

SPECIAL FEATURE:

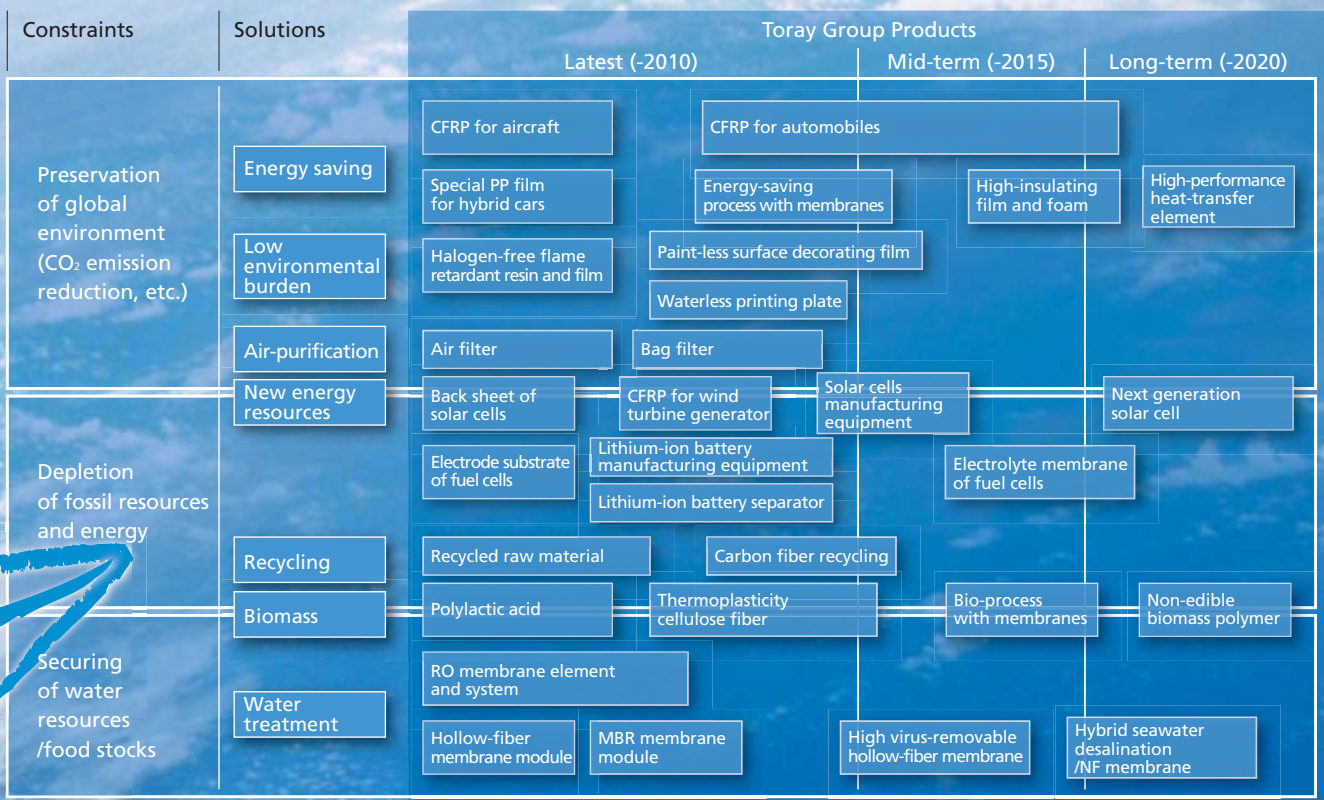
BALANCING ECONOMIC GROWTH AND ENVIRONMENTAL PRESERVATION

Toray Group's business strategies have a strong focus on the global environment. Based on our comprehensive strategies, the Group is promoting the Project "EcoChallenge," consisting of proactive activities directed at conserving resources and preserving the global environment, with the aim of realizing a sustainable society with a low carbon footprint.

In April 2009, Toray launched "Project IT-II," a new medium-term management program. One of the group-wide projects initiated under the program is the "Action Program for Growth (APG)" Project, which sets out growth strategies targeted for post economic crisis. The aim of APG Project is to make a contribution to society by proposing solutions for issues that are constraining economic growth, namely, problems related to preservation of global environment, depletion of fossil resources and energy, securing of water resources / food stocks and aging population with declining birthrate. In May 2009, Global Environment Business Strategic Planning Department was established directly under President in order to further energize "EcoChallenge" under the APG Project.

PROJECT "ECOCHALLENGE": NEW GROWTH STRATEGIES FOCUSING ON GLOBAL ENVIRONMENT

SOLUTION PROPOSAL TO CONSTRAINING FACTORS ON ECONOMIC GROWTH



Heightened Interest in Lightweight Energy-saving Benefits of Carbon Fiber

Energy saving with aircraft and automobile weight reduction as well as the enhancement of their engines is an important subject to prevent global warming because such an effort can realize to reduce CO₂ emissions from airplanes and cars, which currently use fossil fuels as primary source of mobility.

