

METHANE GAS (CH₄) ©

by Dan Pemble, Kissimmee, Florida – September 28, 2023

As we all know, this has been an on-going era of hyped-up climate change/global warming related matters that are being endlessly perpetuated by the UN, in scientific technical essays and journals, and in the media. I, being simply a curious onlooker & somewhat of a “skeptic” who admittedly knows little about the related technicalities, may indeed be “walking on (soon-to-be-melted) thin ice” when I write something on the subject! So be it. However, if I don’t search out answers to my own curious questions, how will I ever learn anything new? As I approach 80 years of age, this “old dog” wants to learn some new “tricks! And, I believe that what I learn and include in my articles such as this one can be of interest to others, so I do want to share my newfound knowledge in the simplest of terms.

GREENHOUSE GASES (GHGs)

Per today’s scientific definition, GHG’s are described as pollutants in the atmosphere that can have an influence on global temperatures; these are “intruders” that collectively trap heat from the sun that could otherwise be naturally aspirated in clearer skies! Most so called GHG’s consist primarily of carbon dioxide (CO₂), NO_x (nitrous oxides), methane gas (CH₄), and other substances. Of particular interest to me at this time is the subject of Methane Gas that has been confirmed to be a significant contributor to the overall GHG composite, so let’s move on.

SOURCES OF CH₄

Perhaps the majority of all CH₄ emissions come from natural sources; these include Methane originating in the bottom of the ocean, from wetlands (swamps throughout the world), termites, remotely-located decaying vegetation & soils, wild animal droppings, and chemical reactions in the atmosphere, just to name a few. Of course volcanic activity, and forest fires may also be contributors. Man-made actions such as production and use of fossil fuels, agriculture and associated waste and the burning of biomass and biofuel are also contributors.

Mankind’s large-scale production of cattle apparently creates vast amounts of Methane, as attributed to cattles’ “belching” and posterior gaseous and solid excrements. Likewise, both large-scale pig and chicken production have also been singled out as significant CH₄ contributors. Interestingly, even continuously-flooded rice paddies produce Methane! And, how about untreated-garbage piled up along roadways? In my opinion, the natural contributors to our current levels of CH₄ far overshadow those that are created by mankind.

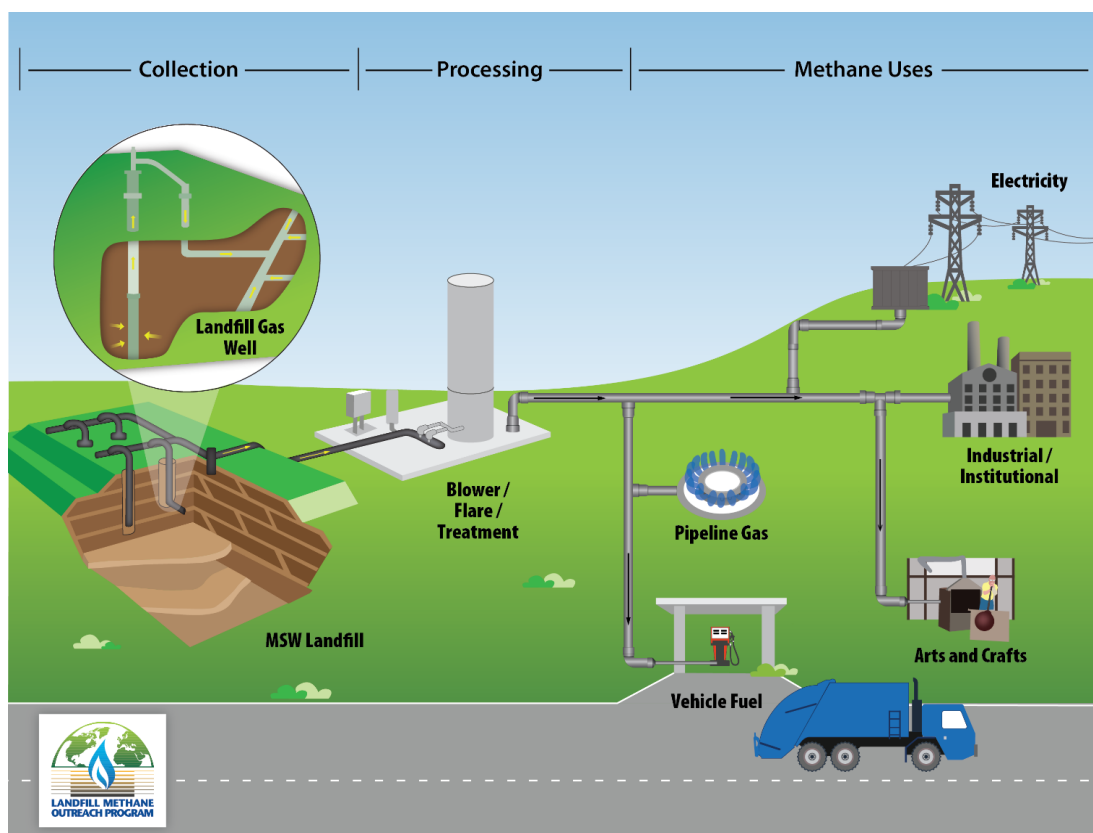
By the way, Methane is a very valuable naturally-occurring commodity and is otherwise known as “Natural Gas” (NG) or Liquid Natural Gas (LNG), in its storable and transportable form. It can indeed be used in a variety of applications and has tons of value! When CH₄ is burned, compared to other hydrocarbon fuels, it produces much less CO₂ for each unit of heat released and is therefore a source for relatively clean energy.

WHAT'S NEXT?

To begin with, who does not care about doing what we can to reduce atmospheric pollution related to CH_4 pollution – whether for our own benefit or for our offsprings? But, what can we do? Well, I guess we've all heard about “carbon capture” but frankly I don't know what that means and how it is to be accomplished; I need to explore that technology a bit further.

To me, when it comes to reducing CH_4 emissions from cattle and other livestock excrements, the idea of adjusting their diets to change the chemistry of their excrements is absurd! Likewise, the idea of doing away with beef and other livestock and developing vegetable substitutes is a bit far-fetched and is never likely to happen!

There are projects already implemented to capture and use CH_4 , Land Fill Gas (LFG) from Municipal Solid Waste (MSW) and this seems to be a viable effort for future expansion – around the world. Here is the typical scheme per a web site I visited:



The graphic illustrates the collection and processing of LFG to produce methane for multiple uses. First, LFG is collected through vertical and horizontal piping buried in an MSW (Municipal Solid Waste) landfill. The LFG is then processed and treated for use. The graphic shows potential end uses of LFG including industrial/institutional uses, arts and crafts, pipeline gas, and vehicle fuel.

TO ME IT SEEMS THAT CH_4 IS NOT ALL BAD!