

THE IMPORTANCE OF MATERIAL SELECTION IN THE DEVELOPMENT OF CLEAN CARS

WorldAutoSteel, the automotive group of the World Steel Association, welcomes the opportunity to contribute to the future European strategy on clean and energy-efficient vehicles.

CARS 21 MID-TERM REVIEW

While the internal combustion engine will remain the primary power train in the 2020 perspective, WorldAutoSteel believes that the sustainability paradigm currently based on tailpipe emissions and a vehicle's increased efficiency will change, or at least, should change. Energy efficiency gains through high quality or alternative fuels, start/stop engines, rolling tyre resistance, lightweight material, among others, will indeed all contribute to reducing tailpipe emissions. However, this actually does not suggest the decarbonisation of the transport sector. The efforts placed on reducing tailpipe emissions may actually be off-setted by an unintended increase of greenhouse gas (or other harmful) emissions during another phase of a vehicle's life cycle.

MATERIAL SELECTION AS A CRITICAL DETERMINANT OF GHG EMISSIONS

Initiatives and political discussions about the future of sustainable mobility tend to overlook the impact of material selection in a vehicle's total life cycle.

With vehicles becoming increasingly energy efficient and with the advent of electric plug-ins, hybrids and hydrogen fuel cell vehicles in the medium to long term, tailpipe emissions will become obsolete as the only method to calculate a vehicle's environmental footprint.

A European strategy aimed at promoting clean and energy-efficient vehicles should consider a life cycle approach to effectively aim at decarbonising road transport.

LCA models developed by the University of California at Santa Barbara have enabled comparisons of automotive materials and their associated GHGs across all phases of the vehicle life cycle. From these models, it is absolutely clear that GHG emissions from material production and end-of-life recycling credits may more than offset use phase tailpipe emissions reductions. This applies to both conventional auto body structures, but even more so in view of future vehicle developments with advanced power trains and fuel sources, where body structures change as well.

Moreover, material selection is a critical factor to address both cost/affordability and safety considerations.

CONCLUSIONS

- WorldAutoSteel believes that LCA is a powerful tool that will contribute to the urgency for immediate action towards sustainable production and consumption patterns, which should be at the core of the future EU strategy.
- WorldAutoSteel calls on policy-makers to preserve the participation of all members of the supply chain in the debate on the EU Strategy for clean and energy-efficient vehicles. Material suppliers, in particular, should be considered in the relaunch process of the CARS 21 platform given their increasing relevance in determining the sustainability of the next generation of clean vehicles.

ABOUT WORLDAUTOSTEEL

WorldAutoSteel, the automotive group of the World Steel Association (www.worldsteel.org), continually explores steel innovation that demonstrates and communicates the value of steel in automobiles to industry and society. Its member companies from around the world pool global resources within and beyond the steel industry to deliver vital research that is central to effective steel automobile applications. WorldAutoSteel continues to lead the materials revolution through projects like the UltraLight Steel Family of Research: ULSAB, ULSAC, ULSAS, and ULSAB-AVC (Advanced Vehicle Concepts) that help the world's automotive industry improve the safety, affordability and environmental impact of its products. To learn more about these and other WorldAutoSteel projects, visit www.worldautosteel.org.

OUR FUTURE STEEL VEHICLE (FSV) PROGRAMME

The Future Steel Vehicle programme is a multi-annual and multi-million R&D programme launched in 2007 at the United Nations Framework Convention on Climate Change Conference (COP-13) in Bali. It considers a total life cycle assessment of the concept designs to lower CO2 emissions

In 2010, WorldAutoSteel will unveil concept designs of tomorrow's vehicles. They will help automakers optimize new propulsion technologies such as electric plug-ins, hybrids and fuel cell vehicles while aggressively exceeding future environmental, safety and weight standards.

The next phase should focus on add-on programmes, in which demonstration hardware is considered as well.

UNEP/SETAC LIFE CYCLE INITIATIVE

WorldAutoSteel has joined the United Nations Environment Programme (UNEP) and the Society of Environmental Toxicology and Chemistry (SETAC) Life Cycle Initiative, as a Gold Sponsor in partnership with the World Steel Association. The Life Cycle Initiative was launched to respond to the call by governments around the world for a life cycle economy.

