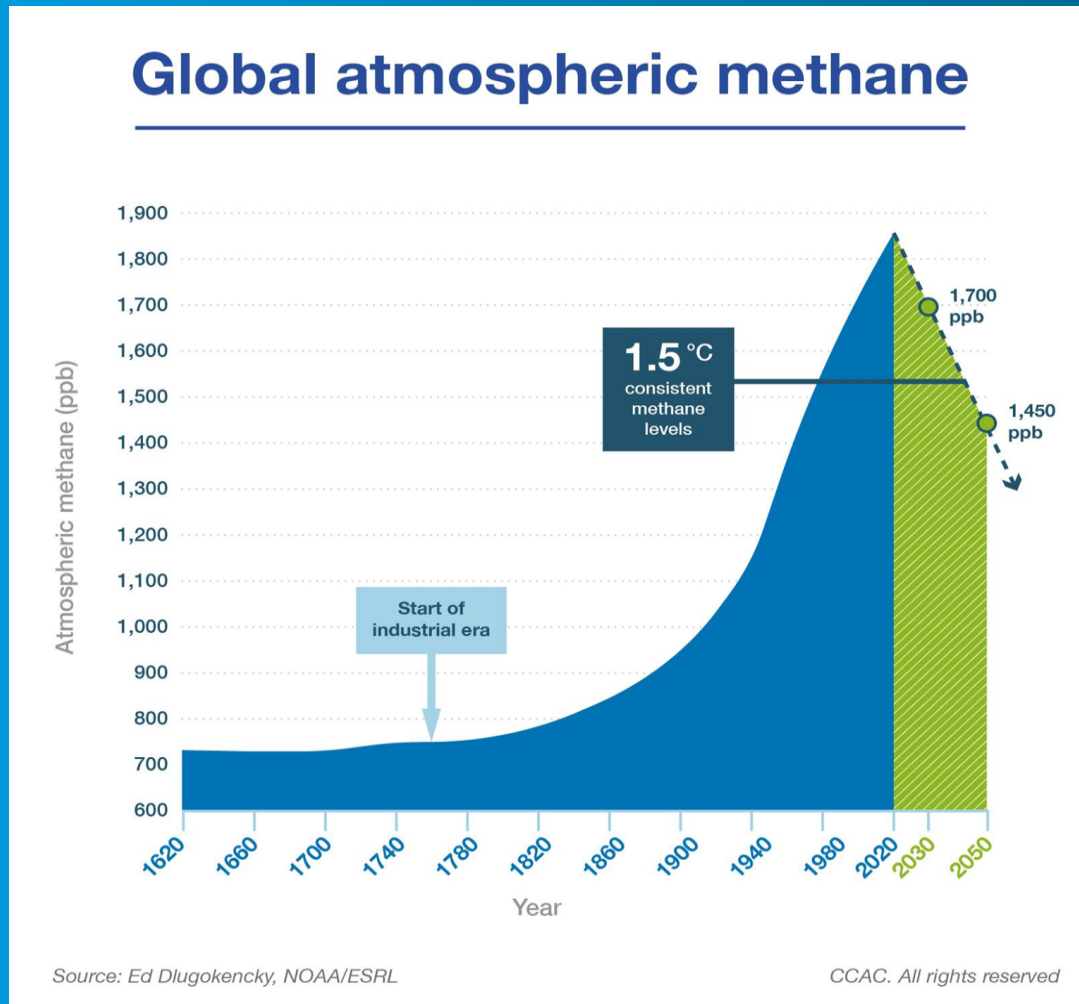


From measurement to mitigation: *UNEP's work on methane*

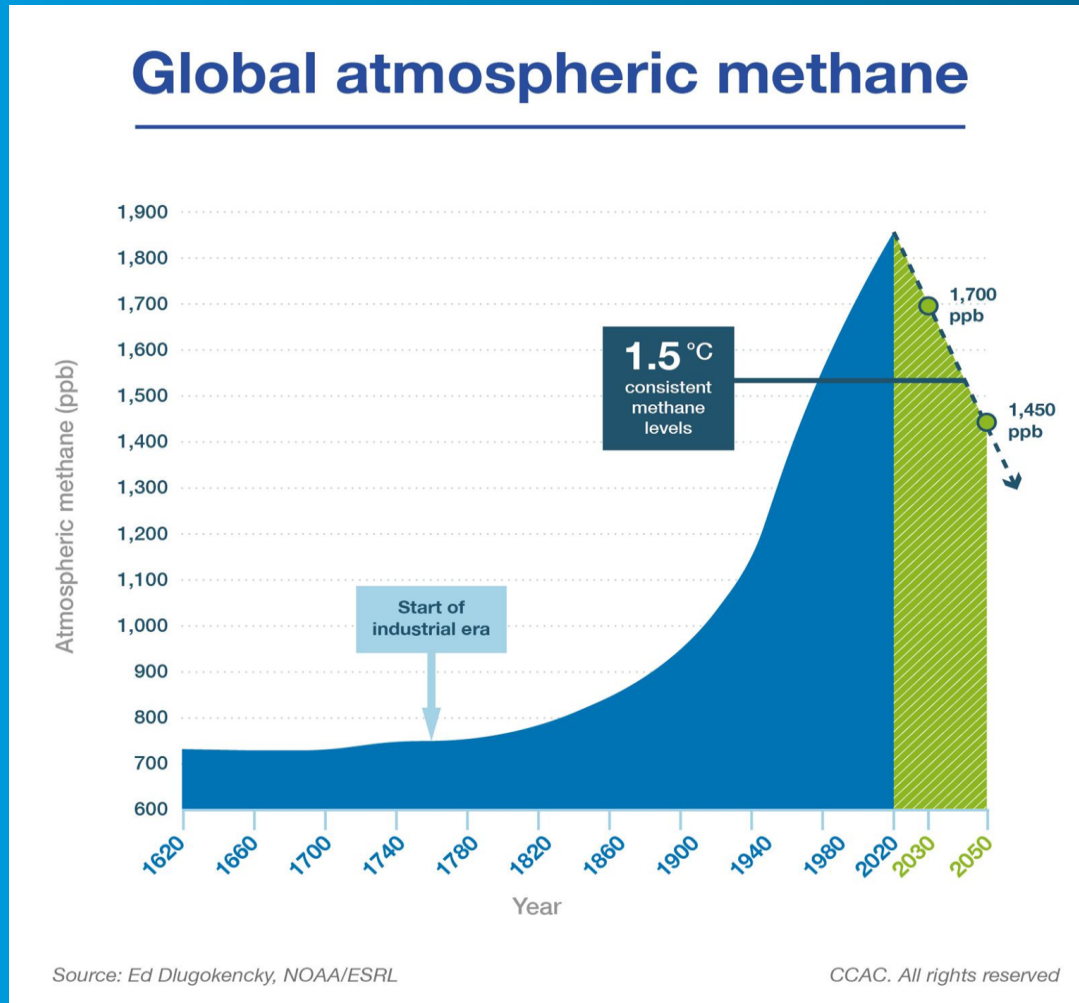
23 March 2023

→ Reducing methane emissions is crucial to limiting the global temperature increase to 1.5 degrees



- To keep the average temperature increase from exceeding 1.5 °C, the world needs urgently to reduce methane emissions by about a third. (IPCC 2022)
- Reducing emissions of methane is an essential part of Paris-compatible mitigation strategies. (UNEP Emissions Gap Report, 2022)
- Reducing human-caused methane emissions is one of the most cost-effective strategies to rapidly reduce the rate of warming and contribute significantly to global efforts to limit temperature rise to 1.5 °C. (CCAC / UNEP Global Methane Assessment, 2021)

→ Reducing methane emissions is crucial to limiting the global temperature increase to 1.5 degrees



