

Auto show to Showroom: Featured Alternative Fuel Vehicles at Detroit's 2014 International Auto Show

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Editorial

2014's North American International Auto Show (NAIAS) [1] had more of a sportier theme and performance boost roster as compared to previous year's auto shows with hybrid and electric vehicles stealing the lime light. The Jury of Automotive Writers attending the show on the media day awarded the Chevrolet Corvette Stingray as 2014 North American Car of the Year and the Chevrolet Silverado 1500 as 2014 North American Truck/Utility of the Year. The NAIAS has been held annually in January in Detroit for the last two decades and is one of the largest passenger car and automotive exhibits in the world [1].

2015 model year cars and concept prototypes from all eminent car company were on the display. During the depth of auto industry's recession in 2009, the auto show was focused on the green cars. The then evolving concept of hybrid and electric power train had overshadowed the performance factors and glamour of luxury cars.

With the rebounding of economy, this year, automakers have proportionately portrayed the efficiency, performance, speed and safety factors of 2015 model year pickup trucks, SUVs, sport cars and luxury cars, along with the hybrid vehicles featuring advanced technology and enhanced performance.

Salt Lake City based VIA Motors Company presented restructured versions of the General Motor's famous gas guzzlers: a pickup truck, a luxury SUV and a fleet van with redesigned hybrid power train claiming to achieve an average of 100 MPG. The range extended electric vehicles available in market with VTRUX® name has a claimed electric range of 40 miles with an onward option of operating in hybrid mode. The company representative at the auto show stated that "Using the gasoline engine as a generator rather than to directly power the vehicle increases efficiency by 50 percent." The extended range electric truck, with a promise of performance similar to the gasoline powered Silverado, has an innovative solar bed with 600/800 W solar panels installed, covering the rear box for further boosting the performance on sunny days. With the similar performance demonstration, the projected cost is augmented by a steep factor of 3, which is stated to be subsidized by the fuel savings.

Other noticeable electric and hybrid electric vehicles already available in the market for some time were also on the display, but with added features and promised boosted performance. Among these were Chevrolet Volt, Ford Focus Electric, Ford Fusion Hybrid, Ford C-MAX Energi, Honda Civic, Fiat 500 Battery Electric, Nissan Leaf, Toyota Prius and Tesla Model-S.

Toyota Prius, being the pioneer in the commercialization of hybrid technology, still has the lead in the number of plug-in hybrid cars sold throughout the world. Tesla Model-S is emerging as a new public favorite. Tesla Motors' executives conducted a press conference and highlighted selling points, including 25,000 plus number of global sales with no causalities and maintaining the matching level of performance in extreme cold temperature, proving Tesla Model-S to be a standout in the niche of luxury electric vehicles.

In the category of new launches, Mercedes Benz's B-Class Electric Drive, expected to be on the road this summer, comes with an electric power train consisting of 174 horsepower electric motor with a claimed range of over 200 miles in a single charge in non-winter days. The expected retail price per the information available at the booth will be in range of \$80-90 thousand. It is hoped that this cost will ramp down by 50% as the technology matures along with increased demand.

Porsche introduced the plug-in hybrid Panamera, claimed to have performance comparable to the conventional version, and being offering at the same expensive cost.

In the category of concept cars, some models were quite impressive. Ford's C-MAX Solar Energi hybrid electric car introduced the implementation of Fresnel lens to amplify the energy eight folds from the sun to charge the batteries. This concept will provide the vehicle independence from the Grid to Vehicle charging with stated 100MPGe efficiency.

Toyota fuel cell vehicle, FCV-R, is scheduled to be in production in 2015, and will be the one of the preliminary commercial fuel cell power train based passenger cars. Toyota FCV-R power train consists of 145 horsepower electric motor, with an estimated driving range of 435 miles as per JC08 fuel-economy testing. With an approximate 100kW output power, the FCV-R is advertised to go up to 106 mph. The Corolla look-alike FCV-R will have only a 4 passenger capacity, comparable to the Chevy Volt. The extra space is consumed by the fuel cell stacks and hydrogen cylinder. There was an auxiliary hydrogen tank in the trunk space as well.

While Toyota and as well as other major car manufactures such as GM, Ford, Honda, and Renault, all have plans to launch fuel cell vehicles between 2015 and 2018, the availability of commercial hydrogen refueling stations is still an unknown. BMW i8 plug-in hybrid concept vehicle was exhibited with a modified electric drive 164 kW/220 horse power and acceleration of 0 to 60 mph in less than 5 seconds providing 94 MPGe. The vehicle has the option to operate in both gas and electric mode and is drivable up to 20 miles with an electric charge.

Audi has publicized the All road Shooting Brake hybrid car. The concept hybrid power train has twin motors in conjunction with turbocharged TFSI engine and an 8.8 kWh lithium ion battery. The

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exhibited vehicle is indicated to accomplish an electric driving range of more than 30 miles.

Besides the concept cars of prominent OEMs, Michigan based Classy Cars demonstrated its Neighborhood Electric Vehicles (NEV). NEVs are modified vehicles with the appearance of a golf cart, while being capable of commuting on surface roads for short distances. NEVs promote the novel concept of an emission free commute for running typical daily errands.

Several Michigan based universities also exhibited solar based and electric formula racing car concepts.

As established at the 2014 NAIAS [1], the alternative fuel vehicle is emerging as an alternative to gas vehicles. However certain challenges

remain which will need to be addressed before the show rooms of auto manufacturers have more demand than the supply [2].

Disclaimer

This editorial consists of the personal opinion of the author based on the limited observation and access to the vehicle at the auto show. This does not represent directly or indirectly the opinion of any business including author's employer.

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