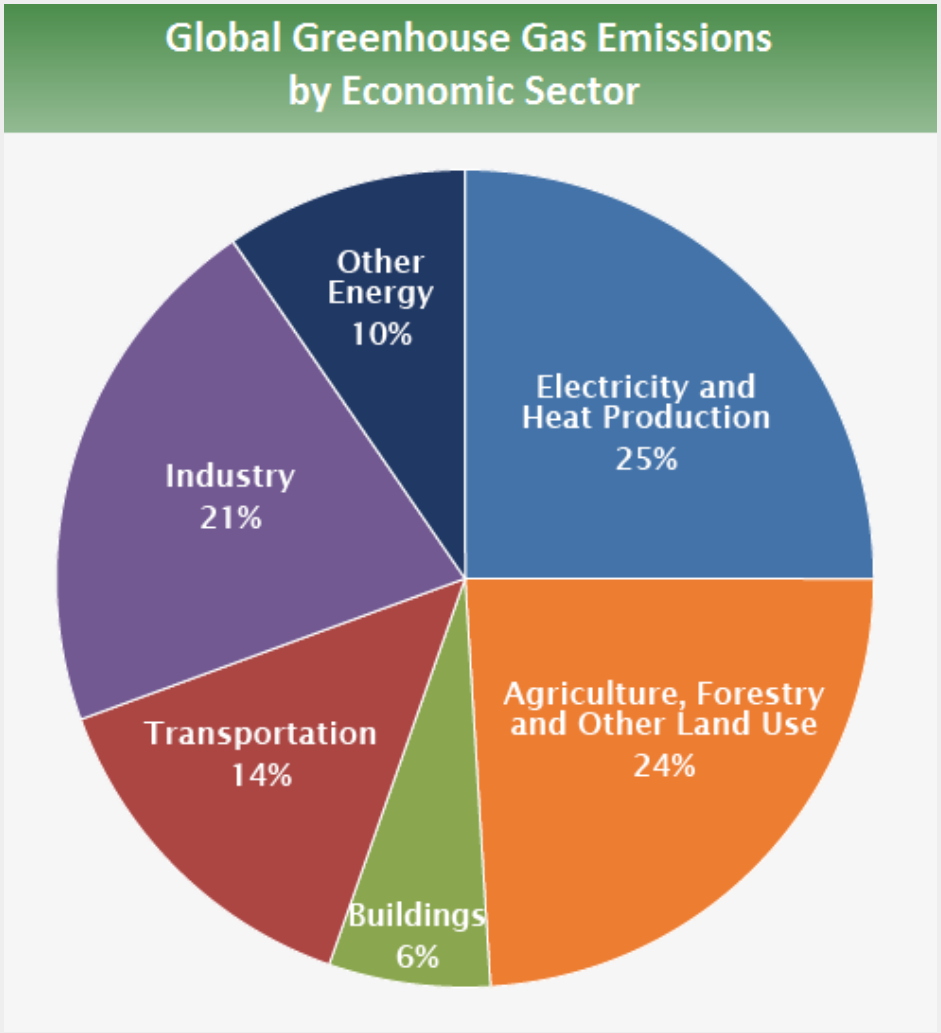

- Transportation represents **14%** of global or **25%** of EU greenhouse gas emissions.
- GHG emissions from this sector primarily involve **fossil fuels** burned.
- **Aviation** is a major economic sector, central to trade and to growth for both developing and developed countries. Aircrafts carry about **35% of world trade by value,** although represents only 0.5% by volume.
- **International shipping** plays an essential role in the global economy, carrying about **90% of world trade by volume**. The industry includes over 50,000 ships, of which bulk carriers, oil tankers and container ships represent approximately 84% of total tonnage.

