

CAPTURING AND CONVERTING CO₂ TO LOW CARBON EMISSIONS FUELS AND CHEMICALS

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Reducing human Carbon (CO₂) Emissions is a worldwide. Therefore there is a lot of interest for the use of advanced low CO₂ emission fuels such as biofuels and for the introduction of battery powered electrical vehicles charged by renewable energy such as solar, wind, hydro or geothermal power. Lesser known is the concept of converting the power generated by renewable energy directly into zero carbon emissions fuels, also sometimes called "electrical-fuels". It appears that this option may become the fastest and lowest cost transition path to Zero Carbon emissions. The technology to do so is already available and in fact state-of-the art except for the step to economically harvest CO₂ (and water) directly from the air. Direct Air Capture (DAC) of CO₂ will be necessary as in many cases no secure CO₂ point sources are present or will be present in the future at the locations where the lowest cost electricity (to produce Hydrogen) is available. Furthermore it may be prudent not to rely too much on CO₂ point sources of fossil origin to produce zero carbon emissions fuels. ANTECY has developed the crucial technology which still was the missing link to making this possible. Carbon dioxide (CO₂) is captured from Air and/or existing CO₂ containing gas streams and concentrated to high purity and pressure in order to be converted into liquid hydrocarbons with Hydrogen (H₂) produced by water-splitting making use of renewable electricity. The unique enabling features of this technology are that it is low cost, requires a low amount of low value heat and above all that it makes use of an environmentally friendly and robust non-toxic solid sorbent system based on Carbonates.