

For Immediate Release

WorldAutoSteel Releases Preliminary Styling for Future Steel Vehicle *The Programme Considers Four Vehicle Types*

Summary:

- **Future Steel Vehicle Programme releases early styling images for alternative powertrain vehicle using advanced high-strength steel body structure.**
- **Four technical options are being considered for a year 2015-2020 vehicle: electric and plug-in hybrid electric vehicles for 4+ passengers; and plug-in hybrid electric and fuel cell vehicles for 5 passengers.**
- **All four types will achieve emissions that are well below requirements being proposed around the world.**
- **Material choice becomes increasingly important as the use phase emissions are decreased or eliminated using alternative powertrains. Steel produces 5 to 15 times less emissions than other materials used for lightweighting.**
- **Combination of alternative powertrains and advanced high-strength steel reduces a vehicle's life cycle carbon footprint.**

Brussels, 11 August 2008 – Future Steel Vehicle (FSV) Programme has produced early styling sketches based on the packaging studies initiated in the Phase I research, which are released today by WorldAutoSteel member companies.

FSV's technical team, which includes EDAG, Quantum Technologies, Inc., SFCV/Tongji and WorldAutoSteel material experts, is considering four technical specification options for the proposed year 2015-2020 vehicle: electric (EV) and plug-in hybrid electric (PHEV) vehicles for 4+ passengers; and plug-in hybrid electric (PHEV) and fuel cell (FCV) vehicles for five-passengers. The flexibility of powertrain component packaging coupled with the qualities of Advanced High-Strength Steel will enable these vehicles to maintain current and future consumer expectations for interior comfort, while significantly reducing greenhouse gas emissions throughout the entire life cycle.

“For the sake of the environment, it is critical to look at Future Steel Vehicle, as all vehicles, from a life cycle assessment (LCA) perspective,” said Edward Opbroek, Director, WorldAutoSteel. “Based on the recent LCA study and model* developed at the University of California Santa Barbara, implementation of more efficient powertrain systems elevates the importance of the emissions from material production, placing greater emphasis on selecting a low greenhouse gas-intensive material such as steel.” Opbroek noted that with the combination of alternative powertrains and Advanced



High-Strength Steel, all four FSV types will achieve well below the emission requirements proposed around the world.

“Compared to other materials used to reduce vehicle weight, these Advanced High-Strength Steels produce five to 15 times less GHG emissions during the material manufacturing phase, which greatly reduces a vehicle’s life cycle carbon footprint,” said Opbroek.

WorldAutoSteel's Future Steel Vehicle programme is in its first phase with a careful evaluation of next-generation vehicle technologies that respond to the challenges of increasing fuel efficiency, reducing greenhouse gas emissions and improving safety. Inherent in these technology changes are opportunities to optimise the vehicle's structure that will minimise weight and enhance the system's overall performance.

The resulting vehicle architecture will feature the latest portfolio of Advanced High-Strength Steels from around the world, allowing engineers and designers to reduce the total mass of the vehicle design without sacrificing safety or packaging requirements. These two issues become increasingly pertinent in future vehicle designs as engineers look to package new elements like batteries, electric motors and even hydrogen tanks into a vehicle that will most likely be used in more dense traffic and urban environments.

While new powertrain technologies and lower-mass vehicles have a direct impact on fuel consumption, they also will have a major impact on greenhouse gases (GHG). Improved Advanced High-Strength Steel designs will reduce a vehicle’s GHG footprint during its use phase; but steel also has the added benefit of lower GHG emissions resulting from the energy needed during the production of steel and the steel recycling rate versus other primary materials.

"We're not just looking at the vehicle design and its impact on GHG at the tailpipe," says Jody Shaw, Manager, Technical Marketing and Product Research, United States Steel Corporation and Chair of the FSV Programme. "We're concerned with the whole life cycle of the vehicle, from the emissions produced and energy used to create raw materials, all the way to the impact of recycling. If the whole life cycle is not taken into account, there is the distinct possibility of having a net *increase* in GHG if the wrong material choice is made. This isn't just speculation - we've got very clear models that demonstrate this."

For more information on Life Cycle Analysis and the issues surrounding a vehicle's total GHG footprint, visit www.greensteel.org.

WorldAutoSteel and its global engineering partners will develop FSV Phase 1 through 2008,



looking to begin Phase 2, Concept Designs, in early 2009. For continuing information on the Future Steel Vehicle programme, visit www.worldautosteel.org.

* *Life Cycle Greenhouse Gas Emission Assessments of Automotive Materials: The Example of Mild Steel, Advanced High Strength Steel and Aluminium in Body in White Applications*, by Dr. Roland Geyer University of California at Santa Barbara David Bren School of Environmental Science and Management, December 2007

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For images, visit www.worldautosteel.org and click Image Library.

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About WorldAutoSteel

WorldAutoSteel, the automotive group of the International Iron and Steel Institute continually explores steel innovation that demonstrates and communicates the value of steel in automobiles to industry and society. Its worldwide member companies 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 Future Steel Vehicle and the UltraLight Steel Family of Research: ULSAB, ULSAC, ULSAS, and ULSAB-AVC, which help the world's automotive industry to improve the safety, affordability and environmental impact of its products. To learn more about these and other WorldAutoSteel projects, visit www.worldautosteel.org

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