Contribution of Shipping & Aviation on Global GHG Emissions

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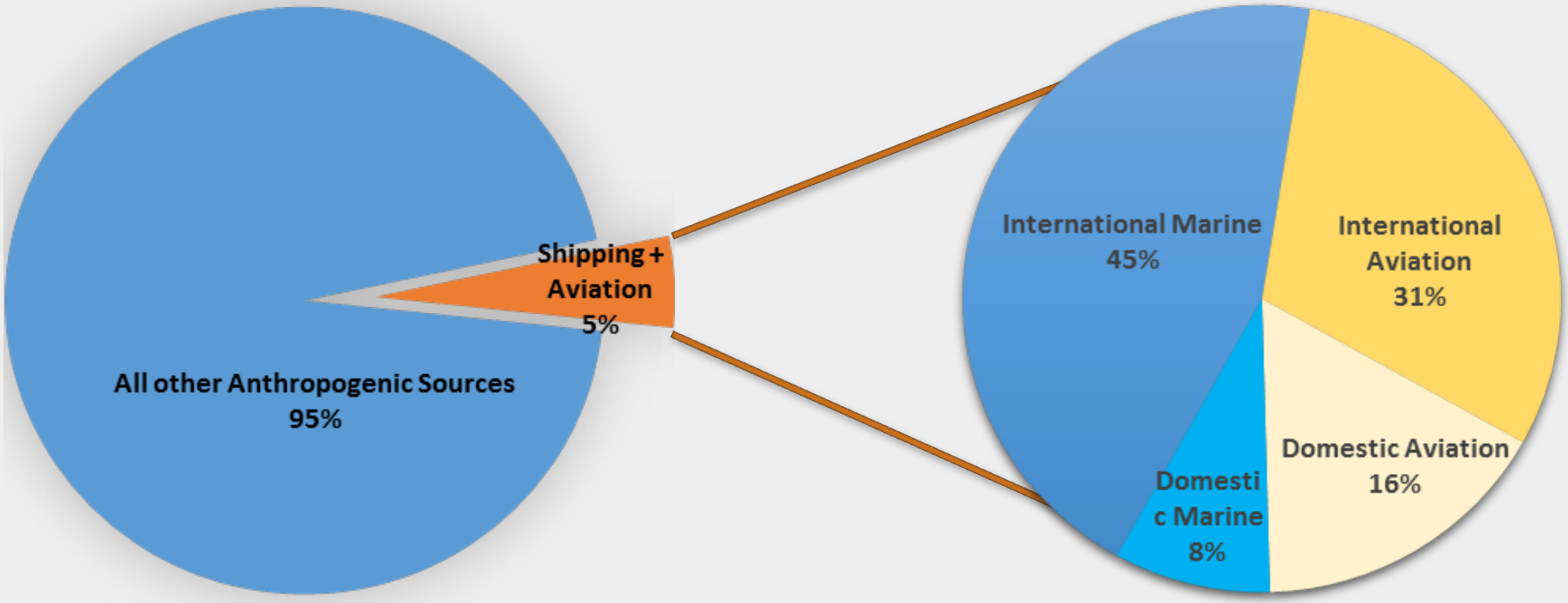

Global aviation (domestic and international) is responsible for more that 2% of global CO2 emissions, and global shipping for less than 3% (more than a major national economy, like Germany). The majority of these emissions come from **international** activity – 65% and 84% for aviation and shipping, respectively.

So what is the problem?

