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Challenges on Widespread Marketplace Acceptance of Electric Vehicles: Towards zero emission mobility society

Masanori UEDA

Engineering Director

Energy & Environmental Technology

Planning and Advanced Technology Development Division

Nissan Motors, Co. Ltd,

Japan

Email: ueda@mail.nissan.co.jp

Abstract:

Improving energy efficiency and curbing CO₂ emissions are ones of the top priority issues that need to be addressed by the automotive manufacturers, when pursuing sustainable mobility. Automakers have set their own strategies to improve fuel economy and to reduce CO₂ emissions. Nissan's action, triple layered approach, focuses on not only vehicle technology evolution, but also human factors (eco-driving support for drivers) and social & transportation factors (traffic management by ITS). Among them, electric vehicle (EV) will be the key contributor, and EV technologies advancement and its expansion with social infrastructure establishment are required to achieve the purposes above.

This paper describes Nissan's new EV "LEAF" technologies and challenges on widespread marketplace acceptance. Nissan is to start LEAF introduction this year for the U.S., Japan, followed by Europe, aiming for mass marketed by 2012. Regarding the Vehicle technology perspective, LEAF is supported by the dedicated platform with key electric components such as newly developed laminated Li-ion battery and high response & advanced control motor. As for another aspect, establishing new social infrastructure, the following activities are currently on-going/under development with more than 50 partnerships from local/national governments to private sectors around the world.

- Charging infrastructure establishment
- EV and EV battery utilization for renewable energy storage and supply
- Battery business scheme "4R" (Reuse, Refabricate, Recycle, Resell)
- Mobility optimization by segregation of urban traffic

With these comprehensive approaches beyond industry boarder, Nissan is trying to not only develop "zero emission vehicle", but also realize "zero emission mobility society".

Bibliography:

Masanori UEDA earned B.S. degree in Mechanical Engineering from the Tokyo University of Agriculture and Technology in 1980, and has joined Nissan Motor, engaged in new vehicle design and development. After the experiences of Senior Manager in Vehicle Component Development Dept. from 2002, Deputy General Manager in Corporate Planning Dept. from 2004, and General Manager in Global Environmental Planning Office from 2007, and from 2009 he has taken the present post, Engineering Director in Planning and Advanced Technology Development Division, responsible for energy and environmental technology.