UCDAVIS CLEAR Center

Clarity and Leadership for Environmental Awareness and Research Center
University of California, Davis
clear.ucdavis.edu

RETHINKING METHANE: THE PATH TO CLIMATE NEUTRALITY

To limit climate change, we need to measure a greenhouse gas by how much it warms the climate, and not just it's potency or how it compares to other gases.

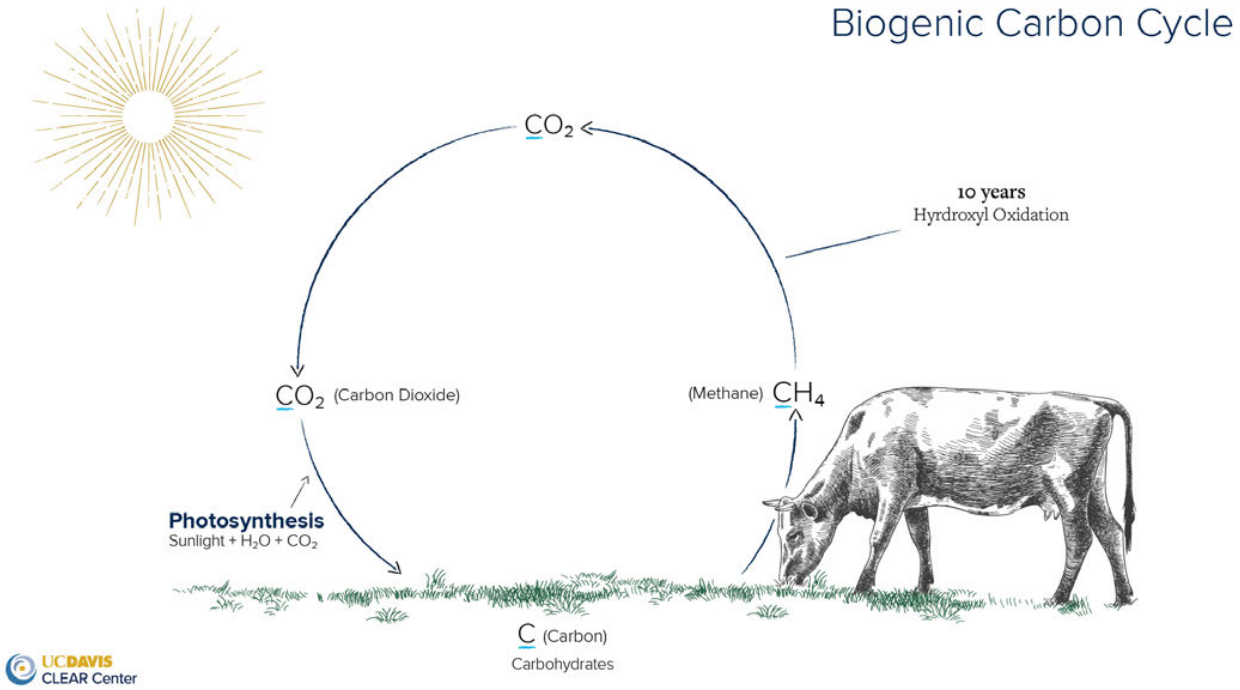
The current matrix used to measure greenhouse gases was developed in the 1990s, but doesn't tell the whole story of how a greenhouse gas impacts our planet. In particular, methane.

Undeniably, methane is a strong pollutant that we should work to reduce. Compared to CO_2 it is 28 times stronger. But it does not contribute 28 times more warming than CO_2. That's because it only stays in our atmosphere for 10 years, while CO_2 stays in our atmosphere for one thousand years.

That's not all we neglect to factor in. Methane from ruminants is cyclical. Think back to your grade school years when you learned about how plants grow. What do they need?

They need water, sunshine and CO_2. That CO_2 is converted into carbon in the plant in the form of carbohydrates, which are then consumed by cattle. Some of that carbon from the ingested feed is then digested and forms methane (CH_4), which is then belched out into the atmosphere, where in 10 years an atmospheric radical comes along to steal a hydrogen atom away from the methane, turning the carbon from methane into CO_2. It is the same carbon that was in the plant, which was captured from the atmosphere. It is recycled carbon. This is called the biogenic carbon cycle.

Let's say we have a herd of 100 cows, and after 10 years it hasn't grown, it's not adding any additional methane to atmosphere, because for every pulse of methane released, one is being destroyed in the atmosphere by that atmospheric radical. And if you are not adding additional methane to the atmosphere, you are not adding any additional warming, which is ultimately what we care about.



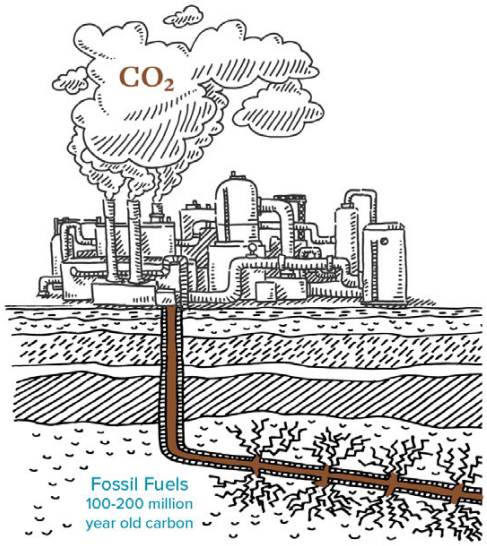
The biogenic carbon cycle begins with photosynthesis, in which plants capture carbon in the form of CO_2 and store it as carbohydrates. Ruminant animals eat those plants and carbohydrates, and release the carbon as methane. After 10 years that methane is converted into CO_2. It is recycled carbon.