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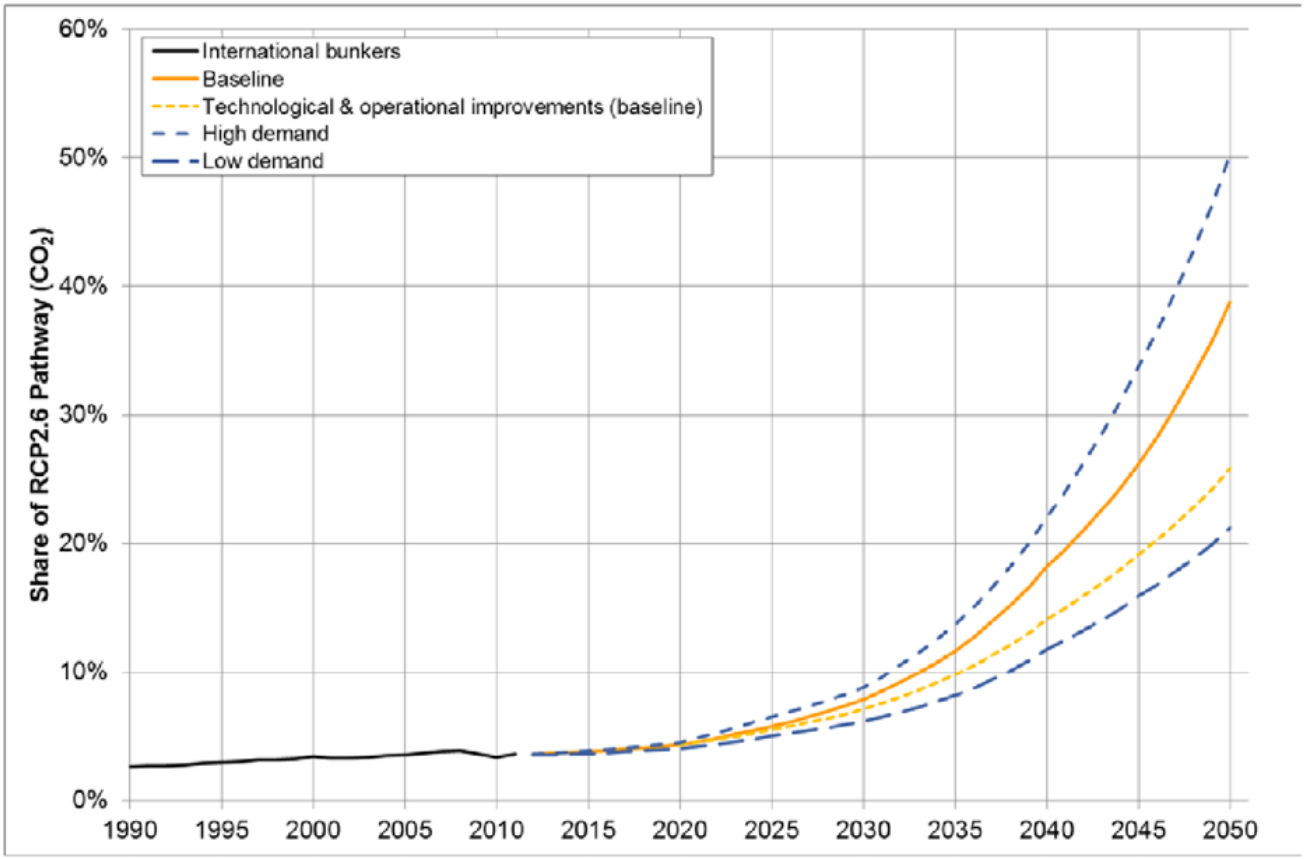
But these proportions are growing quickly. By 2050, emissions from these sectors combined are projected to reach a level equivalent to between **20% and 50%** of the total global emissions which would be consistent with a 2°C pathway.

