Methane: Congressional Climate Camp on Non-CO_2 Greenhouse Gases

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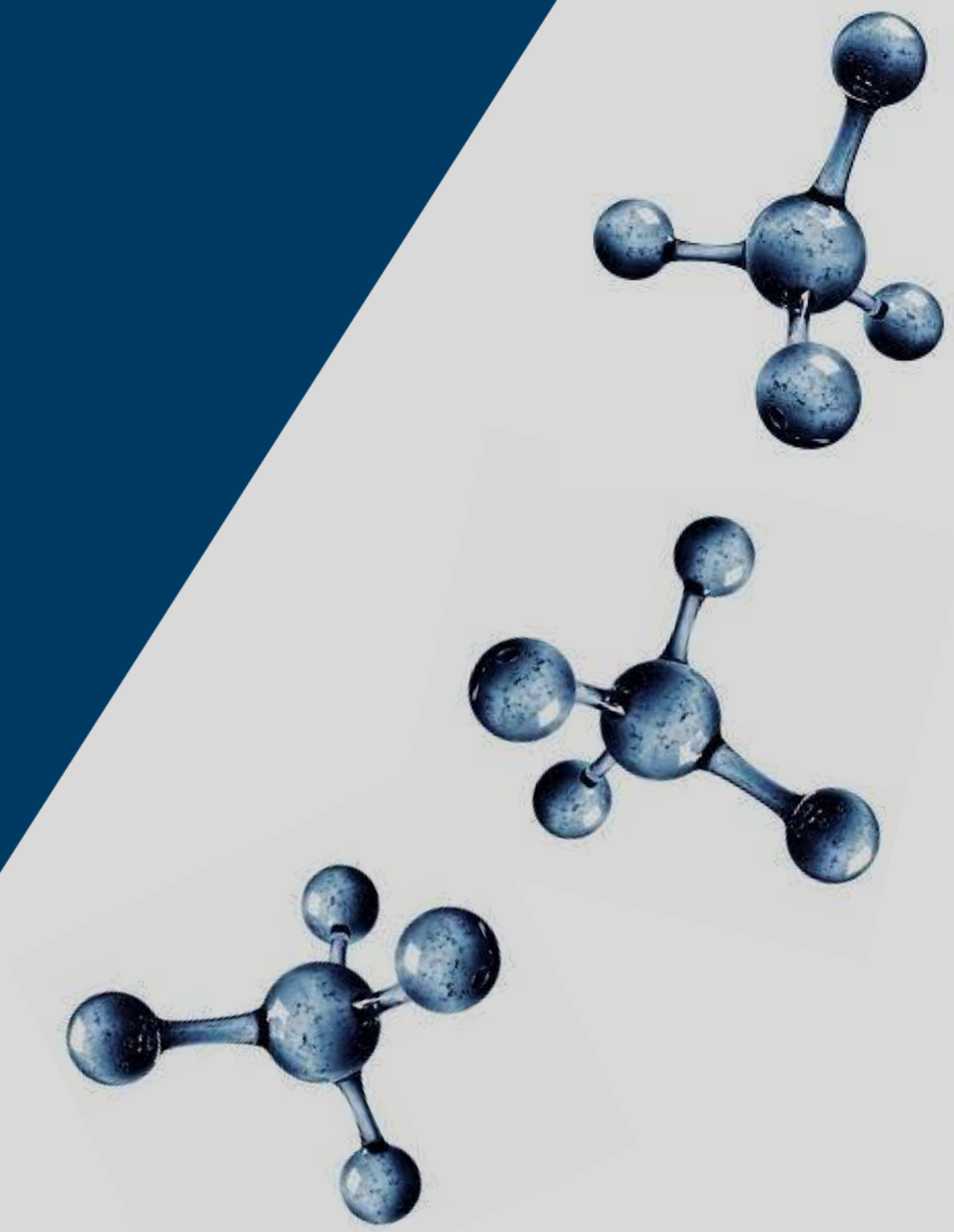


THE
NORTH STAR.

THE EVIDENCE IS CLEAR: THE TIME FOR ACTION IS NOW.

