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## Event report: Tokyo Motor Show goes Electric December 2 -11, 2011

### Implications for Sweden:

*The transport sector in Sweden is the most fossil fuel dependent sector and Sweden has a large automotive industry relatively to its size which is affected by the latest development in the global automotive industry. Recently Nissan and Mitsubishi released electric vehicles in Sweden aimed at larger target group than previous generations of electric vehicles. In Sweden there are on-going tests with the Japanese system for quick charging, CHAdeMO. Japan is the country in the world with most advanced infrastructure for quick charging. Because of the short range for electric vehicles there is a need for quick charging infrastructure. Electric vehicles can also play important role in the future as a part of a Smart society stabilizing intermittent energy sources such as wind and solar power. From a Swedish point of view it is necessary to monitor the development in Japan in terms of vehicles, infrastructure, research and policies. The 42nd Tokyo Motor Show displayed some of the latest trends in vehicles, infrastructure and the integration into a smart community.*

Tokyo Motor Show took place December 2-11 2011. The latest technologies and cars from the Japanese automotive industry were displayed. This year's theme was "Smart mobility", next generation vehicles role in a smart society. There was a special section showing cars and technologies relating to Smart mobility together with scenarios how we live and transport ourselves in the future.



*The Smart Mobility section of Tokyo Motor Show*

Two international symposiums were held

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during the show, the first one about IT solutions for mobility *"Next generation telematics and mobility society"* with presentations of the latest technology and panel discussions about the future. The second symposium was on the topic *"Smart community and next generation automotive society"* with speakers from Germany, California and Singapore besides Japan. The international speaker presented smart communities from their respective country. The participants of the symposium were mainly Japanese with a few exceptions. As an example of smart-community, and smart-grids with connection to EVs, Hitachi Ltd., showed a presentation of smart grid projects in Japan and also a joint project with the USA. It is a demonstration of smart grid on an isolated island on Maui, Hawaii, which is one of a series of smart grid national projects run by NEDO (New Energy and Industrial Technology Development Organization), Japan. The project is to test the effectiveness of EV management system to stabilize voltage and or frequency fluctuation produced by Green Power, such as, photovoltaic cells and wind-power generation, and also by charging EVs at the same time on an isolated island. The system controls EV charging schedule, and uses EV and other batteries as power storage.

Earlier there was large focus on safety in the car industry. This has now completely shifted to environmental concerns. The cars of the future will be greener driving on electricity, bio fuels, hydrogen or a combination. Several battery electric vehicles, hybrids, plug-in hybrids, hydrogen vehicles especially from the Japanese car manufacturers were shown. This year has been a tough year for the Japanese automotive industry with the great eastern Japan earthquake, the flooding in Thailand which affected their supply chain and production and on top of that a very strong yen. Japan is focusing on the latest technology to stay competitive when costs for domestic production increases. The Keio University displayed their special technology for electric vehicles including in-wheel motors and a component build-in frame allowing for more space inside and a higher efficiency. The University has under the leadership of Professor Hiroshi Shimizu developed an electric bus using the technology that is now being tested in normal traffic. The research conducted at Keio University's EV-lab has resulted in a spin-off company, SIM-Drive. Private companies can invest in SIM-Drive's EV-projects and in return receive the technology developed.

Sweden has a relatively large usage of bio fuels mainly ethanol and biogas but only a small number of electric vehicles. Japan has a small usage of bio fuels but is instead more advanced in the area of electric, hybrids and hydrogen vehicles. For a larger usage of electric vehicles an infrastructure with public charging spots, preferable quick charging is a necessity preferable quick charging. Because of



Toyota Prius Plug-in, (sale will start in 2012)

low emissions of carbon dioxide from electricity generation in Sweden electric vehicles can achieve their full potential in Sweden. Japan has almost 800 quick chargers installed around the country. Hydrogen fuel cell vehicles lie a couple of years in future, in Japan three car manufacturers Toyota, Honda and Nissan have together with several gas companies have agreed on that 2015 is the target year for an early commercialization of hydrogen vehicles in Japan. The vehicles expected to be released in 2015 are expected to be very expensive compared to conventional vehicles.

Commercial vehicles, motor cycles and automotive parts were displayed at the motor show. In the commercial vehicle section electric and hybrid vehicles were displayed, the same green trend as for passenger vehicles. From 2001-2005 passenger vehicles and commercial vehicles were separated in to two shows alternating every year. From 2007 and forward Tokyo Motor show is a biennial event including both passenger vehicles and commercial vehicles.

The Swedish presence at Tokyo Motor Show was limited, Volvo trucks was the only vehicle manufacturer, Öhlins had small both with their suspension technology. In Japan Volvo is selling trucks aimed at the premium segment. Other international presence was mainly from German and French car manufacturers, no major American automotive manufacturer displayed vehicles. This year in total there were 20 foreign car manufacturer compared to only 9 in 2009 and 32 in 2007. In 2009 the financial crisis forced many foreign companies to stay home.



*Mitsubishi Concept PX-MiEV II*

Tokyo motor show was arranged for 42<sup>nd</sup> time and this year the show had moved from the neighbouring Chiba prefecture to a more central location on the Odaiba island in Tokyo bay. There was a hope from the organizers, *Japan Auto Manufacturers Association* JAMA that the more central location and longer opening times would attract more attention and visitors. The Tokyo motor show has received increasing competition from the

motor shows in Shanghai, Beijing and New Delhi the last couple of years. In total 842,600 people visited the show compared to 614,400 in 2009 and 1,425,800 in 2007. The show in 2007 was held seven days longer than this year's show. To conclude the event was successful, showing the latest green vehicles from the Japanese automobile industry.

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