# Pasadena Citizens' Advisory Council

## An Introduction to Carbon Capture and Storage

**October 24, 2023**

Pasadena Citizens' Advisory Council (PCAC) invited two speakers to introduce the community to carbon capture, utilization, and storage (CCUS), a method of reducing greenhouse gases in the atmosphere by capturing them, doing something useful with them if possible, and storing them underground if not.

Scott Castleman, with the Houston Carbon Capture and Storage (CCS) Alliance, said that that the technology that needs to expand has been in use for more than 50 years. Removing carbon from the atmosphere would improve air quality and offer economic benefits. The Houston CCS Alliance produces educational materials for the public, including [Alliance Connect](#), available in English and Spanish. More details may be found in Castleman's slides, attached.

Ramanan Krishnamoorti, University of Houston Vice-President of Energy and Innovation and Professor of Petrochemical Engineering, went into greater detail about the process of carbon capture and why the technology needs to expand rapidly to yield maximum health and economic benefits in the future. Krishnamoorti emphasized that the scale of CCUS is a fraction of what it needs to be, and the global demand is growing exponentially. Among his points and information found in slides are the following:

- Houston is the largest single carbon dioxide ($CO_2$) emitter globally
- $CO_2$ can be stored or used as a commodity. Creating value is key to growth in CCUS.
- There is no single solution to controlling $CO_2$ emissions; carbon capture should accompany other proven technologies, such as solar, hydrogen, geothermal, etc.
- Guardrails need to be put in place including, but not limited to, monitoring of air and seismic activity. The University of Houston currently is taking seismic readings so there is a baseline against which to measure any changes resulting from CCUS.

Like Castleman, Krishnamoorti also suggested that global leadership in the carbon capture industry should be in Houston. More information can be found in Krishnamoorti's slide presentation, attached.