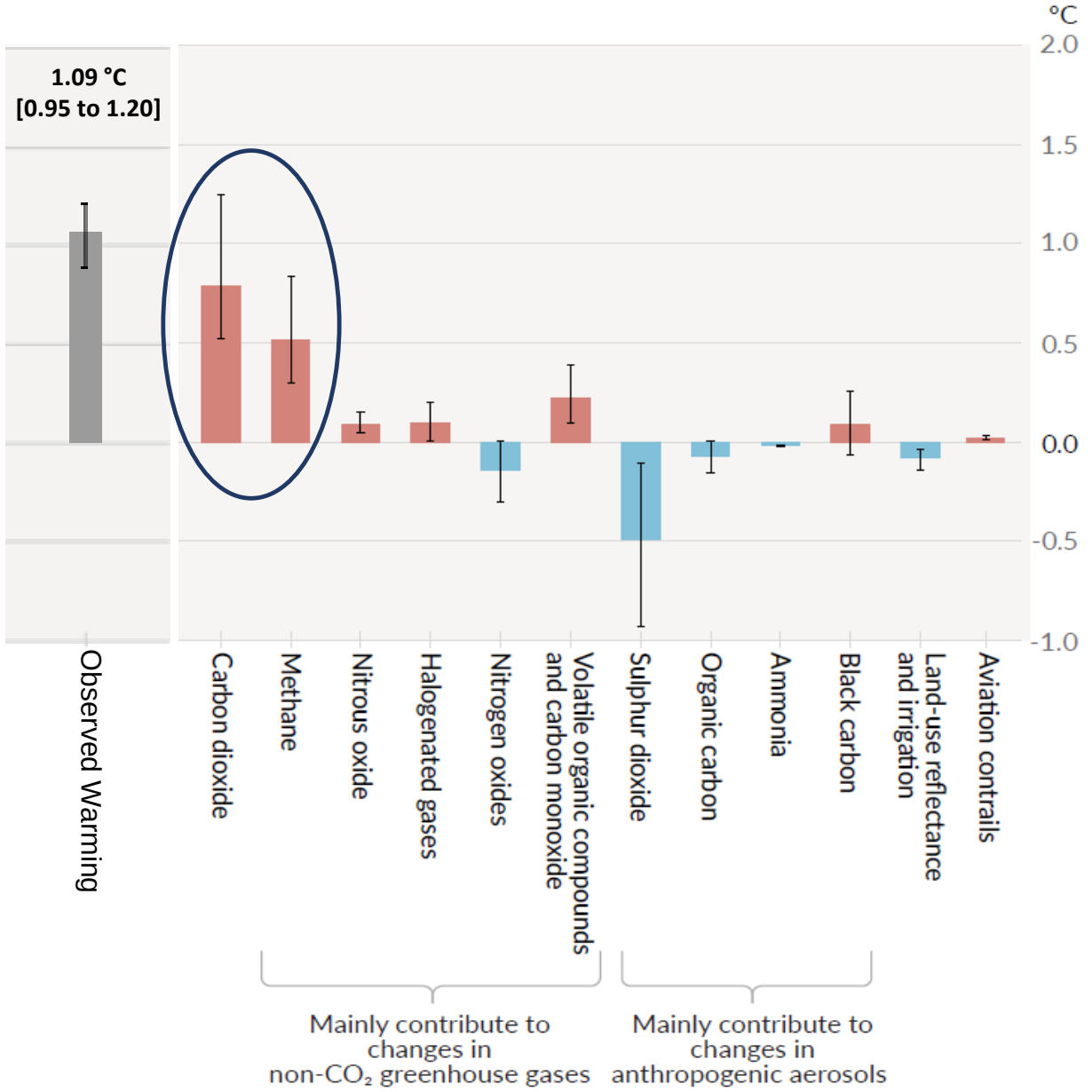
—Intergovernmental Panel on Climate Change

Average annual greenhouse gas emissions were at their highest levels in human history over the past decade.

We can halve emissions by 2030.

Methane is playing a major warming role.

- Methane is >80 times more climate forcing than CO_2 using a 20-years global warming potential
- But methane's ~10-year lifetime, it is **>100 times more** climate forcing than CO_2
- **IPCC finds that climactic warming from methane rivals carbon dioxide, within error.**

