

MedForum2024

9th EDITION | THE MMFN GENERAL ASSEMBLY

ESTIMATION OF CARBON CREDITS FOR MODEL FOREST REPRESENTATIVES' TRAVEL

Report on Emissions and Offset Costs

General overview

The objective of this report is to determine the **carbon credits required** for each passenger and representative for each Model Forests travelling in the 3rd to 8th of November 2024 to Barcelona for the Med Forum, which is taking place during the 8th Mediterranean Forest Week.

- 1. Emissions Calculation:** Measured CO₂ emissions for each passenger based on flight distance from home countries to Barcelona.
- 2. Carbon Credits:** Converted emissions into equivalent carbon credits needed for full offset.
- 3. Estimating Carbon Emission Costs:** based on the European Union Emission Trading Scheme (EU ETS),

Calculate Carbon Emissions

Air Travel

The release of carbon dioxide (CO₂) gas produced by the combustion of fossil fuels, such as aviation gasoline or jet fuel, in aircraft engines. These emissions are typically measured in kilograms (kg) or metric tons (tonnes) per flight⁽¹⁾.

Affected by:

- **Flight Distance**

1. **Short-haul flights** (typically under 3700 km or 2300 miles) often have higher emissions per kilometer due to the significant fuel consumption during takeoff and landing. 0.115 kg CO₂
2. **Long-haul flights** (over 3700 km or 2300 miles) generally have lower emissions per kilometer as cruising is more fuel-efficient compared to takeoff and landing phases. 0.090 kg CO₂.⁽²⁾

Train travel

For our case, we considered travelling by an electric train in Spain (Renfe (Red Nacional de los Ferrocarriles Españoles); High-Speed Trains (AVE)). Electric trains generally have lower emissions compared to diesel trains, with a common emission factor of around 0.04 kg CO₂ per kilometer per passenger.

Equation used (per passenger)

- One way: CO₂ (Kg) emissions = Flight distance × Emission factor
- Round trip: CO₂(Kg) emissions = (Flight distance × Emission factor) × 2

Calculate Carbon Emissions

We calculated the carbon emissions for each representative traveling from their home country to Barcelona-El Prat International Airport, considering the flight distance and the relevant short/long-haul flight emission factors per passenger kilometer (kg CO₂)