International aviation and maritime transport's share of global GHG emissions



Source: ICAO 2013b, IMO 2014, van Vuuren, D. P. et al. 2011

Fast growing contribution to global problem is expected

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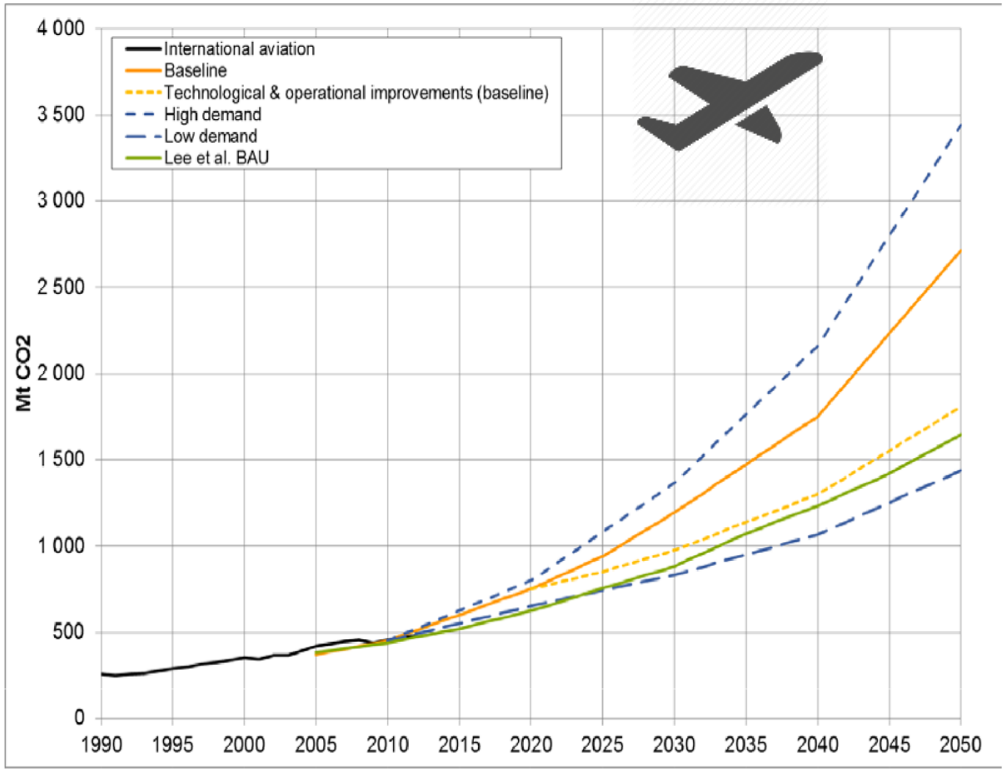
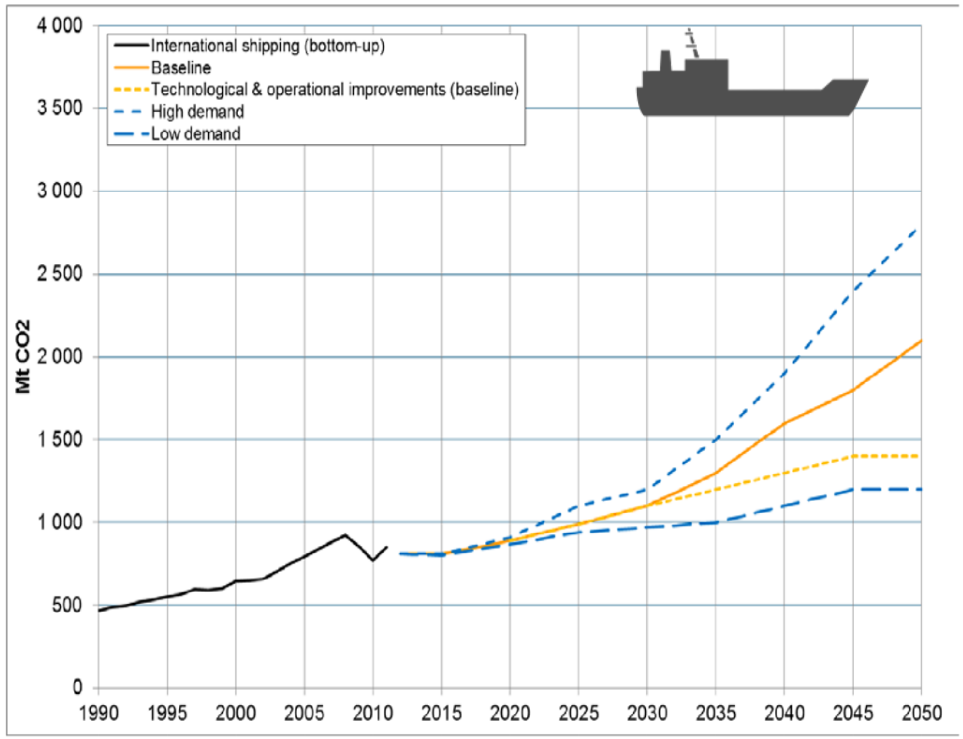
Projected CO_2 emissions from international aviation