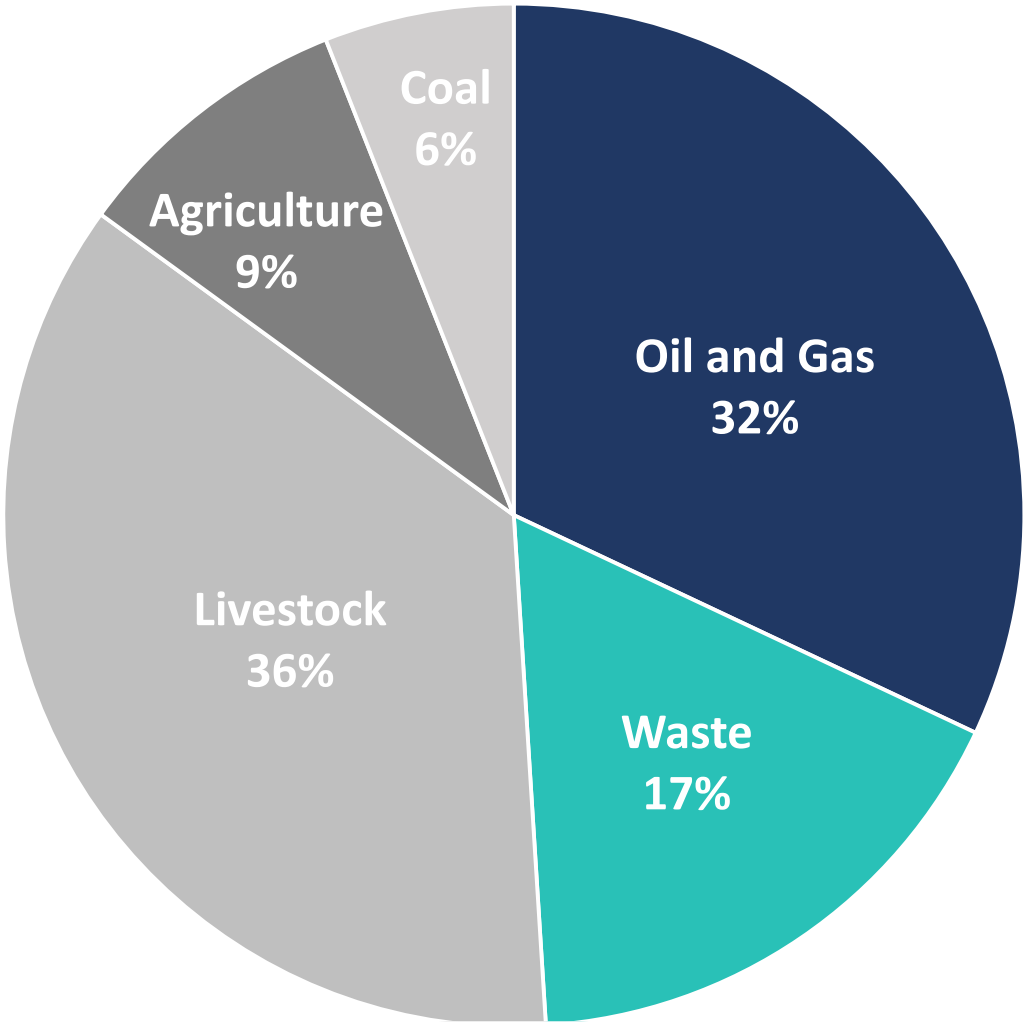


Assessed contributions to observed warming in 2010–2019 relative to 1850–1900.
Source: IPCC, AR6, Figure SPM.2, 2021.

Methane emissions are concentrated in a few sectors.

28 Mt per year in US
Estimated* total human-made methane

**** Carbon Mapper aerial surveys and satellites are identifying significant methane super-emitters that suggest undercounting in***
Current national (and global) methane inventories.



2020 US Methane Emissions, by source

Source: US EPA, "Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2020," 2022.

What is co-emitted with methane?

Natural Gas Main Components	Volume %
Methane	<70 - >90%
Natural Gas Liquids	5-15%
CO_2 & H_2S	5-40%
Oxygen, nitrogen & other impurities	1-5%

Air Toxins in Gas Study Samples	Concentration (ppm_v)
Benzene	165
Toluene	161
Ethylbenzene	13
Xylene(s)	75