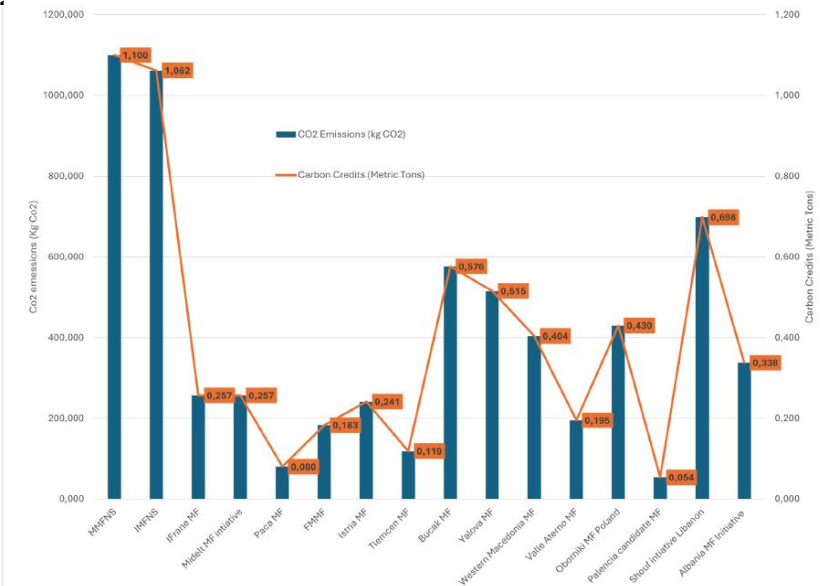
Model forest	Numbers of Passengers	Departure	Destination	Flight / Train Distance (km)	Emission Factor per Passenger Kilometer (kg CO ₂)	CO ₂ Emissions (kg CO ₂)	
						One way	Round Trip (Total)
MMFNS	6	Florence Airport, Peleola-Italy	Barcelona-El Prat International Airport	797,03	0,115	549,951	1099,9
IMFNS	1	International-Airport, Saint-Lauent, Monreal Canada		5898,79	0.090	530,891	1061,78
Ifiane MF	1	Rabat-Sale Airport-Morocco		1117,73	0,115	128,538	257,077
Mildef MF Initiative	1	Rabat-Sale Airport-Morocco		1117,73	0,115	128,538	257,077
Paca MF	1	Marseille Provence Airport-France		349,3	0,115	40,169	80,339
Montagne Florentine MF	1	Florence Airport, Peleola-Italy		797,03	0,115	91,658	183,316
Isilia MF	1	Tripoli Airport -Italy		1048,94	0,115	120,628	241,256
Tlemcen MF	1	Algiers H, B International Airport		516,4	0,115	59,386	118,772
Bucak MF	1	Ankara Airport-Turkiye		2505,13	0,115	288,089	576,179
Yalova MF	1	Istanbul International Airport-Turkiye		2240,84	0,115	257,696	515,393
Wesfein Macedonia MF	1	Thessaloniki International Airport Macedonia-Greece		1757,12	0,115	202,068	404,137
Valle Aelino MF	1	Rome Fiumicino Airport-Italy		848,22	0,115	97,545	195,09
Oboiniki MF Poland	1	Warsaw Chopin Airport-Poland		1869,72	0,115	215,017	430,035
Shouf MF Initiative Libanon	1	Beirut International Airport		3036,86	0,115	349,238	698,477
Voskopojan MF Initiative	1	Tirana International Airport-Albania		1469,89	0,115	169,037	338,075
Palencia candidate MF	1	Palencia (By Train)	Barcelona Event Venue	675.49	0.04	27,019	54,039
Total						3255,476	6510,95

Carbon Credit

Equation used (per passenger)

$$\text{Total CO}_2 \text{ Emissions (metric tons)} = \frac{\text{Total CO}_2 \text{ Emissions (kg)}}{1.000}$$

A carbon offset - or carbon credit - is a reduction in greenhouse gas emissions to compensate for emissions made somewhere else. **Credits are traceable, tradable**, This revenue funds activities that protect or restore forests, often supporting local communities with alternative livelihood opportunities that keep trees standing, and it helps fund programs to do so in perpetui



Model forest	Numbers of Passengers	CO2 Emissions (kg CO2)	Carbon Credits (Metric Tons)
MMFNS (Italy)	6	1099,901	1,1
IMFNS (Canada)	1	1061,782	1,062
Ifrane MF (Morocco)	1	257,077	0,257
Mildet MF Initiative (Morocco)	1	257,077	0,257
Paca MF (France)	1	80,339	0,08
Montagne Fiorentina MF (Italy)	1	183,316	0,183
Istria MF (Croatia)	1	241,256	0,241
Tlemcen MF (Algeria)	1	118,772	0,119
Bucak MF (Türkiye)	1	576,179	0,576
Yalova MF (Türkiye)	1	515,393	0,515
Western Macedonia MF (Greece)	1	404,137	0,404
Valle Aterno MF (Italy)	1	195,09	0,195
Oborniki MF (Poland)	1	430,035	0,43
Palencia candidate MF (Spain)	1	54,039	0,054
Shouf MF Initiative (Libanon)	1	698,477	0,698
Voskopoja MF Initiative (Albania)	1	338,075	0,338
TOTAL	21	6510,952	6,51