Source: IEA 2014, ICAO 2013b, Lee et al. 2013

IMO projections of CO_2 emissions from international maritime transport



Source: IEA 2014, IMO 2009, IMO 2014

Comparison of CO2 emissions between modes of transport

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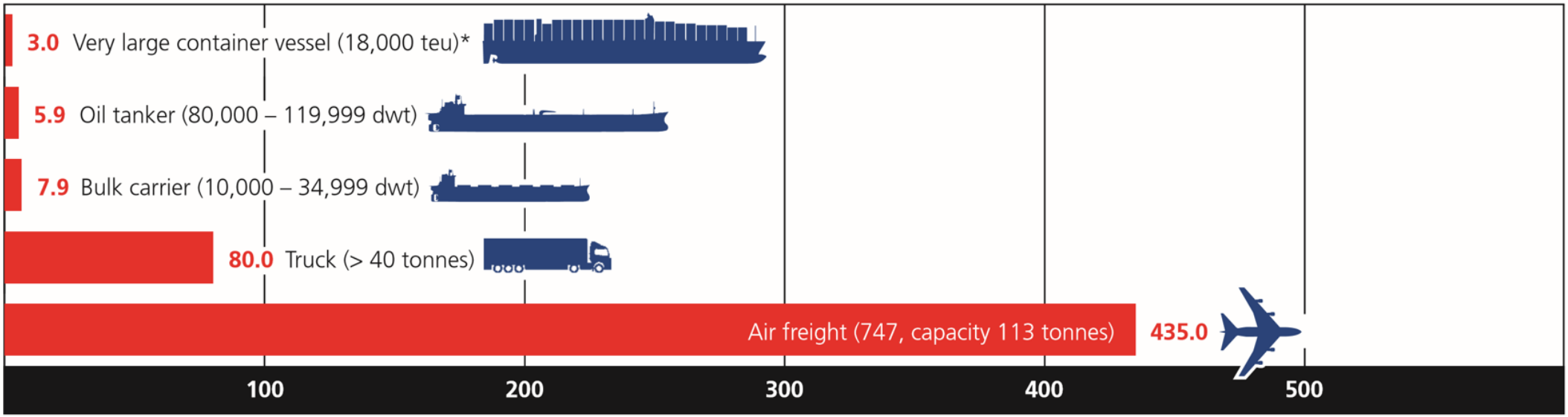
Grams per tonne-km



*Source: IMO GHG Study, 2009 (*AP Møller-Maersk, 2014)*

International shipping is, by far, the **most carbon efficient** mode of commercial transport and continues to improve fuel efficiency and thus reduce CO2 emissions. The total emissions of shipping, as a sector, will therefore be determined, to a significant extent, by the expected long term growth of the world economy (and population) between now and 2050.

MRV Regulation (EU) 2015/757

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- As of **1 July 2015**, the European Union brings into force **Regulation (EU) 2015/757** on the monitoring, reporting and verification (**MRV**) of carbon dioxide emissions from maritime transport.
- Applies to all ships exceeding **5,000 GT** regardless of their flag, port of registry or home port.
- Applies to any voyage **to, from** and **between** ports located in the **EU** (as well as the **outermost regions** of the EU) that serve the purpose of transporting passengers or cargo for commercial purposes.