80+ GWP

Methane is over 80 times more powerful than CO₂

\$30 billion

Wasted annually from methane emissions

500,000

Premature deaths annually from tropospheric ozone pollution caused by methane

45%

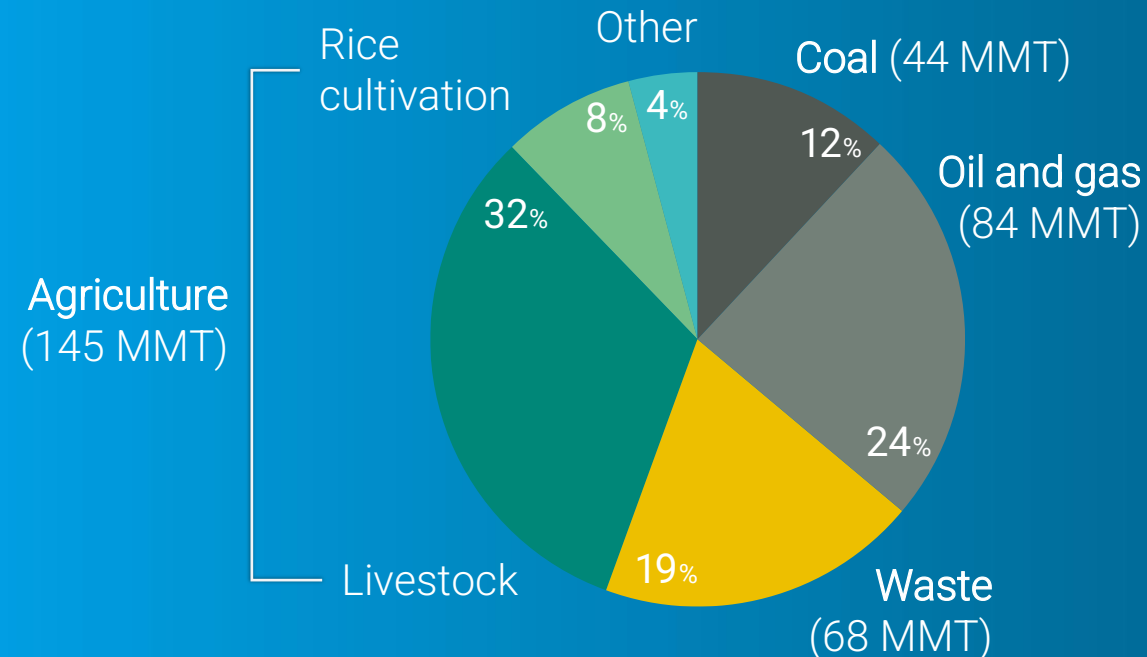
Methane reduction currently feasible

0.28 °C

Avoided warming if all currently feasible measures were undertaken

→ Cost-effective methane emissions reductions are possible in all sectors

Anthropogenic Methane Emissions Sources and Levels



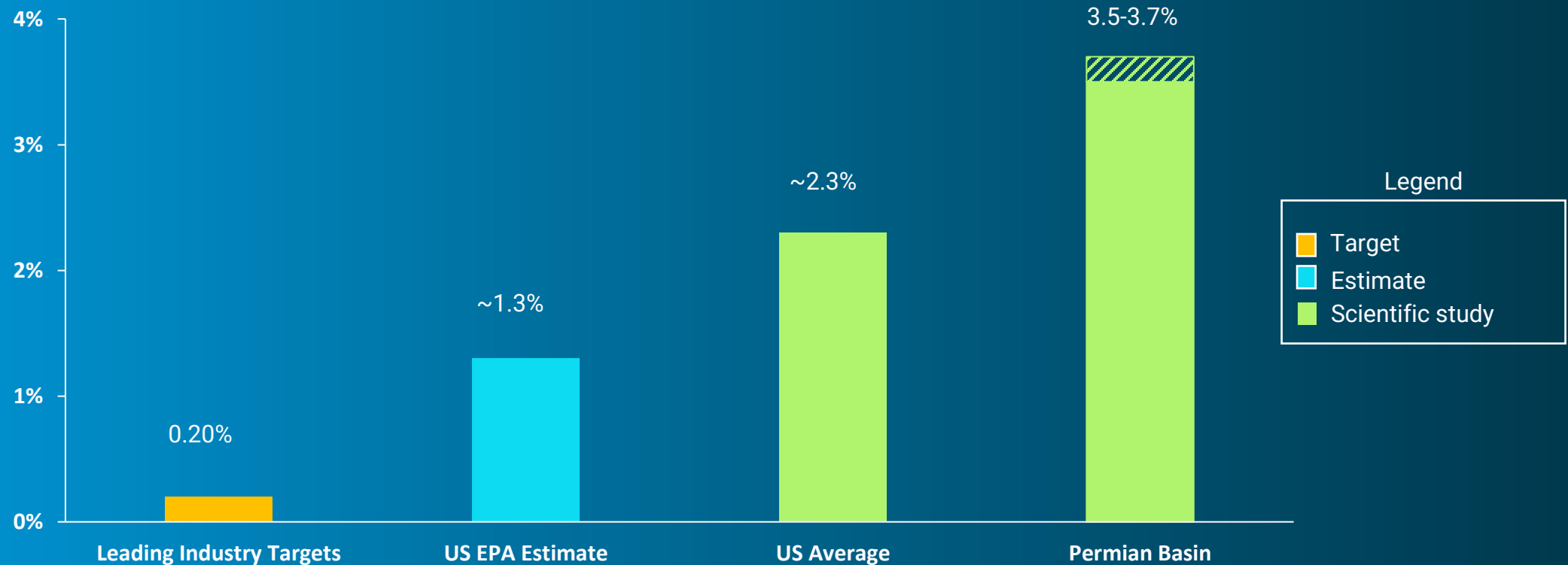