HARVARD STUDY RESIDENTIAL* GAS, 2022

*RESIDENTIAL PIPELINE GAS MAY HAVE FEWER TOXIN CONTENT THAN INDUSTRIAL GAS

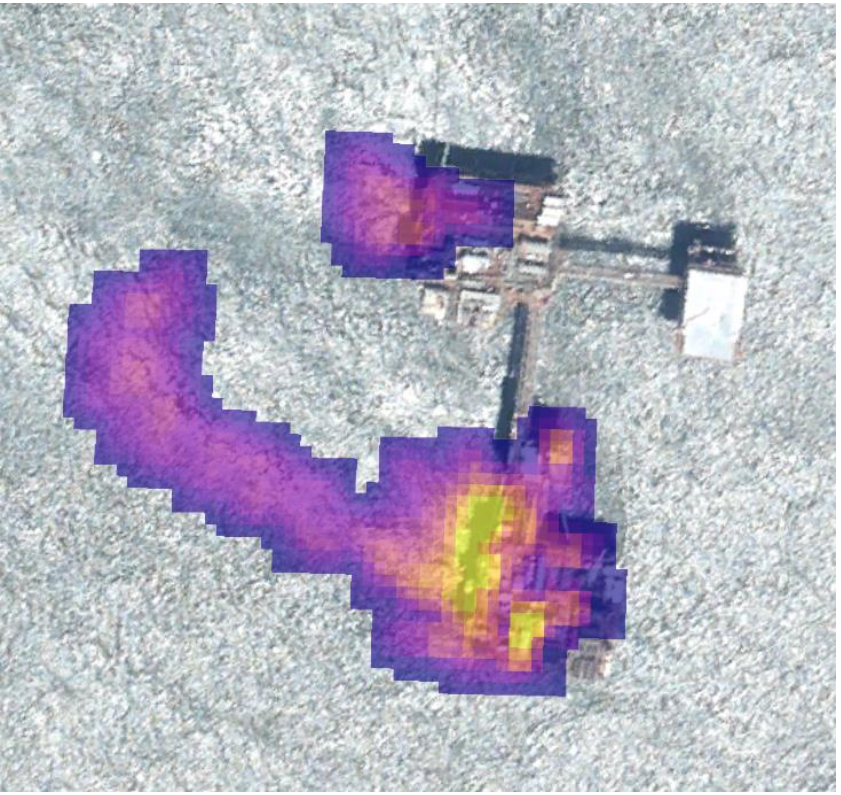
RMI

Methane in Oil & Gas and Waste Sectors

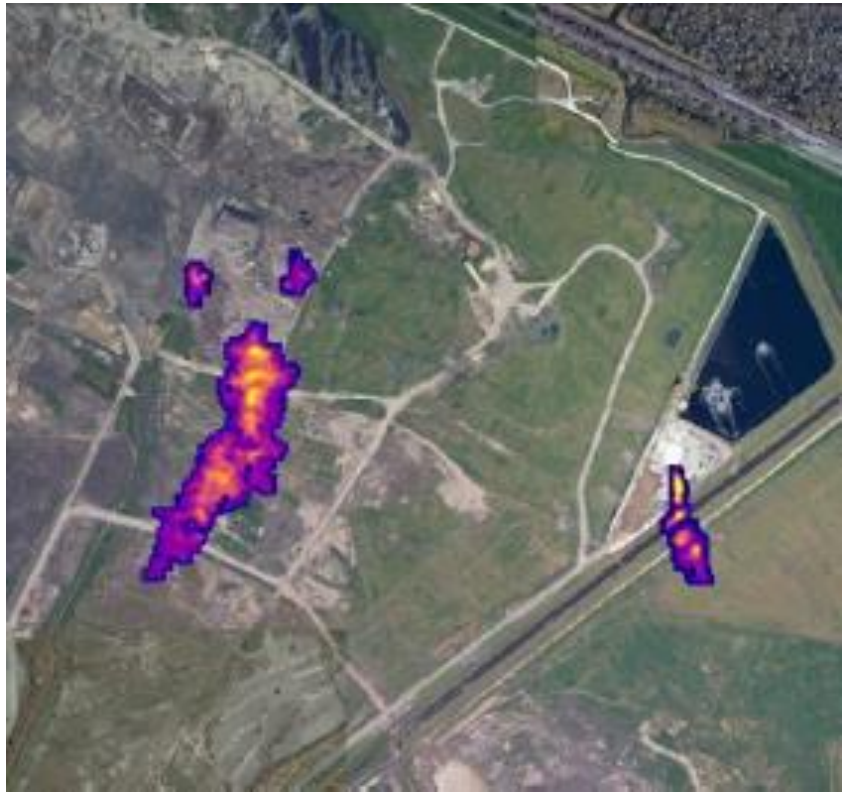
Making emissions visible

Targeting the outsized threat and opportunity by preventing super-emitters

