PRESS RELEASE

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Test-bedding of Electric Vehicles in Singapore from 2010

SINGAPORE, 6 May 2009 - To spearhead the test-bedding of Electric Vehicles (EVs) in Singapore, a multi-agency taskforce chaired by the Energy Market Authority (EMA) and Land Transport Authority (LTA), and comprising members across different ministries and statutory boards, including the Agency for Science, Technology and Research (A*STAR), the Economic Development Board (EDB), and the National Environment Agency (NEA) has been set up.

The EV test-bedding programme will involve key industry players to examine infrastructure requirements and new business models arising from EVs, as well as to identify industry and R&D opportunities. The test-bed will be open to all auto manufacturers and technology companies interested in shaping the future of electric transport. $20 million has been set aside as part of this programme to support infrastructure development and test-bed electric vehicles. Based on the results of the pilot, the taskforce will also evaluate the scope for larger scale adoption of EVs in future, as the technology matures. (See Annex for factsheet on EVs).

“Electric vehicles are an exciting new area for both the energy and transport sectors. Singapore is well-positioned for the deployment of EVs because of our compact urban environment, and robust electrical grid and IT infrastructure. The test bed will provide an open platform for companies to test out different EV prototypes and charging technologies. At the same time, we would like to do more research in the concept of vehicle-to-grid power. In particular, if EVs are able to provide power to the grid during peak periods, and draw power from the grid during off-peak periods, they will help to level the demand (load) on the grid, thereby enabling our power system to operate more efficiently”, says Mr Lawrence Wong, Chief Executive, EMA.

"Electric vehicles are a new urban transport solution that offers great potential for the development of industry, business, standards and R&D. The research and development around electric vehicles is well aligned with our Singapore Urban Transport Solutions (STARS) framework launched last year. We look forward to working with more companies on innovative transport solutions, and making our transport systems greener, cleaner, and more people-centred," says Mr Yam Ah Mee, Chief Executive, LTA.

The EV test-bed also offers potential economic benefits for manufacturing and R&D, for example, in areas like battery technology, power electronics and electric drive systems. Singapore’s capabilities in electronics and R&D will enable us to attract and anchor such new and high-value activities.

"A*STAR is excited to work with companies in creating the next generation technologies that will transform the transportation system through electrification. Having a test bed for electric vehicles here in Singapore provides a tremendous opportunity for companies to leverage their research investments with those of A*STAR in a seamless process for creating and demonstrating new technologies. The participating companies benefit from access to top research talent and a place to demonstrate their technologies and their business models. Singapore will benefit from more efficient energy usage and the commercial impact of the companies locating their research and demonstration projects here," highlights Prof Charles Zukoski, Chairman, Science and Engineering Research Council, A*STAR.

To kickstart the test-bedding initiative, the EV taskforce today signed Memorandums of Understanding (MOU) with two parties: Renault-Nissan and Keppel Energy. Under the MOUs, Renault-Nissan will supply EVs to the Singapore market and share its knowledge of EVs to develop common standards, while Keppel Energy will focus on developing charging stations and other infrastructure to support the test-bedding of EVs.

The taskforce will work closely with these industry partners to prepare for the first batch of EVs on Singapore roads by 2010.

"Renault and Nissan aim to become leading brands in zero emission vehicles. Singapore is for us a key priority, as the geography of the country and the focus on environment issues can enable fast and strong development of electric cars. We are very pleased to see the commitment of Singapore authorities and we look forward to working closely with all partners involved to make this project successful," adds Mr Thierry Koskas, Renault's electric vehicles programme director.

"Technological advancement and the search for efficient usage of fuel have hastened the pace of electrification of the automobile industry. As the supporting infrastructure for charging is one of the key success factors for electric vehicle implementation, Keppel Energy is pleased to be the first infrastructure partner with EMA, LTA and EDB to explore the viability of this scheme that will contribute to Singapore's sustainable development," says Dr Ong Tiong Guan, Managing Director of Keppel Energy.

The EV test-bed is expected to run for three years, between 2010 and 2012, and will also serve as a platform for companies to experiment and adapt innovative solutions for use in other countries.

"The setting up of this multi-agency taskforce underlines Singapore's strong interest to provide a "Living Lab" for companies to develop and test-bed electric vehicles. We are delighted that Renault-Nissan and Keppel Energy are participating in this initiative. The global market for EVs and other sustainable mobility solutions have significant potential and we intend to grow this sector in Singapore as part of our overall focus on Urban Solutions and Clean Technologies," says Dr Beh Swan Gin, Managing Director, EDB.

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About Energy Market Authority
Energy Market Authority (EMA) is a statutory board under the Ministry of Trade and Industry. Besides regulating the electricity and gas industries and operating the power system, EMA also seeks to forge a progressive energy landscape by facilitating innovative and sustainable energy solutions. As co-chair of the EV Taskforce, EMA will identify strategic partners for test-bedding, review power grid regulation/licensing requirements for EV charging systems and develop codes and standards.

About Land Transport Authority
Land Transport Authority (LTA) is a statutory board under the Ministry of Transport. LTA plans the long-term transport needs and spearheads land transport developments in Singapore. While serving commuters by providing an integrated and user-friendly transport system, LTA addresses wider issues such as sustainable development, economic growth, and community life. As a co-chair of the EV Taskforce, LTA helps ensure that relevant regulations, standards and infrastructure are in place. LTA looks forward to working with leading companies to develop innovative transport solutions, and making Singapore's transport system greener, cleaner, and more people-centred.

About Economic Development Board
EDB is the lead government agency for planning and executing strategies to enhance Singapore's position as a global business centre and grow the Singapore economy. In so doing, we attract economic opportunities and jobs for the people of Singapore, and help shape our country's economic future. EDB's role in the MOU is to work with industry partners to jointly identify industry development opportunities such as manufacturing, R&D and exportable services. The MOU is aligned with EDB's positioning of Singapore as a "Living Laboratory" where leading-edge urban mobility solutions are tested, developed and exported to the rest of the world.

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ANNEX
FACTSHEET ON ELECTRIC VEHICLES

• Electric-drive vehicles are increasingly being seen as a sustainable mode of transport by countries worldwide as they are more efficient than combustion engines and can help reduce carbon emissions. Electric-drive vehicles have two other efficiency advantages: no energy is consumed while the car is at rest or coasting, and energy normally lost when braking is captured and used.

• There is a range of electric-drive vehicles, from full hybrids like the Toyota Prius to plug-in electric hybrids (with larger batteries that can be recharged with electricity from the grid) to all-electric vehicles.

• All-electric vehicles are powered entirely by lithium-ion batteries. A standard charge at 3-6 kW will take about 8 hours and a quick charge at 43-100 kW will take about half an hour. A standard charge can be performed from a standard wall power point while a quick charge requires a dedicated facility to provide high levels of power.

• The traveling range of EVs depends on the capacity of the batteries and the infrastructure required to recharge the batteries. With current battery technology, a full charge would allow for a range of between 80 km to 150 km, although this may be reduced by about 10~20% when driving with air-conditioning. With further breakthroughs in battery technology, it is expected that the range can be increased significantly.

• Pure battery electric vehicles offer significant energy and pollution advantages compared to conventional petrol and diesel vehicles. The magnitude of this advantage depends on the source of the electricity. For example, electric vehicles charged from renewable energy sources like solar and wind have virtually zero carbon emissions.

• Even for countries with limited renewable energy sources, if the electric vehicles are charged using natural gas power generation (as is the case in Singapore), it is still possible to achieve some reduction in carbon emissions compared to conventional petrol vehicles.

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