UNEP estimates anthropogenic emissions of methane are almost **350 million metric tons annually**.

The oil and gas sector is one of the largest emitting sectors and has the **greatest potential** for reducing emissions quickly.

Over 40% of methane emissions from the oil and gas sector can be made at **no net cost**.

→ Better data is required to target methane reductions at the speed and scale needed to achieve the Paris Agreement

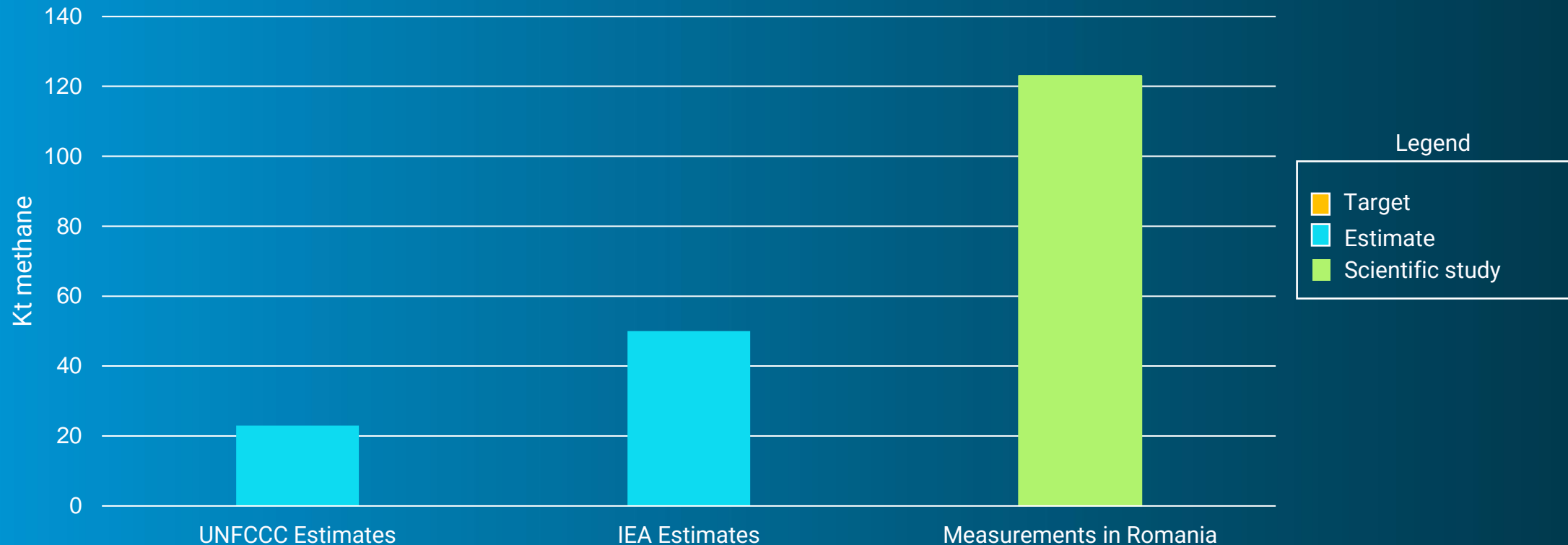
Case Study 1: Measured methane emissions intensity in the U.S. is significantly higher than estimated amounts