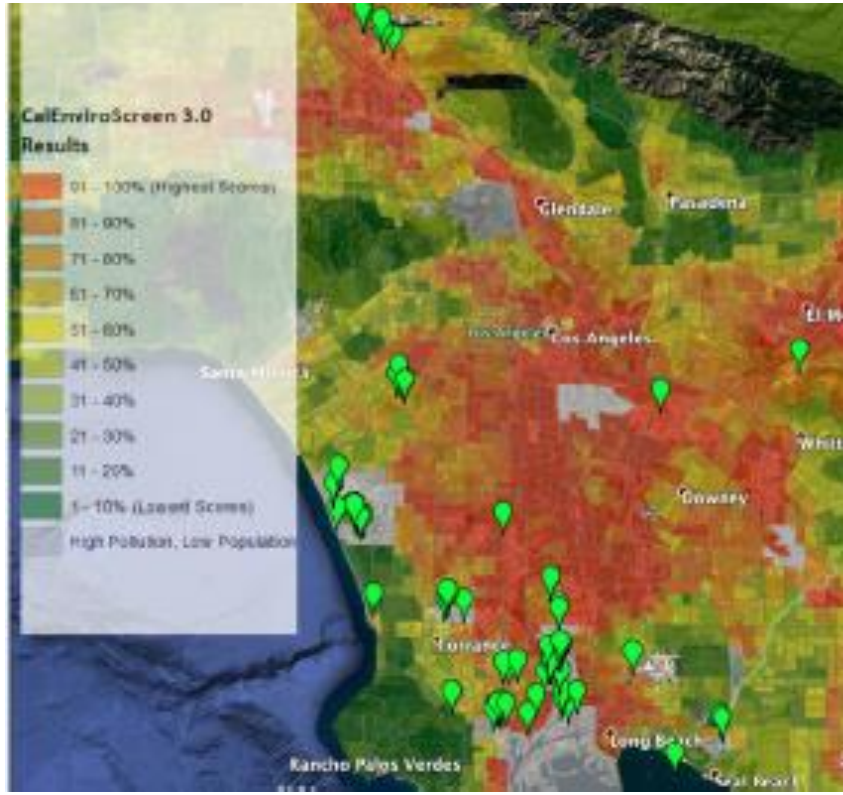
Climate, air quality, public health and environmental justice issues



GOM Offshore Platform:
66% methane leakage rate in state waters



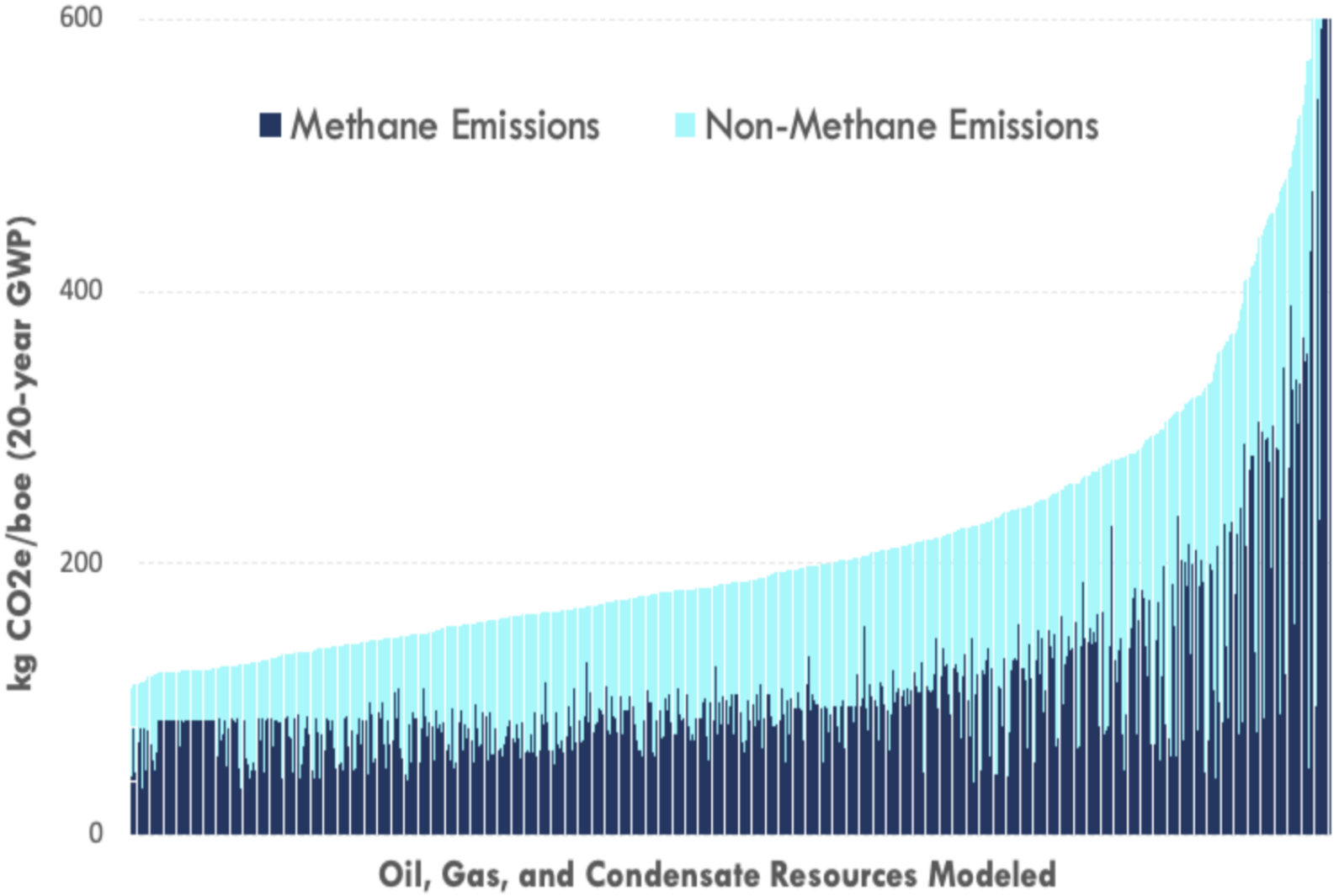
New Orleans Landfill:
2,000 kg methane per hour

