AN OVERVIEW OF LIFE CYCLE ASSESSMENT CRITERIA FOR TRANSPORTATION DECISION-MAKING

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As the demand for passenger and goods transport continues to grow across all modes, so does the consumption of carbon-intensive fuels. According to the EIA's World Energy Outlook 2022, the transport sector consumes approx. a quarter of total final energy consumption today and accounts for almost 40% of emissions from end-use sectors i.e. 7,7 Gt CO_2 (2021). As the transport sector is one of the main contributors to Climate Change, it is at the center of attention for global decarbonization efforts to limit global warming well below 2ºC.

In this paper, a review of the available and promising alternative fuels and decarbonization technologies of the transport sector is carried out, exploring various parameters such as (TRL, Capex, Opex, fuel availability, supporting infrastructure, etc.) considering both direct and the indirect emissions in a "Cradle-to-Grave" level. Furthermore, various literature-based emission factors and associated methodologies are presented in a non-exhaustive table, to support the transportation decision-making for the sectors of urban mobility, international trade, international passenger transport. This paper also discusses, relevant concerns regarding issues of safety, just transition and other environmental impacts beyond climate change