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Editorial

Dear Readers,

The need for reducing green-house gas emissions, improving urban air quality and the drive towards the use of renewable energy are bringing about several changes in the automotive and captive power generation sectors. Significant developments have occurred at an unprecedented pace in the past decade in all spheres such as energy production, energy storage, methods of providing shaft power from available sources, alternative fuels, combining energy sources for optimal utilization and recovery of otherwise wasted energy. While there are several options available, the choice for a particular sector like automotive and within that sector like urban, highway or off-highway has to be carefully made by weighing long and short term impacts.

The automobiles of today have undergone drastic changes over the last couple of decades that have enabled ultra-low emissions to be achieved along with good fuel economy. Thanks to the development and application of advanced electronics, drive by wire systems, model based controllers and many other such innovations. Engines in particular have undergone radical changes due to advancements in materials, combustion technologies, after treatment systems, air induction systems, friction reduction, turbocharging, electrification of subsystems and controls. The role of an engine in a car is changing due to the increased employment of electrical drives. Hybrid electric propulsion is expected to play an important role during the transition to all electric drives in passenger cars. Their application in off highway and defence systems can also bring about several benefits. They can enhance the efficiency of operation of the engine and thus reduce green-house gas emissions. This will call for advanced modelling, simulation and experimentation of the combined drives. Alternative fuels that are renewable and low in carbon content are also expected to play a major role in the future. Fuel cells in combination with conventional electrical drives have high potential for enhanced performance in specific applications like hauling trucks and locomotives.

Different technologies have to compete with one another with the common goal of providing clean and sustainable motive power. Well to wheel and cradle to grave assessment of available options have to be made before large scale implementation specific to a particular sector. Bright ideas and radically new approaches that come from free exchange of information and unbiased assessment have played a key role in improving all aspects of mobility. Innovation is the key for developing and suitably implementing appropriate technologies. No idea can be left without consideration if it is technically sound, even if it does not initially show economic benefits. Many of the devices we use today emerged from seemingly complicated ideas when they were first conceived by the inventors and were made practically viable through subsequent iterative steps. This journal helps bring together ideas and experiences on mobility from industry professionals, budding engineers and researchers. The articles will kindle the minds of young engineers to explore new avenues and also expose industry professionals to the current developments and future directions.

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