A new study of carbon budgets on Mars suggests that too much has been lost to space for CO₂ to be the major greenhouse gas to terraform the planet.

- A long standing question asks whether the climate of Mars could be altered to raise atmospheric pressure to allow people to work on the surface without spacesuits, or to have temperatures warm enough for liquid water?

- To do this with indigenous resources would require subsurface reservoirs for CO₂ (a strong greenhouse gas) to be identified and mobilized back into the atmosphere.

- An inventory of available CO₂, based on MAVEN and MRO data, indicates that most of the CO₂ has been lost; the remaining CO₂ would be difficult to mobilize and emplace into the atmosphere.

- It is not possible to “terraform” Mars using presently available technology; these efforts would require developing a future capability to manufacture high-efficiency greenhouse gases.

Jakosky and Edwards (2018), Nature Astronomy