CLEAN AIR TASK FORCE

July 23, 2019

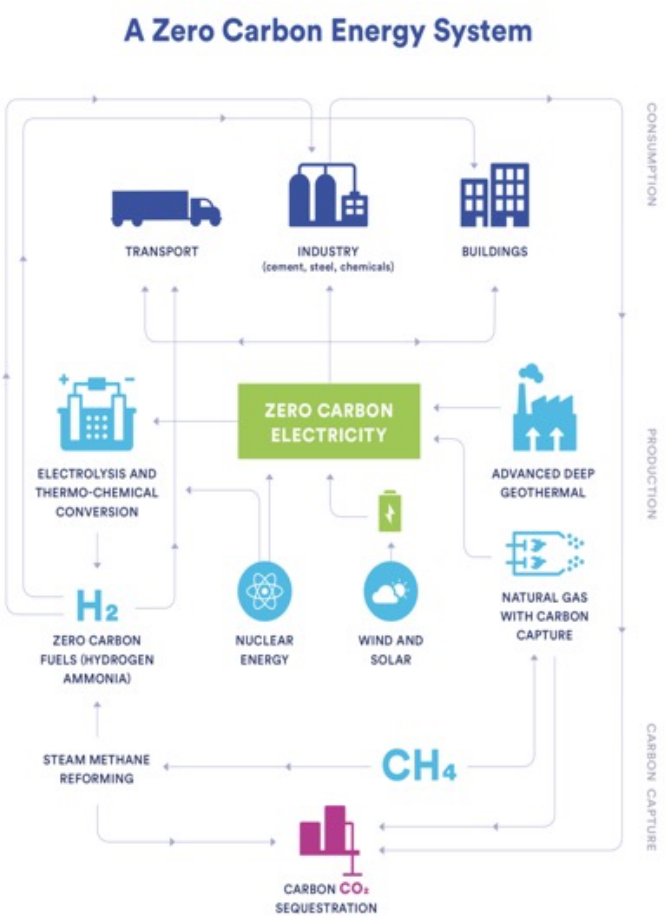
Submitted via Online Comment Submittal Form
California Air Resources Board
1001 I St
Sacramento, CA 95814

Subject: Comments on The Role of the Industrial Sector in Meeting California's Carbon Neutrality Goals.

Clean Air Task Force (CATF) appreciates the opportunity to provide comments to California Air Resources Board (CARB) on the role of the industrial sector in meeting California's carbon neutrality goals.

To meet California's goals to entirely decarbonize industry and achieve zero-carbon electricity by 2045, California would need to support both R&D for and deployment of multiple low-carbon technology options. Figure 1 below represents CATF's vision for zero-carbon energy system, which relies on several technologies working together, to decarbonize multiple sectors.

Figure 1



With industrial facilities, CO2 emissions come primarily from the use of fossil fuels (to generate heat) and from the inherent chemistry present in the industrial process being carried out. While making industrial processes more efficient and reducing demand are useful tools, fully decarbonizing the industrial sector will likely require a combination of the following approaches:

- Zero-carbon liquid fuels such as Hydrogen can meet heavy industry's energy needs for high temperature heating.
- Electrification can provide heating options for lighter industrial settings that have lower heat requirements.
- There is no alternative for reducing process emissions apart from capturing and storing the CO2 using carbon capture and storage (CCS) technologies.
- CCS technologies can play across multiple sectors. As can be seen in Figure 1 above, helping make zero-carbon Hydrogen a focus of the policies aimed at industrial decarbonization could help decarbonize buildings and transportation sectors too by supplying zero-carbon electricity, heat and mobility. While zero-carbon Hydrogen can be made using electrolysis (powered by nuclear or renewable electricity), the most cost-effective option today is through the use of natural gas and CCS. However, it should be noted that the natural gas should have appropriate upstream methane controls in order to be considered a zero-carbon source.

CATF supports some of the initial policy ideas that were brought up during the July 8th workshop, including creating a demand pull for low carbon cement through Buy Clean California Act since it is estimated that governments consume approximately 50% of cement sold. Simultaneously, California must support R&D to develop other zero carbon technology options & industrial innovation and support commercial demonstration for new technologies.

CATF is looking forward to continuing to engage with CARB in the workshops around industrial decarbonization and providing support through research, analysis and policy design recommendations.

Thank you.

Sincerely,
Deepika Nagabhushan
Program Director, Decarbonized Fossil Energy
Clean Air Task Force, Inc.