Carbon Fiber Reinforced Plastics (CFRP) is gaining increased attention from aircraft and automobile manufacturers as a material that can keep their physical strength intact, while reducing their body weight.

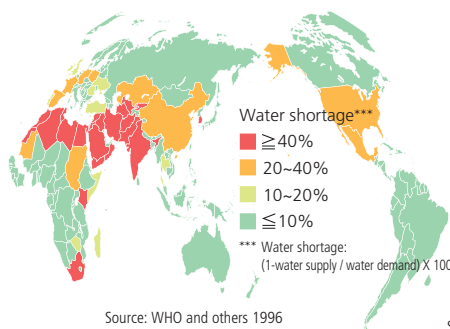
Shifting from Fossil Fuels to Renewable Energy Sources

There is a danger that fossil fuels, such as coal, petroleum and natural gas, will be depleted in a hundred years. Today, photovoltaic generation and wind power generation are being sought on a global scale as renewable forms of clean energy and as a means of preventing the depletion of fossil fuels and global warming. As a lightweight, super strong and high modulus material, CFRP has become the focus of attention for the blades of large wind turbines used in wind power generation facilities.

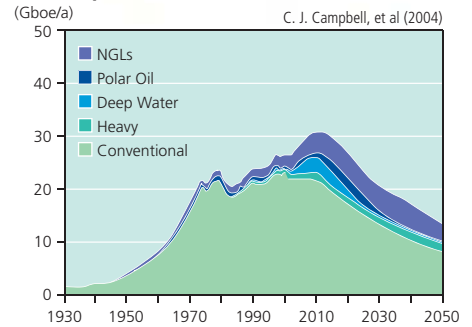
Membrane Technology Key to Water Resource Problems

Water shortages are becoming a serious global issue due to surging demand for water as a result of rising populations and economic development in emerging nations, as well as droughts caused by global warming and water pollution accompanying industrialization. Such circumstances are creating strong demand for low-cost water treatment using state-of-the-art technologies for the desalination of seawater, purification and recycling of wastewater.

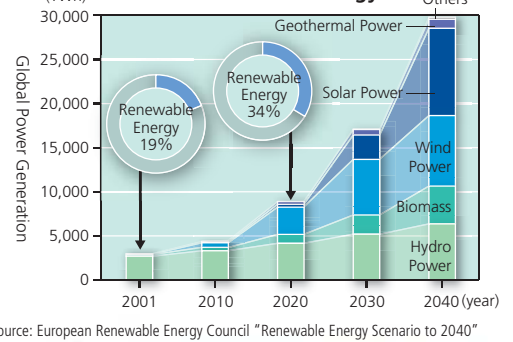
Water Shortage Presumed Regions in 2025



Depletion of Fossil Resources



Trend of Renewable Energy



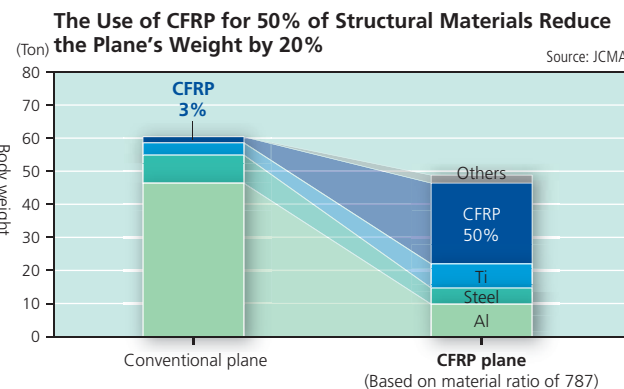
TORAY GROUP SOLUTIONS **SAVING ENERGY**

As the world leader in carbon fiber manufacturing, Toray is engaged not only in materials development but also in the development of molding technology.

AIRCRAFT:

CFRP for 50% of Structural Materials

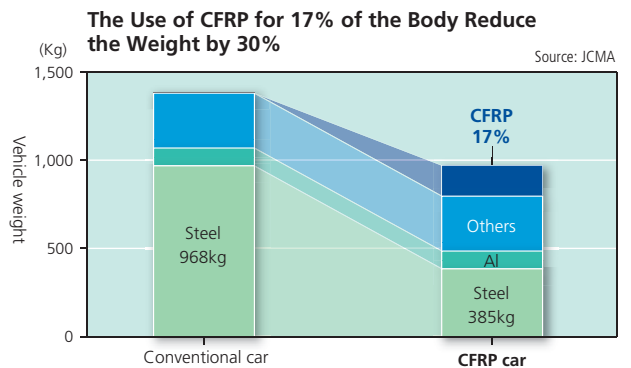
Improving fuel economy and reducing carbon dioxide emissions are the two greatest challenges facing aircraft manufacturers. Toray Group's reputation for its advanced technological capabilities and track record in aircraft applications has resulted in the adoption of Toray's carbon fiber reinforced plastics (CFRP) in the Boeing 787. The use of CFRP for 50% of the Boeing 787's structural materials has reduced the plane's weight by 20% and contributed largely to a 20% improvement in fuel economy. Other aircraft that use a large amount of CFRP are being developed to improve fuel economy and reduce carbon dioxide emissions. Toray Group's carbon fiber composite materials technologies are expected to become a solution that majorly contributes to the reduction of the carbon dioxide emissions of aircraft.