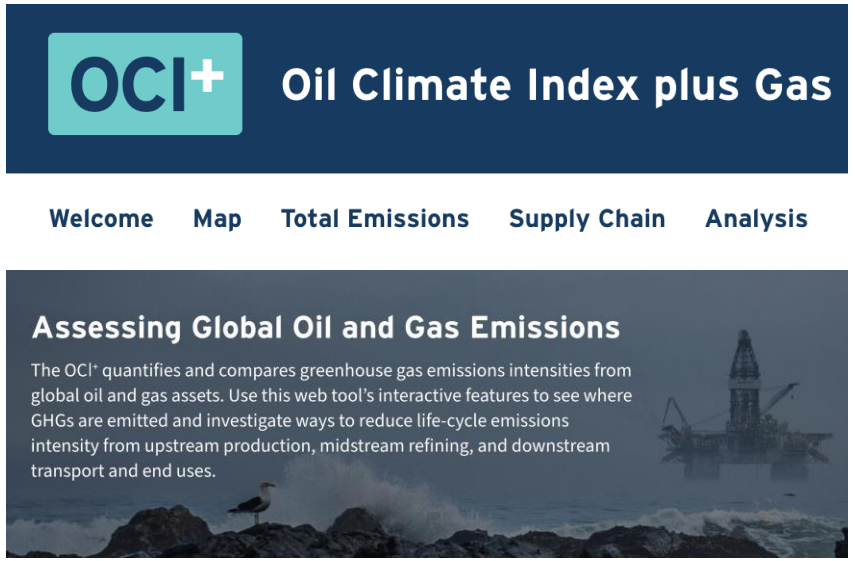


Methane super-emitters in disadvantaged communities

Quantify, attribute, and mitigate methane

Preventing leakage eliminates one-half of the oil and gas industry's climate impact.





Source: RMI, OCI+ Web tool, 2023.
Modeling ~70% global O&G supplies.

RMI Oil and Gas Solutions Initiative

Leverage emissions transparency for decarbonization across supply chains

Expanded emissions visibility → **Will drive decarbonization on several fronts**

- Emissions-differentiated **market** activation
- Climate-aligned **corporate** business models
- Better **investor** portfolio allocations
- Informed **government** policy and regulation

We can manage what we can measure

It's wasteful, harmful, and dangerous to leak gas.

