2013 Annual Ministerial Review
Innovation Fair
Brief Summary, Toyota City, Leading Environmental City, Japan

1 Name of the initiative;

Programs by Toyota City to achieve a vibrant low-carbon society where everyone lives comfortably, without waste or laborious effort

2 Description of used methodology and strategies;

<Methodology>

○ Toyota City, where the headquarters of Toyota Motor Corporation is located, was selected by the Japanese government as an Eco-Model City in 2009, and is the site of programs conducted in collaboration among the residents, corporations, universities, and city government aimed at achieving a vibrant and sustainable low-carbon society in five areas: industry, transportation, forests, citizens, and downtown.

<Strategy>

○ In Toyota City, we have created a fusion of technologies, information, and other resources from top Japanese corporations in all areas, including Toyota Motor Corporation, as well as from universities and the city government, and are conducting verification tests aimed at achieving a sustainable low-carbon society. City residents participate in these tests to ensure a consumer perspective.

○ Making use of the leading environmental technologies and systems that have been developed in this way, measures such as energy conservation, and peak shifts at times when power supply is strained by demand, have been enacted without placing any excessive burden on consumers.

○ Utilizing the 70% of the city area that is covered by forest, and with the participation of the city residents, we are constructing a model for interaction and coexistence between the city and farming and mountain villages, and are constructing an active regional society in cooperation with small and mid-sized companies in the city.

○ Through these programs, we are constructing next-generation energy and social systems that meet a broad range of local and national needs. We are using these systems to support the recovery from the Great East Japan Earthquake, and are working to apply them to other areas in Japan and overseas.

3 Implementation methodologies;

<Citizens, transportation>

○ We aim to construct next-generation energy and social systems for regional towns and cities by optimizing energy use for each behavior situation whether at home, in transit, or at the destination in line with consumer behavior, and by combining these situations to achieve optimal energy use in all parts of the daily living environment.

○ Technologies for optimizing energy use in the home include the expansion of "smart houses" (solar power generation, home energy management systems, storage batteries, fuel cells) and coordination with the electric power contained in next-generation automobiles (EV, PHV, FCV).

○ Technologies for optimizing transportation energy use include expanding the charging infrastructure, like hydrogen stations for next-generation automobiles (EV, PHV, FCV), and introducing a sharing system for super-compact electric vehicles. We are also using a traffic data management system to collect traffic information and to forecast traffic in order to support environmentally friendly transportation.

○ Technologies for optimizing energy use at the destination include the use of solar

power generation at commercial facilities, public facilities, factories, and other sites, as well as the introduction of storage batteries and coordination with the electric power contained in next-generation automobiles.

○ Technologies for optimizing energy use throughout the daily living environment include the use of energy management systems to connect information from homes, schools, commercial facilities, factories, and transportation in order to coordinate a balance of electrical power supply and demand based on consumer behavior forecasts according to factors such as the weather and time of day.

<Forests>

○ In addition to the use of lumber in public facilities, many activities aimed at creation of the 100-year forests are being carried out, including thinning of man-made forests with the participation of local residents, and activities aimed at preserving wetlands protected under the Ramsar Convention and undeveloped woodlands.

<Industry>

○ In addition to the use of low-carbon technologies from Toyota Motor Corporation and other leading companies at local small and mid-sized companies, we are constructing a model for innovative development of new technologies and the application of these technologies in Japan and overseas.

4 What is innovative about this initiative;

○ Through the use of leading environmental technologies, we are aiming for a 70% reduction in carbon dioxide emissions from individual residences (compared to 2005 levels) without placing an excessive burden on the consumer.

○ We are connecting information from homes, schools, commercial facilities, and transportation in order to optimize energy use throughout the daily living environment.

○ In cooperation between the city and farming and mountain villages, we are constructing sustainable systems that can be applied globally not only in advanced nations but also in nations and regions where the infrastructure is growing and developing rapidly.

5 Evidence of results and impact;

○ Already, smart devices and energy management have achieved reductions in carbon dioxide emissions of approximately 70% and reductions in peak electrical power demand of 40% under certain conditions.

○ Observers from 60 countries have visited the Toyota City Low-Carbon Society Model District which serves as the showcase for the programs of the city.

6 Costs associated with the development and implementation of the activity;

○ Expenses required for development: Approximately 25 billion yen (2010 – 2014)

○ Steering organization: Toyota City Low-carbon Society Verification Promotion Council
(Chair: Toyota City, Vice chair: Toyota Motor Corporation, composed of 49 other organizations)
(Women engineers and operators are an active part of these development and verification activities.)

7 Contact information;

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