Measurement data are crucial to ensure that mitigation policies and actions are science-based and target the biggest opportunities for near-term emissions reduction

→ Better data is required to target methane reductions at the speed and scale needed to achieve the Paris Agreement

Case Study 2: Methane emissions measurements in Romania are significantly higher than estimated amounts



Measurement data are crucial to ensure that mitigation policies and actions are science-based and target the biggest opportunities for near-term emissions reduction

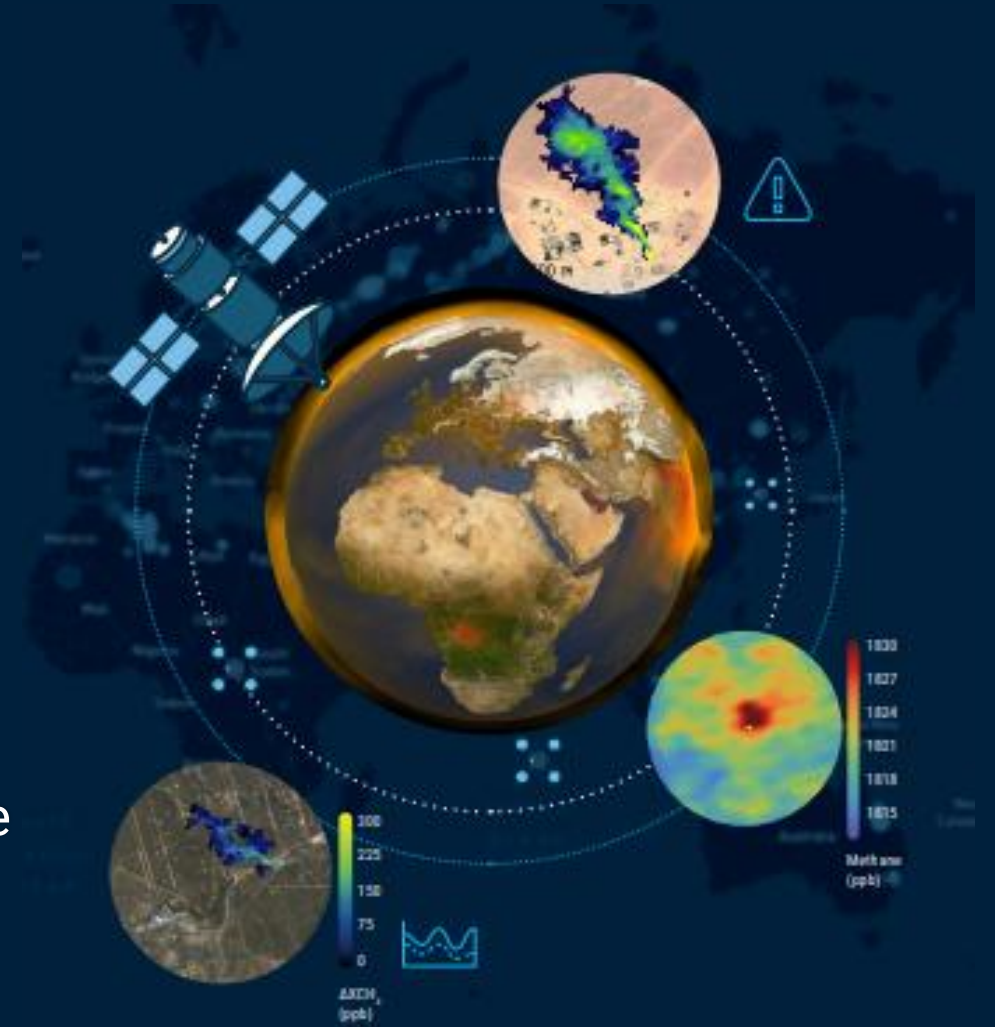
→ **The Methane Alert and Response System (MARS) uses satellites to provide open, reliable, and actionable data to governments and industry**