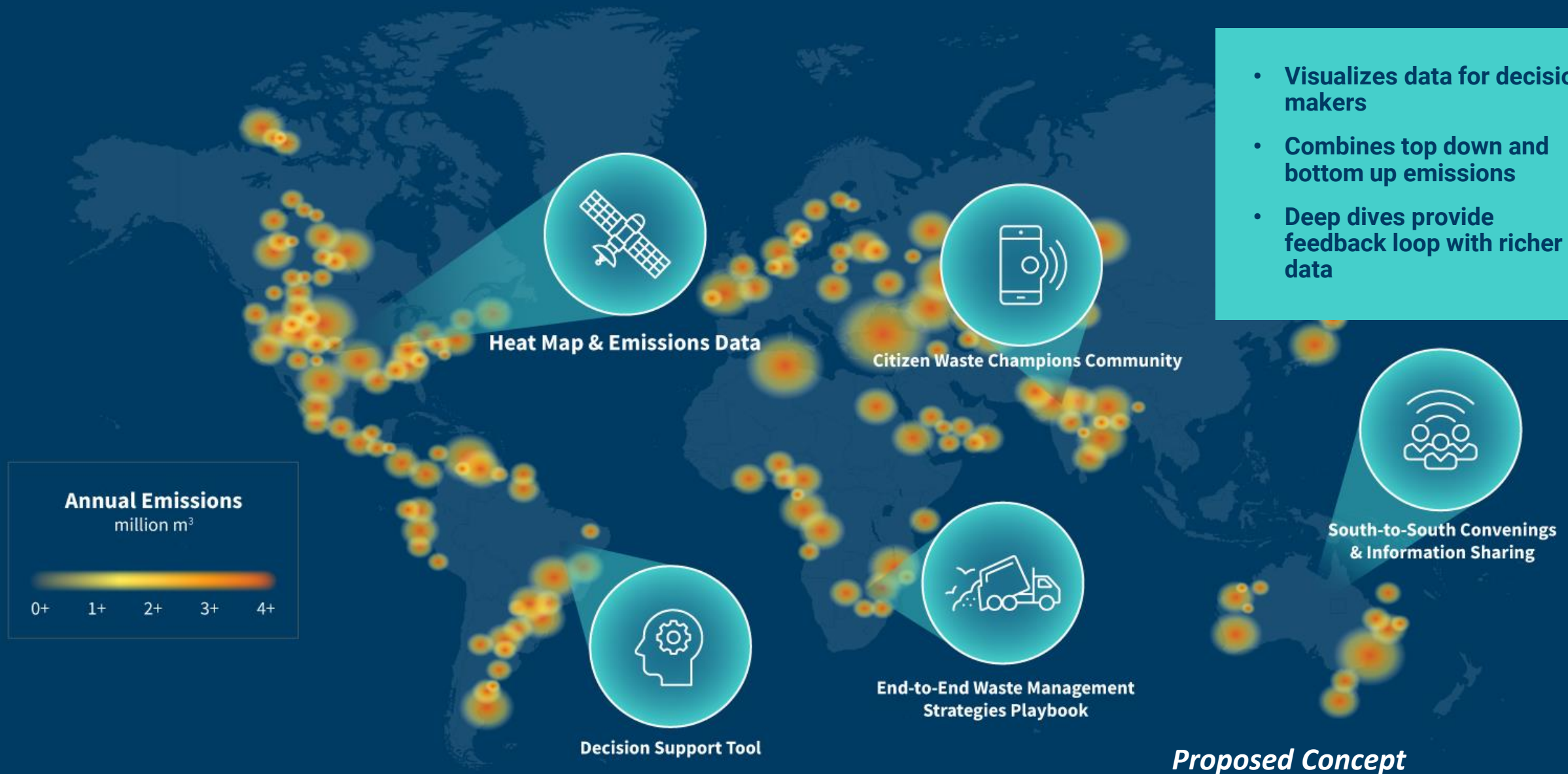
The oil and gas industry is the #2 source of human-made methane.

But it's #1 for reduction potential.

Leaking over ~3% of produced gas makes it more damaging to the climate than coal.

Publicly track oil and gas asset ownership to ensure consistency between federal and state agencies.

Waste MAP (Methane Assessment Platform)



- Visualizes data for decision makers
- Combines top down and bottom up emissions
- Deep dives provide feedback loop with richer data

Proposed Concept

Two-Pronged Approach to Waste Methane Mitigation

WASTE MAP

Open-Source Platform

designed to collect and improve availability and robustness of global waste sector data and enable methane emissions transparency

Decision Support Tools

the platform will include a heat map of methane emissions from waste, strategic playbooks for waste methane mitigation, and case studies

COUNTRY DEEP DIVES

On-the-Ground Support

Subnational and national engagement to support a pathway for waste management improvements, improve public health, and reduce environmental impact

Information Sharing

Creating and Convening a network of waste experts and peer-to-peer exchange to share global waste management practices.

Prioritized methane in this decisive decade.

Increase transparency:

–Fund public methane monitoring to spot leakage in industry supply chains using satellites, aerial leak detection, and ground-based optical imaging.

Track methane:

–Track, quantify, and attribute emissions through non-proprietary reporting so that responsible parties develop mitigation plans and curtail emissions.

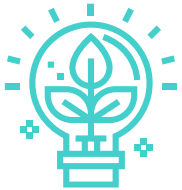
Establish methane markets:

–Use an independent, verifiable certification process to differentiate commodities and price them based on their emissions to incentivize rapid methane reduction.

Advance policymaking:

–Convert voluntary market standards, meet national pledges, adopt mandatory performance standards, extend methane fees, and create financial instruments.

