



Study and evaluation of power converter topologies for plasma drive system in dielectric barrier discharge plasma reactor.

In order to minimise the anthropogenic impact on the climate, we need to extract and utilise the vital resource 'carbon' in cycles. Our innovative absorption and plasma process makes it possible to decarbonise two sectors at once. Firstly, the mobility sector through synthetic fuels and secondly, the construction sector through emission-free concrete production.

Our 'Power to X' working group at ipv-EES is working on processes to decarbonise the sectors. As part of the current project, we are working on a dielectric barrier discharge DBD reactor setup for dry reforming of methane. DBD reactor operated by a DC-AC converter topology and it has to be developed in-house. This research project focuses on identification of suitable power converter topology for the application.

Tasks to be performed:

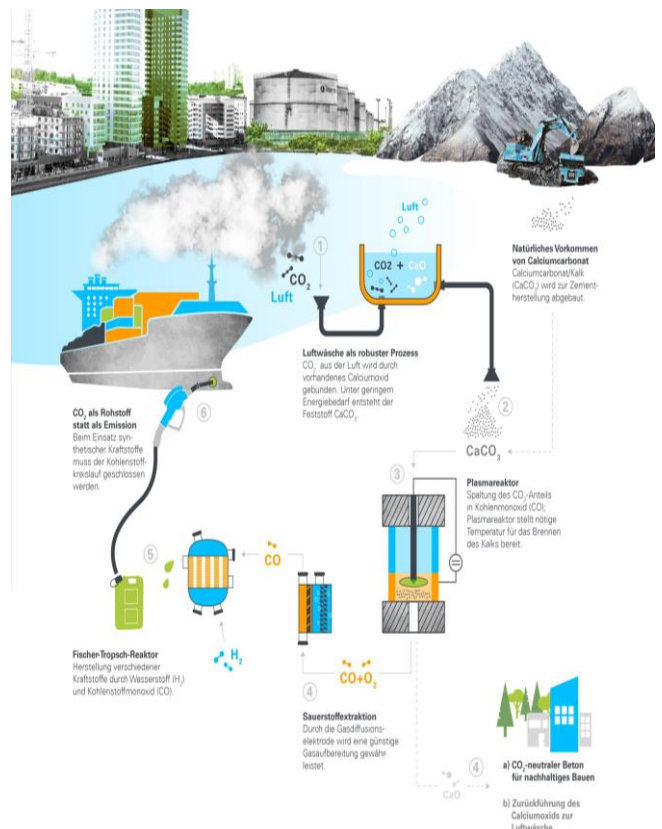
- Perform literature survey on various power converter topologies to converter DC-AC voltages.
- Prepare the list of key performance indicators of a power converter.
- Simulate the selected two or three power converter topologies and prepare the converter performance graphs.
- Evaluate the converter topologies based on the weight matrix and simulation results.

Requirements:

- Independent and autonomous work.
- Enjoy literature research and data analysis.
- Student in an electrical engineering subject, preferably power electronics systems and technologies (other specialisations are welcome).
- Enrolled students.

What you can expect:

- An open and motivated team
- An innovative test facility
- Exciting tasks and a lot to learn



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