Systems Analysis of PV R&D and Market Deployment

- Research on methods for supporting energy technology development planning -

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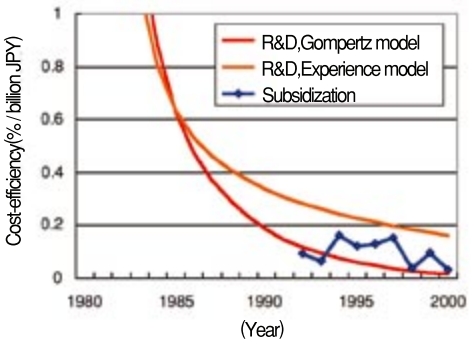
AIST Today Vol. 4, No.4 (2004) 20

To support planning of effective and efficient energy technology development, research on methods based on energy systems analysis and cost-effectiveness analysis is conducted especially focusing on photovoltaics (PV). Based on the cost-effectiveness analysis of PV R&D and subsidization, subsidy to PV capital cost is appropriately planned because subsidization is done when cost-efficiency of PV R&D is decreased well as shown in Figure. On the other hand, by using energy system model of Japan, buy-back subsidy to photovoltaics, which makes target for PV capacity attainable by achieving goal of PV system sales price, is analyzed and the results show that it becomes unnecessary if PV can be attained 170 JPY/w by 2030.



Cost-efficiency of PVR&D and subsidization to photovoltaics in Japan.

SiC Epitaxial Wafer for Ppower Devices in next Generation

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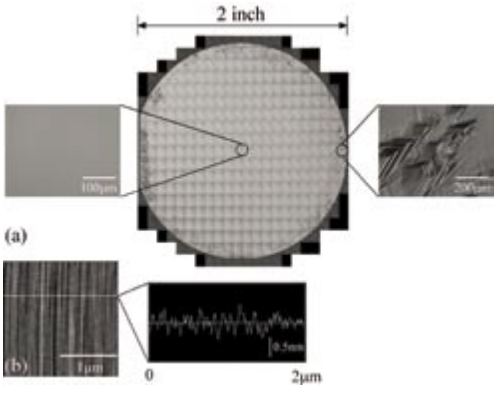
AIST Today Vol. 4, No.5 (2004)7

4H-SiC homoepitaxial growth was carried out on low off angled 4H-SiC substrate. By using (000$\bar{1}$) substrate, homoepitaxial layer was successfully grown on 2-inch 4H-SiC substrate with 0.5° off angle. The grown homoepitaxal layer showed an atomically flat surface morphology and crystal homogeneity without near wafer edge. This result solves problems on SiC power devices due to a large off angle of the epitaxial wafer.



The surface morphology of a epitaxial layer grown on a 2-inch substrate. (a) Nomarski image of whole 2-inch wafer. The surface morphology of the center and edge of the wafer is enlarged in this Figure. (b) AFM image of the epitaxial layer surface obtained at the center of the wafer.