Component 1 – Detect and Attribute Sources

Component 2 – Notify and Engage Stakeholders

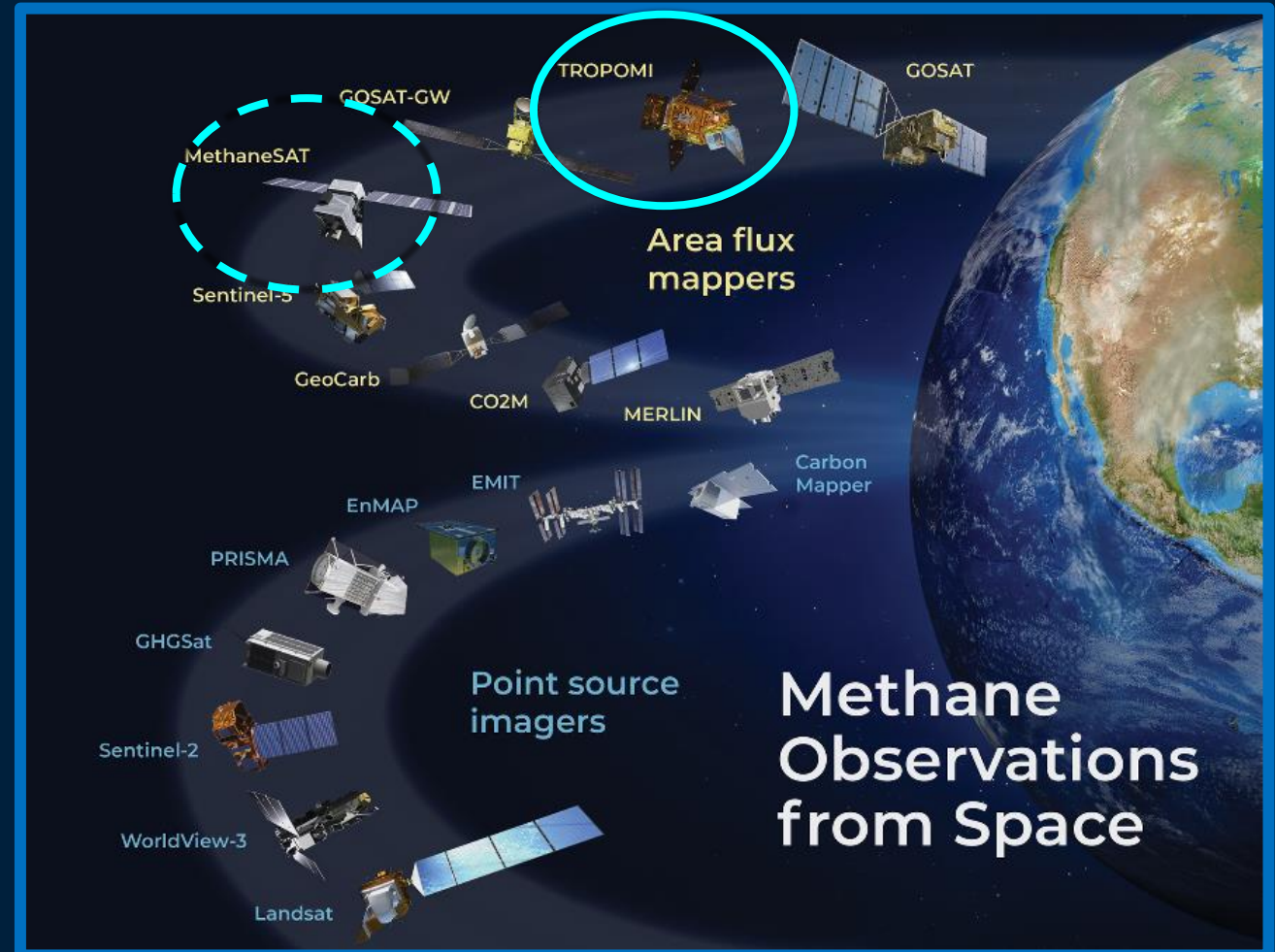
Component 3 – Stakeholders Take Action

Component 4 – Track, Learn, Collaborate, Improve



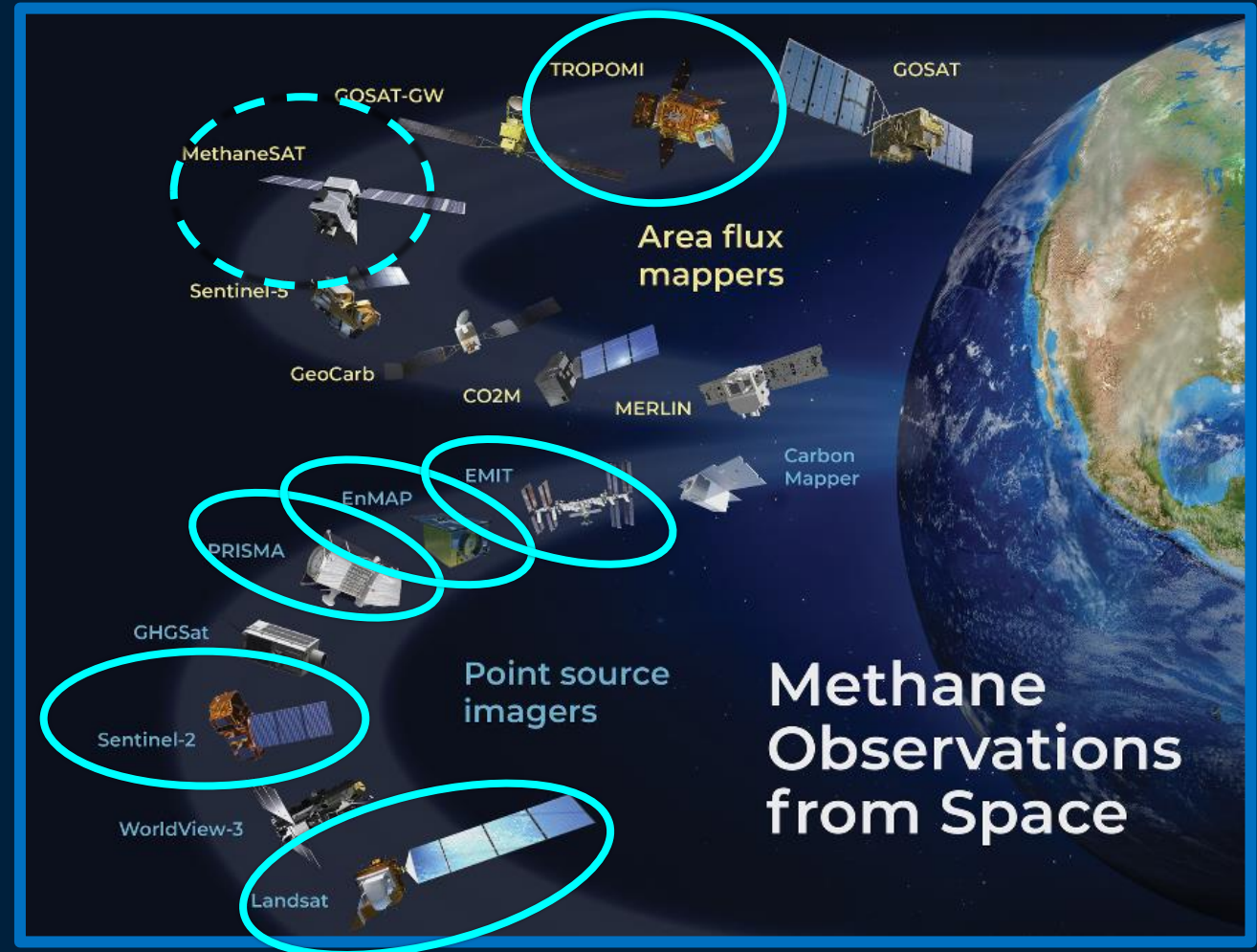
→ **Component 1: MARS uses state-of-the-art, publicly available satellite