What we've learned over the past 40 years shapes what we choose to work on



Expertise

- Energy systems
- Supply chains
- Market forces

+

Influence

- Access to key actors
- Radical collaboration
- Communication

+

Impact

- Catalytic opportunities
- Relentless monitoring + evaluation

+

Inclusion

- Deeply committed to DEIJ
- Transition benefits all

=

RMI PORTFOLIO

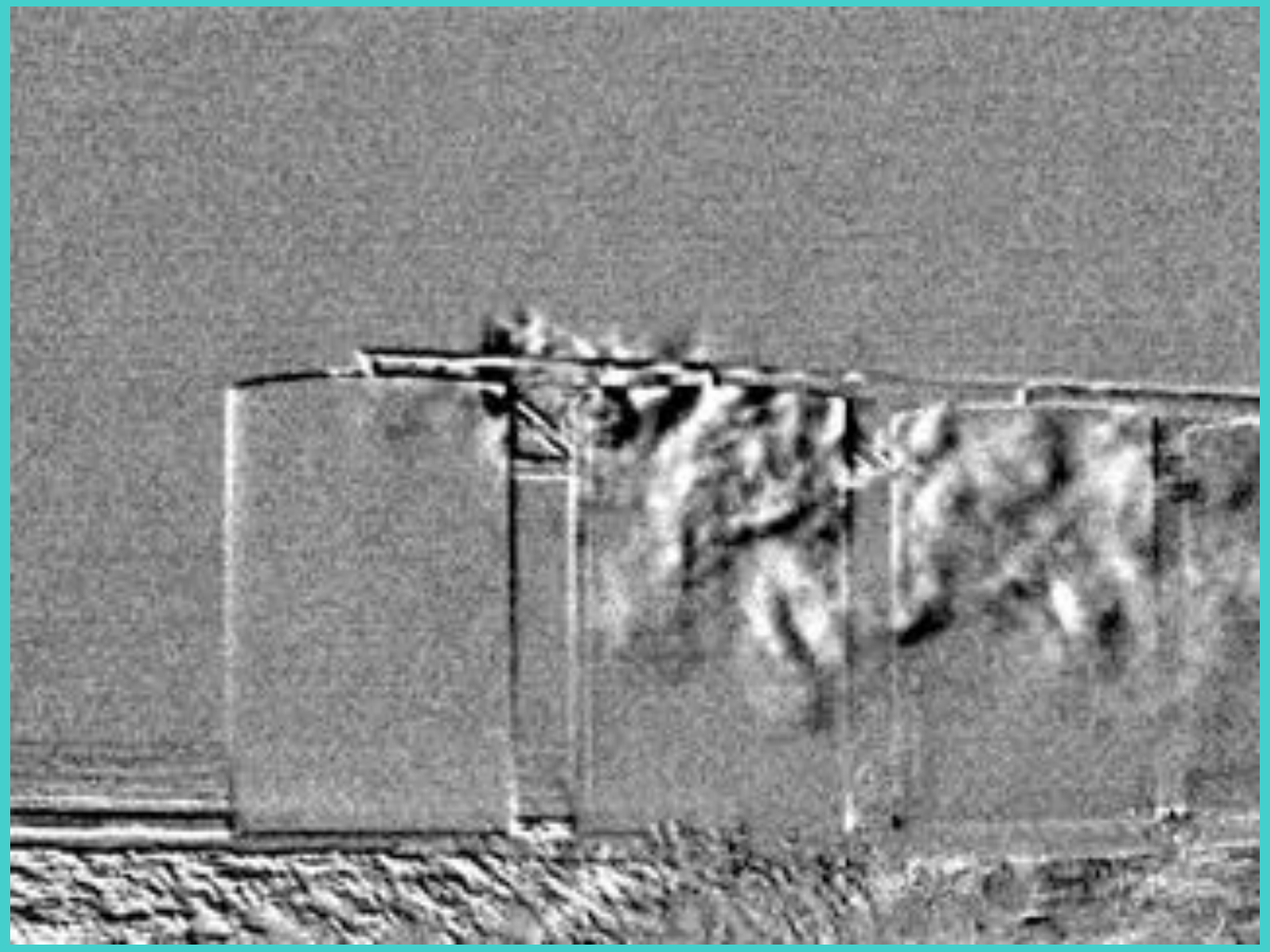
RMI
ENERGY. TRANSFORMED.

RMI is transforming global energy use to secure a clean, prosperous, zero-carbon future — for all.

In addition to preserving natural resources and mitigating climate change…

“Cutting methane emissions [is] a critical environmental justice opportunity and a critical way to save hundreds of thousands of lives."

— Rick Duke
Senior director and White House liaison
for U.S. special climate envoy John Kerry



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Thank you!

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