If the livestock sector can reduce their greenhouse gas emissions, which certain sectors have, they will be on a path to climate neutrality – a point in which they are no longer negatively contributing to climate change.

Now, let's contrast methane with CO_2 from fossil fuels, in which we're taking ancient forests and animals from the ground and jutting them straight into the atmosphere where they will stay one thousand years, and continue to buildup and warm the planet.

For example, the CO_2 emitted driving a car today is added to the CO_2 emitted driving yesterday, and added to the CO_2 emitted the day before, continuing to add additional warming on top of the warming added before.

But the livestock industry, which has been disparaged time and time again for its methane emissions, can actually be part of the solution.

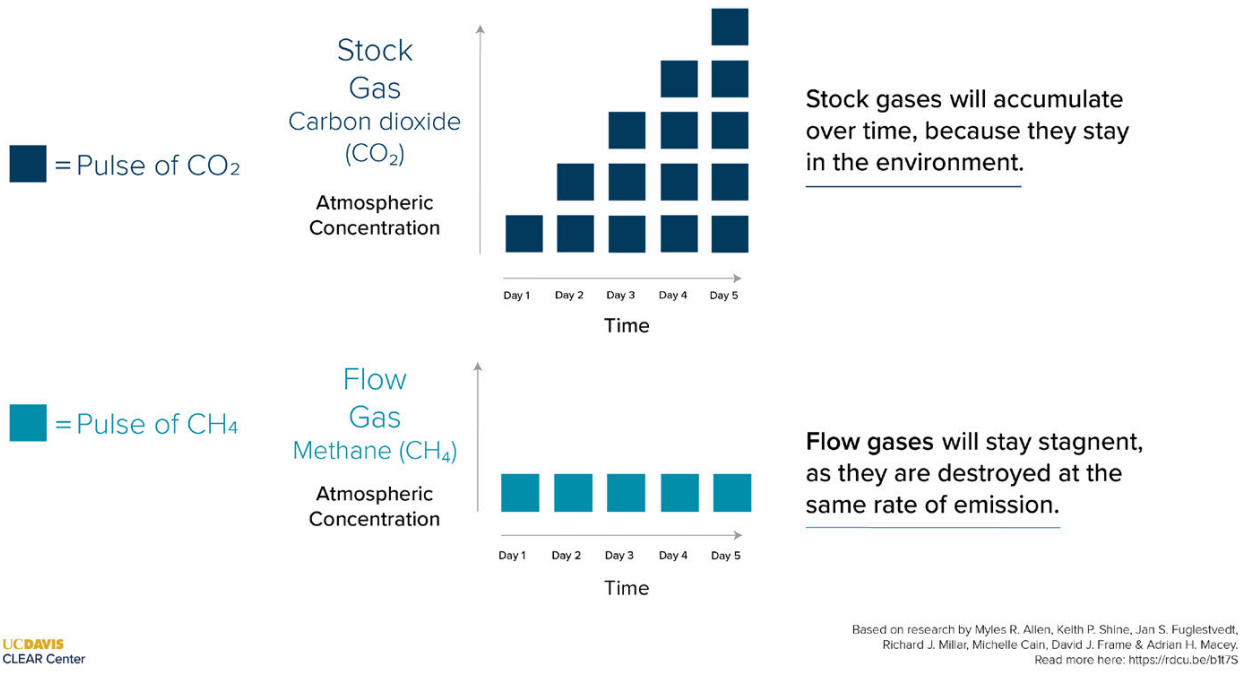


Stock gases, such as CO_2 from fossil fuels, is not cyclical. It is jutted into the atmosphere where it accumulates and continuously warms the planet.

If animal agriculture can curtail methane, which the industry has proudly done, then it can bring about cooling.

If methane is reduced, then plants will be able to start absorbing new carbon from CO_2 emitted by fossil fuels giving them somewhere else to go, rather than just stockpiling in our atmosphere and warming the planet.

The CLEAR Center is collaborating with producers and regulators to chart the path to climate neutrality, marking the point in which different sectors of animal agriculture are no longer contributing to climate change and are part of a climate solution.



Stock gases accumulate in the atmosphere, continuing to build upon previous emissions. Flow gases are destroyed at the same rate they are emitted.

Rethinking Methane Promotion Timeline

April/May

Explainers around Rethinking Methane to build a foundation of content we can reference in articles, blogs, social media and outreach. It will also capture search traffic.

The biogenic carbon cycle
Stock gases versus flow gasese: How enteric methane is different than CO2
What are dairy digesters?
What is Enteric Methane?
Etc.

June/July

Rethinking methane video release, with paid social promotion. This is tentative because of COVID-19 outbreak.

Tentative social promotion targeting can be seen here: [redacted]

The video will be sent to media who have previously engaged with our content or Dr. Mitloehner in some capacity: [redacted]

Create a webpage on clear.ucdavis.edu that has further information about rethinking methane, to help drive search traffic and serve as a resource for media and policy makers. Partners can link to this page and embed the videon on their own sites to raise the search equity of the project.

Leverage Frank's twitter to promote the video organically.

September

Blog around Rethinking methane (Maybe Miles Alan Q&A).

November

Op-ed about Rethinking Methane, timing it with holidays.

December/January

Paper promotion, depending on publication.

Article on paper on clear.ucdavis.edu
Media pitching
Social promotion

*All dates are tentative and are subject to change due to the COVID-19 pandemic.