



May 31, 2011

New Energy and Industrial Technology Development Organization
European Commission, European Union

Aiming at Developing the World's Highest Efficiency Concentrator Photovoltaic Cells

—NEDO and EU Launch First Joint Technology Development Project—

The New Energy and Industrial Technology Development Organization (NEDO) and the European Commission (European Union) will jointly launch a project to develop concentrator photovoltaic cells¹ aiming to achieve a cell conversion efficiency² of more than 45%, which is the highest efficiency in the world. This will be the first joint project under the EU-Japan Energy Technology Cooperation Agreement³.

In order to address climate change and enhance energy security, Japan and the EU will cooperate on the basis of a long-term and strategic view. This joint project will be carried out by industrial, academic and governmental research organizations from Japan and from six member states of the European Union (EU) for a period of four years through FY 2014.

In order to address climate change and enhance energy security, this joint project aims, with a long-term view, to develop concentrator photovoltaic cells with a cell conversion efficiency of more than 45%, which is the highest efficiency in the world, through strategic coordination and bringing together the technologies and expertise of Japan and Europe. Specifically, in addition to the development and assessment of solar cells and modules, new materials and new solar cell structures will be developed, and approaches to standardize measurement technology for concentrator photovoltaic cells will be explored.

This project will be jointly conducted by industrial, academic and governmental research organizations from Japan and from six member states of the EU. The Japanese research team, led by Professor Masafumi Yamaguchi of the Toyota Technological Institute, includes Sharp Corporation, Daido Steel Co., Ltd., The University of Tokyo, and the National Institute of Advanced Industrial Science and Technology. The EU research group, led by Professor Antonio

Luque of the Technical University of Madrid, consists of Fraunhofer Institute for Solar Energy Systems (Germany), Imperial College London (United Kingdom), Italian National Agency for New Technologies, Energy and Sustainable Economic Development (Italy), BSQ Solar, SL. (Spain), PSE AG (Germany) and the French National Institute for Solar Energy (France).

This project will be carried out for about four years until FY 2014 with a budget of about 650 million yen provided by Japan and about five million euro (approximately 600 million yen) provided by the EU.

Web site:European Commission·Press Release

http://ec.europa.eu/research/energy/eu/news/news_en.cfm?news=31-05-2011

¹ Concentrator photovoltaic cells use lenses or mirrors to concentrate sunlight onto a small area of a solar cell to achieve a high degree of conversion efficiency. As concentrator photovoltaic cells are applicable to small areas, they can be manufactured with less materials while providing high efficiency in power generation. Research and development for the practical use of such solar cells is currently being carried out to further improve their conversion efficiency and reduce production costs.

² Cell conversion efficiency indicates the numerical value of a cell (the smallest unit of a solar panel) to convert sunlight to electricity.

³ The EU-Japan Energy Technology Cooperation Agreement is designed to strengthen cooperation in the energy field between NEDO, which promotes the development of energy-related technologies, and the EU, which is conducting research and development programmes under the EU 7th Framework Programme for Research. The agreement was reached at a ministerial level (the Minister of Economy, Trade and Industry of Japan and the EU Commissioner for Science and Research) to promote EU-Japan cooperation in the field of energy-related technologies. This project in the area of solar power generation will be carried out as the first activity of such cooperation.



Principal researcher:
Professor Masafumi Yamaguchi
(Toyota Technological Institute)

- Toyota Technological Institute
- Sharp Corporation
- Daido Steel Co., Ltd.
- The University of Tokyo
- National Institute of Advanced Industrial Science and Technology



Principal researcher:
Professor Antonio Luque
(Technical University of Madrid)

- Technical University of Madrid (Spain)
- Fraunhofer Institute for Solar Energy Systems (FhG-ISE)(Germany)
- Imperial College London (United Kingdom)
- Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA) (Italy)
- BSQ Solar, SL. (Spain)
- PSE AG (Germany)
- French National Institute for Solar Energy (CEA-INES) (France)