data to drive notification and mitigation processes**

- **Global mapping satellites** are used to identify very large methane plumes and methane hot spots



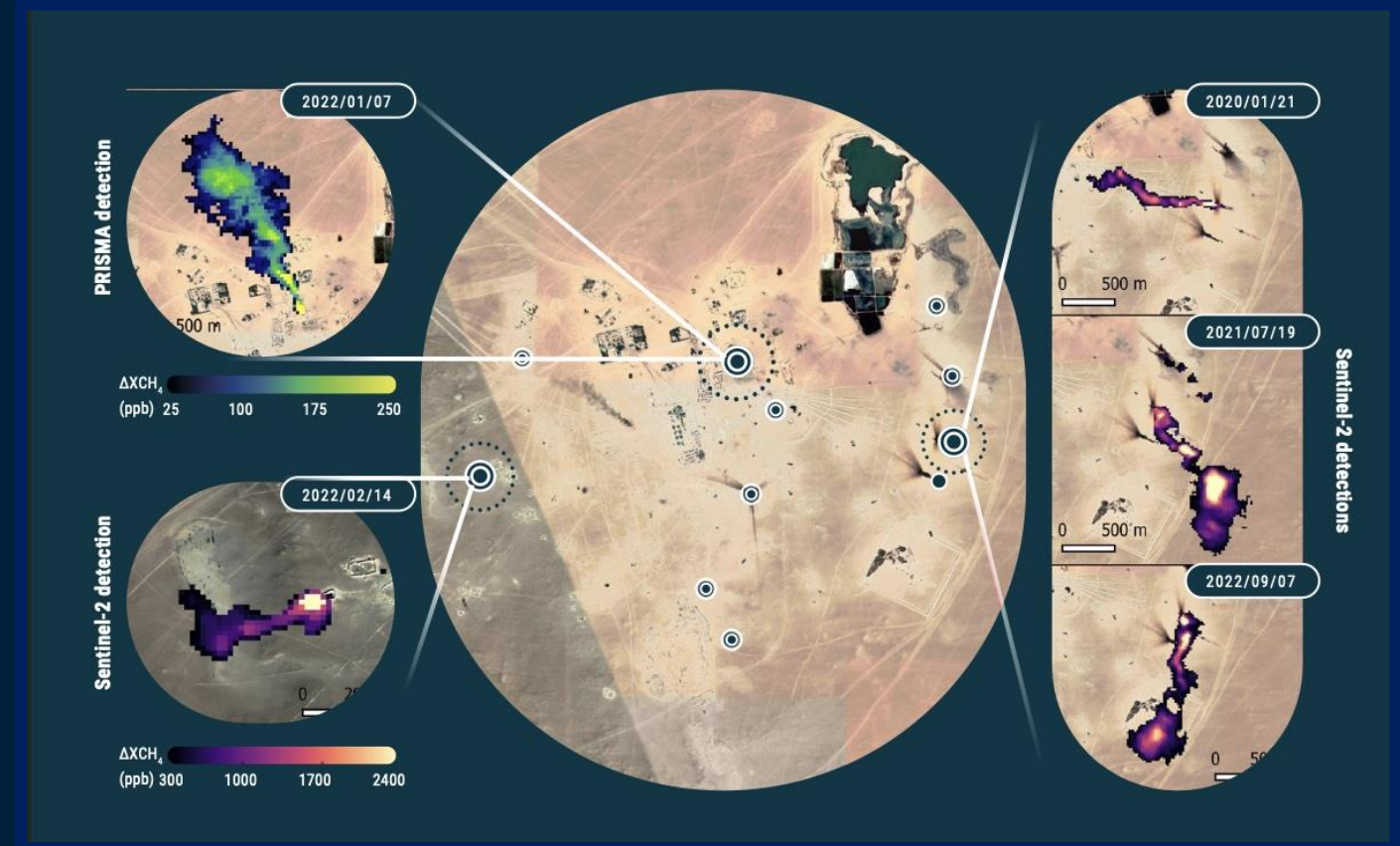
→ **Component 1: MARS uses state-of-the-art, publicly available satellite data to drive notification and mitigation processes**

