

Carbon Sequestration Storage: Maintaining Access to Abundant Fossil Fuels

Prof. Klaus S. Lackner of Columbia University, USA, in his presentation highlighted the need to utilize all available energy sources to be able to satisfy future primary energy demand. In his view, there are only three options which have sufficient large scale capacity, namely solar, nuclear and fossil energy. He emphasized the importance to arrive at a net zero emission carbon economy in order to maintain access to fossil fuels in the coming century, in particular to make use of abundant coal reserves, and to make fossil fuels convertible into more flexible substances. The net zero carbon economy will capture and permanently and safely dispose of CO₂ from concentrated sources, such as power plants, steel smelters and refineries, and, if possible, also from distributed sources by capture from the air. Storage of CO₂ in geological formations of former oil or gas wells is technologically feasible and economically viable today while subocean floor disposal and capture from the air are technologies under research, according to Prof. Lackner. The high costs related to carbon capture and storage today come mainly from isolating the CO₂ (sequestration) and transporting it to the injection sites, especially in case of coal-fired power plants. For the commercialization of available new technologies, Prof. Lackner underlined the need to establish certification for carbon capture and storage as well as to set a price of \$30 per ton of carbon. He also presented technologies that are in the early stage of research and development such as carbon capture from the air and gasification options for zero emissions coal including carbon-based fuel cells in closed cycle coal power plants.