Emission Trade Systems (ETS) worldwide

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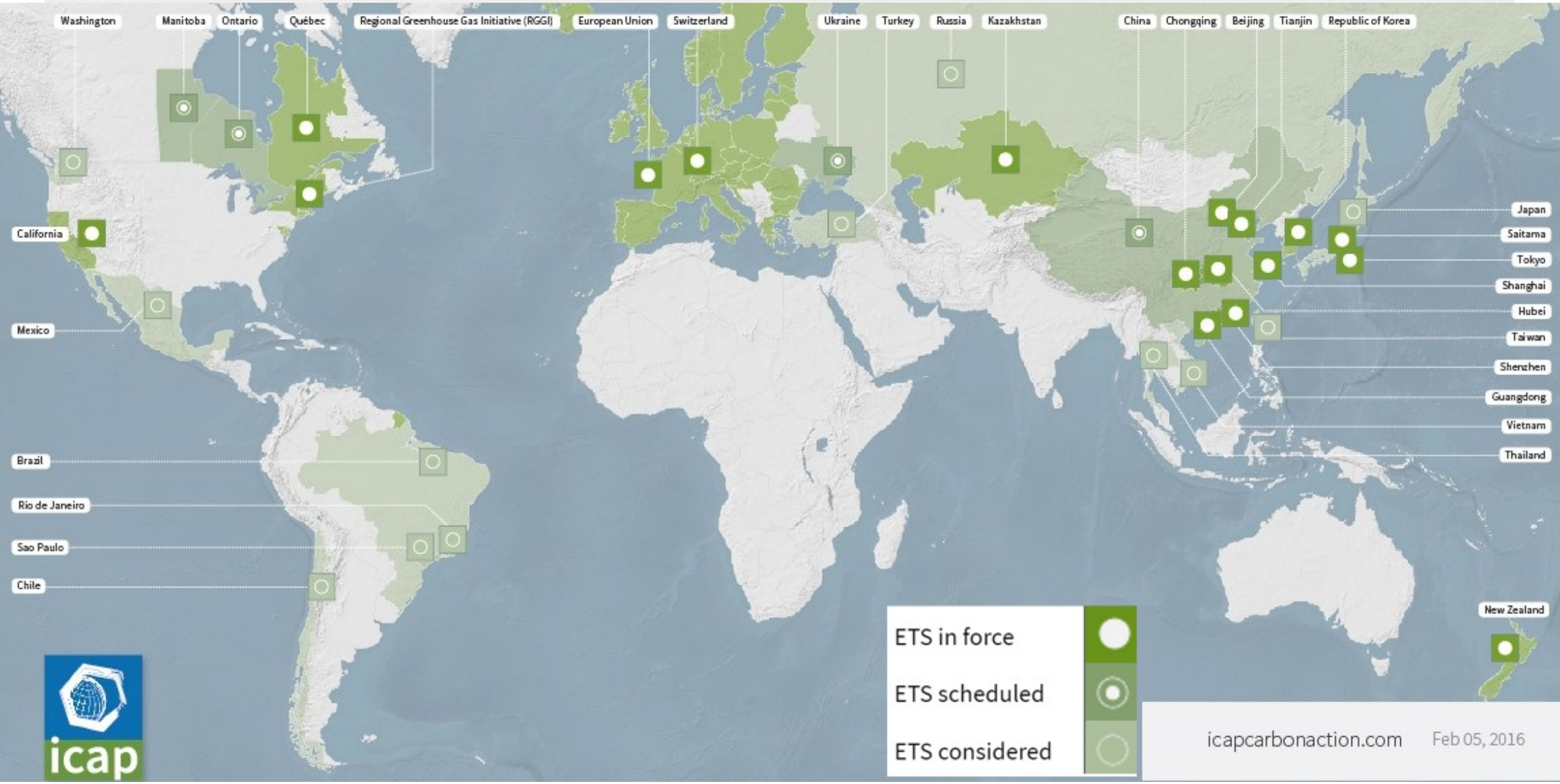

ETS application on aviation sector – Similarities to Shipping MRV

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All aircraft operators (passenger and freight) that land in and take-off from any of the EEA Countries are included.	EU ports
Exclusions of flights depending on size (max take-off weight 5.700 Kg) and on purpose of flight (official, military, training, etc).	> 5.000 GT
All Operators should: - Apply for a Baseline and Monitoring Plan by 31 Aug 2009	31 Aug 2017
- Monitor and have independently verified Tonne – Kilometre data for 2010 and verified Annual Emissions for 2010 & 2011, as pilot years	2018 - …
- Monitor and have verified Annual Emissions for 2012 onwards years for which allowances must be surrendered.	Trading phase not yet scheduled
A single Monitoring plan and Annual Emission Report per operator	One MP & AER per ship