Through its joint participation with worldsteel and its involvement in the Life Cycle Initiative, WorldAutoSteel hopes to advance life cycle thinking with policymakers and customers around the globe. The Green House Gas (GHG) Material Comparison Model developed by the University of California at Santa Barbara's Bren School of Environmental Sciences under commission by WorldAutoSteel will be a key tool in WorldAutoSteel's contributions to the Initiative.

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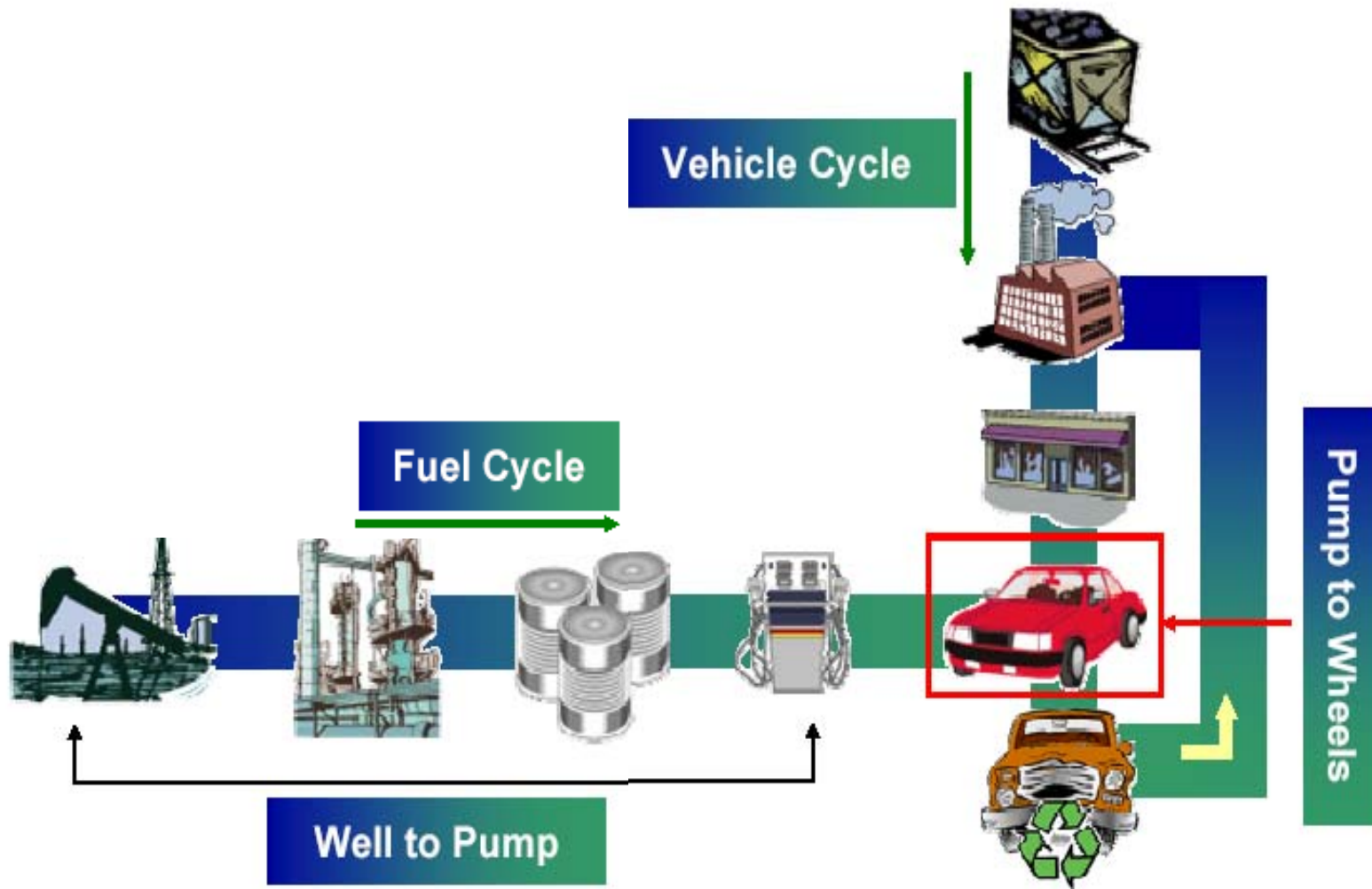
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Life Cycle Assessment (LCA) of Greenhouse Gases

LCA is needed to avoid Unintended Consequences



Source: Argonne National Laboratory