- **Global mapping satellites** are used to identify very large methane plumes and methane hot spots
- Further analysis using other satellites and datasets **enables attribution**



→ Component 1: MARS uses **state-of-the-art, publicly available satellite data** to drive notification and mitigation processes

- **Global mapping satellites** are used to identify very large methane plumes and methane hot spots
- Further analysis using other satellites and datasets **enables source attribution**
- MARS will only capture the largest emitting sources, covering approximately 10% of methane emissions



→ MARS will improve **global transparency** on methane emissions

MARS supports UNEP's objective to provide methane emissions data globally that are:

open

reliable

actionable

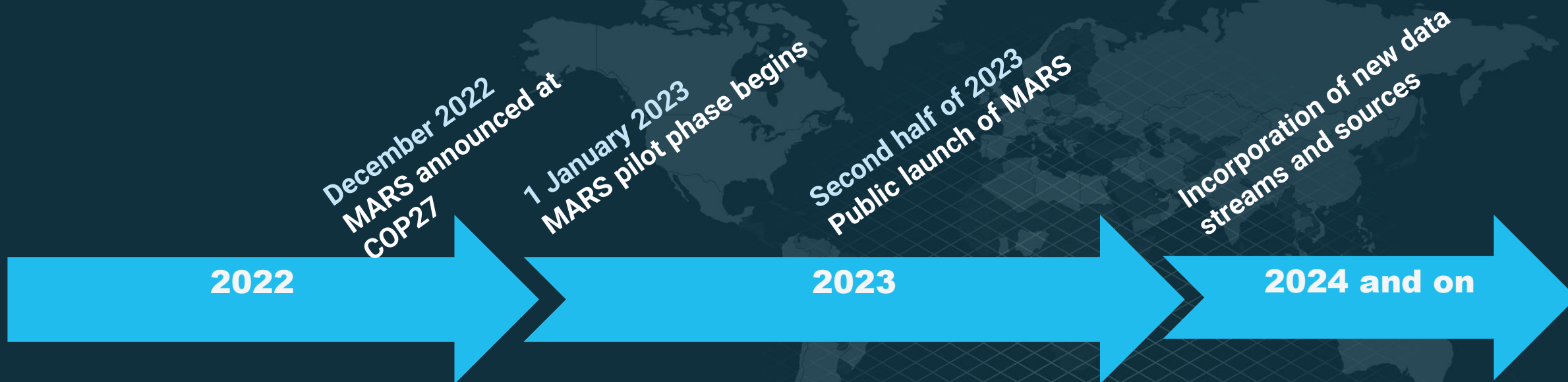
Active participation in MARS enables stakeholders to **demonstrate leadership** on methane emissions and a **commitment to best-in-class** operations.