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Monitoring Plans (MP) approved by the Competent Authority (CA) of the relevant Member State (in most of the cases, this is the national Civil Aviation Authority)	Approval by an EN ISO 14065 Accredited Verifier
Compliance with the Regulation is proved by the on time submission of verified data into the EU Electronic Registry	Document of Compliance issued by an Accredited Verifier
Years of pressure from EU to ICAO (International Civil Aviation Organization) for a global Market Based system	IMO moved earlier
New manufacturing standards / fuel efficiency rules were developed. The standards will apply to all new aircraft models after 2020.	EEDI applied since 2013

Examples from aviation sector on the implementation cost

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Case	Verified emissions ($KtnCO_2$)	Free Allowances ($KtnCO_2$)	CO_2 Cost (M€)	Turnover (M€)	Net Profit (M€)	CO_2 cost as % of turnover
A	877	400	2,1	983	100	0,22%
B	800	576	1,0	1.710	124	0,06%
C	90	210	-0,5	105	20	-0,51%
D	113	91	0,1	121	23	0,08%

With current CO2 price level, ETS cost to carry each passenger is 0.26 – 0.76 €.
London – New York (currently excluded) would cost 1.13€ / passenger.

News

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- The year 2015 was a milestone for climate action, with the negotiation at the 21st Conference of the Parties (**CoP21**) in December. Currently, there are 191 signatories to the Paris Agreement. Of these, **61 Parties** (including **USA** and **China**) accounting in total for 48% of the total global greenhouse gas emissions, have already ratified it.
- Maritime and Aviation emission not included in CoP 21 and EU transport decarobonization strategy because **global systems** are expected by **ICAO** and **IMO**
- During **ICAO** 39th Assembly a "**Carbon Offsetting** and Reduction Scheme for International Aviation" (CORSIA) is being discussed. **Key elements:** Phased implementation (2021-2035), Voluntary participation in Pilot Phase (2021-2023) and Phase One (2024-2026), Exemptions for States with low aviation activity, Periodic review.

News

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- **MEPC 70** is expected to amend MARPOL Annex VI and adopt a global fuel **Data Collection System - DCS** similar to EU MRV. The main differences are that the EU MRV:
- requires ships to monitor and report **actual cargo carried**, while the DCS uses transport work proxy such as capacity-miles or hours at sea;
- requires ships to have their data verified by **independent accredited verifiers**, while the DCS requires flag states to verify the data;
- intends to publish **ship-specific data**, whereas the DCS will only publish anonymised data; and
- only requires monitoring and reporting data on voyages to and from EU ports, while the DCS requires ships to monitor data on all voyages and report annually.

News

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- Unlike under ICAO, countries have so far not agreed on an emission limitation or reduction target in the IMO.
- IMO - EU ambitious project to establish a global network of **Maritime Technology Cooperation Centres** (MTCCs) in developing countries (43 applications / 14 shortlisted).
- At the end of July 2016, the European Commission has published the draft **Delegated and Implementing Acts** pursuant to Regulation 2015/757 - Shipping MRV. Between these Acts, there is a detailed **Monitoring Plan template**, which should be filled properly by ship operating companies and assessed by an ISO 14065 accredited verifier.

Verifier on MRV

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- An Accredited Verifier shall assess the **conformity of the Monitoring Plan** with the requirements of the Regulation.
- The verifier shall assess the **conformity of the Emissions Report**: whether the CO2 emissions and other relevant information reported in the emissions report have been determined in accordance with the monitoring activities and the assessed Monitoring Plan.
- Where the Verification Assessment concludes, with **reasonable assurance** that the Emissions Report is free from material misstatements, the verifier shall issue a Verification Report stating that the emissions report has been verified as satisfactory. Otherwise, the company shall correct the misstatements or non-conformities and re-submit.
- At the final stage of the MRV cycle, the verifier issues a **Verification Opinion Statement** and a **Document of Compliance**.

Questions

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Thank you for your attention

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