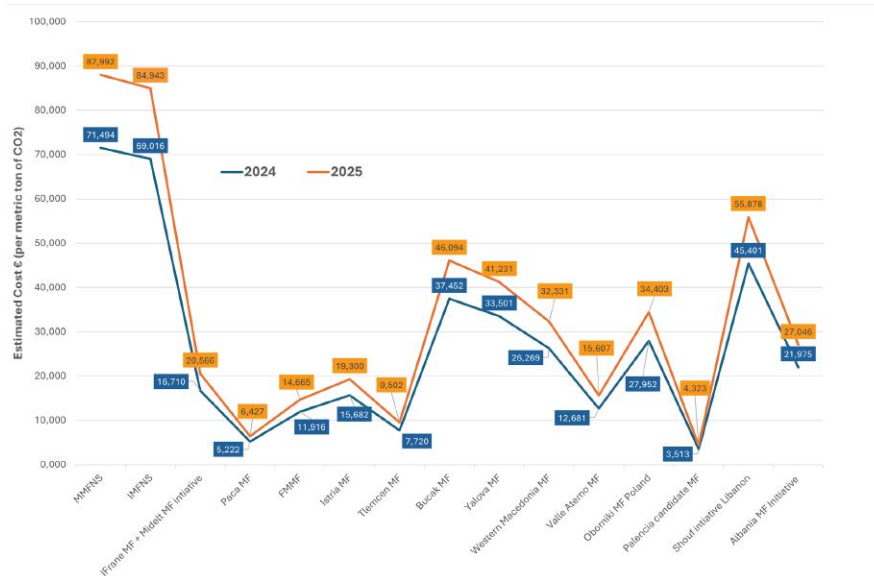
Estimating Carbon Emission Costs

- EU Emissions Trading System (EU ETS) market to estimate the costs associated with our carbon emissions, arriving at a total payment:

2024: 423,214 euros.

2025: (Forecast): 520,874 euros

based on EU ETS carbon allowance price projections published by Ian Tiseo on May 8, 2024, on [Statista.com](https://www.statista.com).



Model forest	Carbon Credits (Metric Tons)	Estimated Cost € EU ETS	
		2024	2025 (Forecast)
		65€ / 1 carbon credit	80€ / 1 carbon credit
MMFNS (Italy)	1,1	71,494	87,992
IMFNS (Canada)	1,062	69,016	84,943
Istria MF (Morocco)	0,257	16,71	20,566
Mildet MF Initiative (Morocco)	0,257	16,71	20,566
Paca MF (France)	0,08	5,222	6,427
Montagne Fiorentine MF (Italy)	0,183	11,916	14,665
Istria MF (Croatia)	0,241	15,682	19,3
Tlemcen MF (Algeria)	0,119	7,72	9,502
Bucak MF (Türkiye)	0,576	37,452	46,094
Yalova MF (Türkiye)	0,515	33,501	41,231
Western Macedonia MF (Greece)	0,404	26,269	32,331
Valle Aterno MF (Italy)	0,195	12,681	15,607
Oborniki MF (Poland)	0,43	27,952	34,403
Palencia candidate MF (Spain)	0,054	3,513	4,323
Shouf initiative (Libanon)	0,698	45,401	55,878
Voskopoja MF Initiative (Albania)	0,338	21,975	27,046
TOTAL	6,51	423,214	520,874

Conclusion

- EU Emissions Trading System (EU ETS) market to estimate the costs associated with our carbon emissions, arriving at a total payment:

2024: **423,214 euros.**

2025: (Forecast): 520,874 euros

based on EU ETS carbon allowance price projections published by Ian Tiseo on May 8, 2024, on [Statista.com](https://www.statista.com).

As part of our commitment to sustainability and our duty as an organisation, the Mediterranean Model Forest Network (MMFN) **will allocate these funds toward carbon compensation by supporting one of our projects in forest restoration, afforestation, or environmental education within our Mediterranean Model Forest network in 2025.**

This initiative underscores our dedication to mitigating climate change and promoting environmental stewardship across the region.

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Thanks for your attention

Grazie per la vostra attenzione

شكراً على انتباهكم

Gracias por su atención

Merci pour votre attention

Ευχαριστώ για την προσοχή σας

Hvala na vašoj pažnji

Faleminderit për vëmendjen tuaj

Dikkatiniz için teşekkür ederim

Speaker: Ángela Blázquez Casado – Cesefor Foundation