

I PREFACE

Vorwort

Corona years are over and the pandemic situation is eased. But troubles did not stop. Indeed, I am very sad about the unnecessary war in Ukraine and the human suffering it creates. My great wish is that this is going to stop at earliest possible time and we scientists can come together again. In this line of thought, I am also strongly against the marginalization of our Russian colleagues, who have always been great pillars of international science. I remember the days when my friends from Russian and Ukrainian Academy of Sciences and Universities were visiting us together, enjoying the great science we did together. Science should bring the people together and make the world a more humanistic place. Even during a wartime rhetoric, we should not forget this goal.

The interesting development of solar energy worldwide due to economical and political reasons is a kind of a surprise for me. We are all happy to see the strong emphasis of renewable energies and CO₂ capture and utilization technologies worldwide. May be this boom in renewable energy investments and CO₂ recycling technologies (*i.e.* E-fuels, Solar-Fuels, artificial fuels, CO₂ neutral fuels etc.) will create the necessary momentum to change the faith of our future civilization. This is my expectation and a strongly needed motivation for the young generation.

Couple of words about the E-Mobility *versus* E-fuel Mobility:

Electrical vehicles are an integral part of the next generation mobility strategy, however we shall never forget to ask the important question: "Where does the electricity come from?"

If the necessary electrical power is generated by coal burning, like today, it is useless for solving the problem of climate change. We therefore need renewable electrical energy for electrical vehicles but also for making the E-fuels by "Green Hydrogen" or any other technique of CO₂ recycling. This will bring the worldwide effort to create as much renewable solar and wind energy as possible. Without the international effort on creating solar energy in solar rich countries as well as wind energy in strong wind locations, this transformation of the world energy from fossil fuels to CO₂ neutral fuels will not be possible. It is not enough to have a completely CO₂ neutral Austria when the rest of the world does not have enough renewable energy and/or E-fuels. Also "America First" type of strategies will not make a difference for the climate, when other large countries are not following the renewable energy strategy. It will need a global effort for this global problem of climate change. All the science and technology we are performing in our research field is preparing the tools for this transformation. We scientists worldwide are ready for this transformation; anytime when needed.