

TOWARDS NEW MOBILITY SOCIETY BY USING SOLAR ENERGY

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Automakers have been developing many innovative green technologies for air pollutants and global warming mitigations. Above all, PHVs and EVs, which obtain their fuel from the grid by charging a battery, are expected to contribute to huge CO₂ emission reduction. The cars running only on electricity have zero tailpipe emissions, but emissions may be produced by the source of electrical power. As a result, the cars may not demonstrate a well-to-wheel emissions benefit when they are charged by the most CO₂-intensive electricity mix. Consequently, it is essential to expand sustainable energy generation, such as solar and wind power. However, the increasing in number of construction of the plants may raise other social problems including scenery-spoiling and unpleasant noise, because Japan has a unique geography that farmland, forests, mountains and cities are located right next to each other within a very small area. In addition, it becomes difficult to maintain a stable supply of high-quality electricity of the grid as increasing the green power generation because the amount of electricity generated by these plants fluctuates with the weather. In Japan, we also have many serious social problems, such as sinking economy, aging society, sinking birthrate, depopulation, and aging infrastructures, which have close relationships with each others.

We believe that a clue of the solution for the problems can be obtained by considering them not as independent ones but an integral issue. In the case of the automobile industry that is based on the road infrastructure and the energy infrastructure, there is no development and growth of the industry without development of the infrastructures. We must regard the infrastructures as an integrated system to realize a new mobility society. The integrated system which is one of transport infrastructures should contribute to make cities more smart, regions active, and reduce the number of traffic accidents in an aging society to zero. From another point of view, we have to consider the necessity of the change in business model due to decreasing in population, as well as the emergence of so-called “sharing economy” which has caused the huge shift in the way people live, work, travel, consume and share things with one another.

Under these circumstances, we’d like to regard the photovoltaic technologies not as a simple energy harvesting device but as one of the most important component which can solve the complicated problems by incorporating it into the transport infrastructure.

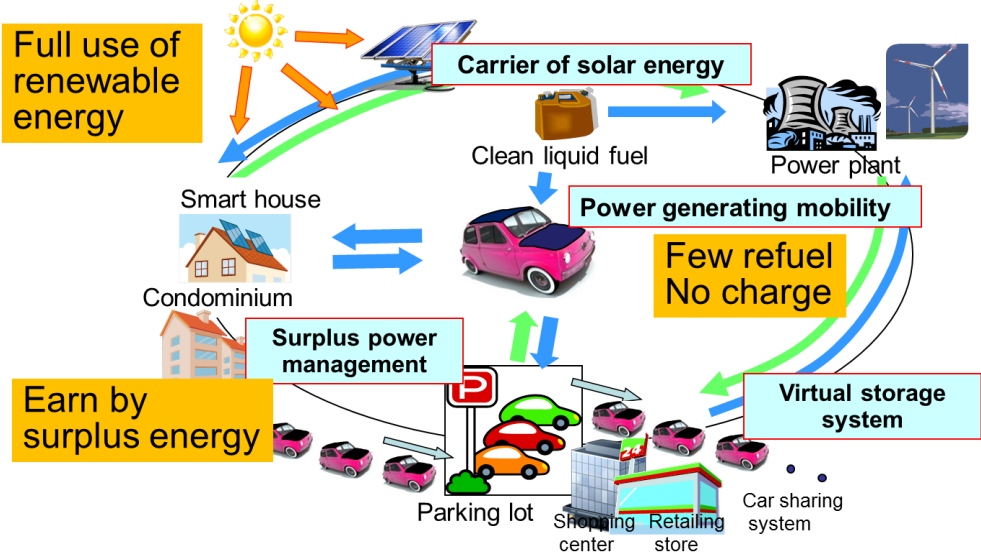


Fig.1 A proposed new mobility society.