Information Provision Approach

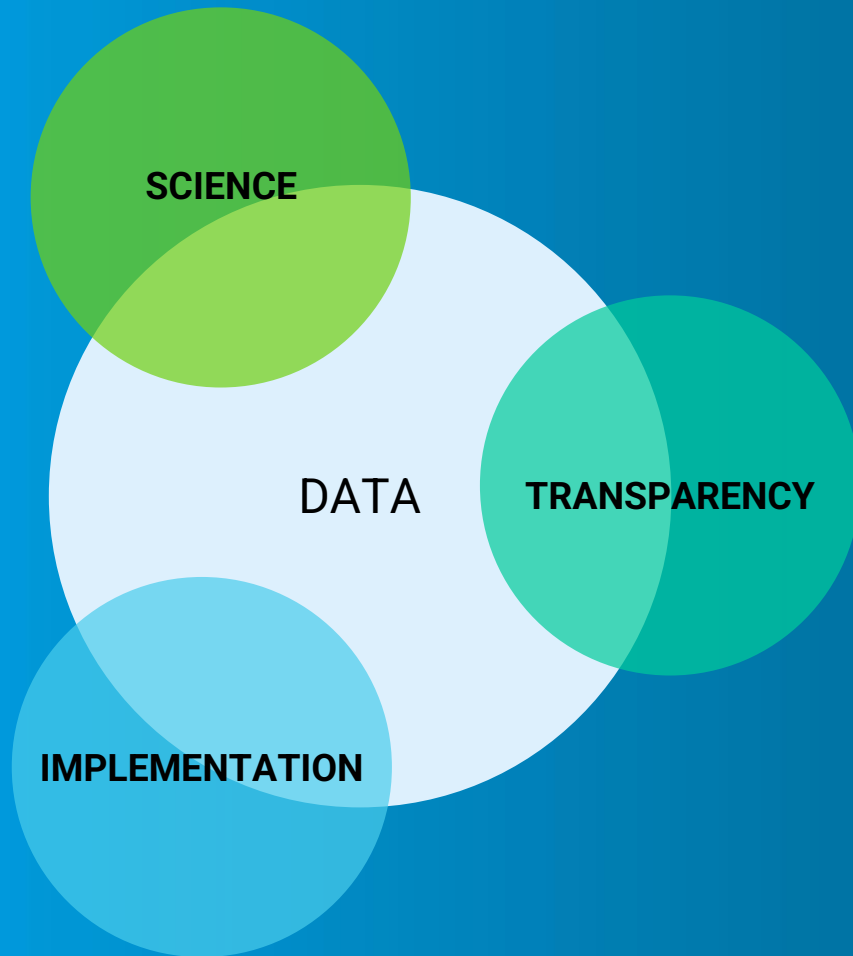
MARS data will be publicly available, including:

- Satellite data and related metadata (e.g., visual data)
- Summary of company and/or country response(s) to notification process
- Summary description of mitigation efforts and/or plans
- Any future MARS detections linked to the event location

→ UNEP will start making MARS data available **later this year**



MARS is the latest component of UNEP's International Methane Emissions Observatory



Methane Science Studies

Goal: close the knowledge gap in the location and magnitude of methane emissions through peer-reviewed studies and the reconciliation of empirical data

Oil and Gas Methane Partnership 2.0 Methane Alert and Response System

Goal: provide accurate, unbiased and up-to-date information on methane emissions

Methane Training Series

Goal: raise awareness and increase the capacity of governments to pursue science-based policies to reduce methane emissions

→ UNEP-Convended Climate and Clean Air Coalition – delivering in partnership since 2012



UNEP convended initiative

- **Short-lived climate pollutants:** black carbon, *methane*, hydrofluorocarbons and ozone.
- **Integrated approach Climate and Clean Air,** proven low-cost solutions, generating **co-benefits** for health, food security, economic development & ecosystems.
- **2030 Strategy:** High-level ambition, support national & transformative action, policy-relevant research and analysis.
- **6 sector Hubs and a National Planning Hub** – communities of practice to define positive tipping points for each sector, peer to peer exchange and matchmaking.
- **Core implementer** of the Global Methane Pledge and **'first port of call'** for countries joining the pledge.

78
country
partners

78
non-state
partners

100
m US\$
Phase I



National
Planning



Household
Energy



Agriculture



HDV&E



Fossil Fuels



Cooling



Waste



Accessing support through the CCAC Trust Fund



UNEP convened initiative

1

National SLCP Experts

Enhance technical capacity, coordination, and implementation with CCAC support for a National SLCP Expert working alongside you.

3

National Planning Support

CCAC Calls for Proposal - Receive support to develop national climate and clean air plans while strengthening technical and institutional capacity

2

Targeted Expert Assistance

Secure fast support for guidance on innovative technologies, mitigation measures, funding opportunities, emissions measurement tools, and policy development.

4

Policy and regulatory support

Benefit from targeted activities such as regulatory analysis, sectoral strategies, cost-benefit analysis, and peer-to-peer exchanges across SLCP sectors.

→ Plus a Methane Technical Assistance Portal



UNEP convened initiative

1

CH4priorities

Providing initial insights into priority areas for action via projections of country-level methane hotspots, using data from the CCAC/UNEP Global Methane Assessment.

3

National Methane 'Officers'

Providing targeted support and national consultants to build capacity in national governments for inter-ministerial coordination and engagement, both for planning and access to finance.

2

M-RAP

Offering training through the Methane Roadmap Action Programme to support the development and implementation of transparent and consistent Country Methane Action Plans.

4

Media Masterclasses

Engaging the media with Masterclasses to support public understanding and maintain momentum for the political and diplomatic efforts of the Global Methane Pledge.