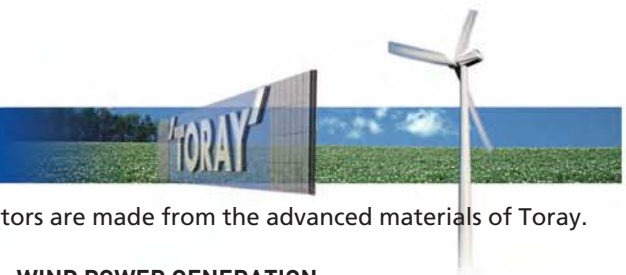


AUTOMOBILES:

Reducing Carbon Dioxide by Lighter Vehicles Using CFRP

For regular vehicles as well, reducing weight is important for complying with more stringent environmental regulations, such as those restricting carbon dioxide emissions, as well as for meeting consumer demand for improved fuel economy. It is said that reducing the weight of next-generation electric vehicles will accelerate the adoption of electric vehicles with longer cruising distances. Toray Group is developing advanced CFRP mass-production technology for automobiles at the A & A Center (Automotive and Aircraft Development Center) located at its Nagoya Plant. The aim is to help reduce vehicle carbon dioxide emissions by realizing lighter automobiles using CFRP and engineering plastics.





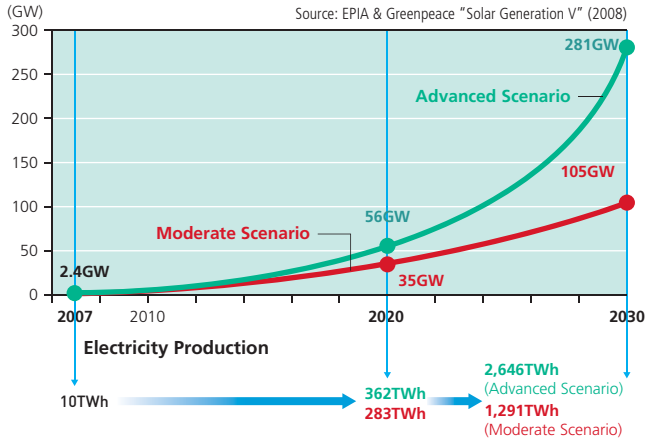
Primary components used in solar cells and wind power generators are made from the advanced materials of Toray.

PHOTOVOLTAIC GENERATION:

Leading the Way with Polyester (PET) Films and Organic Thin Films

Photovoltaic generation is garnering considerable attention as a form of clean energy that produces virtually no carbon dioxide emissions during its operation. Toray Group holds the top market share for PET film used for back sheets, which protect the rear side of solar modules. We are also developing an organic thin film solar cell, which is expected to lower the cost of solar cells. Recently, this development project achieved an exceptional milestone, realizing the highest reported conversion efficiency in the world for an organic thin film solar cell. Toray Group will continue expanding its solar cell-related materials business and activities aimed at commercialization of new photovoltaics.

Outlook for the World Photovoltaic Market



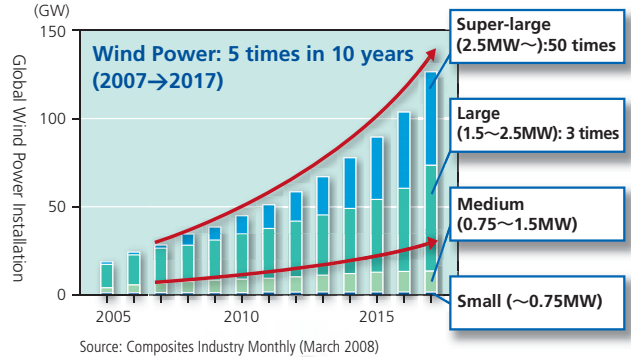
WIND POWER GENERATION:

CFRP Makes Super-large Windmills a Reality

Large and super-large windmill blades, which are a highly efficient method of power generation, are being installed at a feverish pace. The blade of a super-large wind turbine which is capable of producing over 2.5 megawatts of power can be more than 40 meters long with a diameter of more than 80 meters. For super-large turbines such as this, rigid yet light CFRP is essential for preventing the blade from colliding with the supporting column due to bending. At present, the amount of power generated by super-large wind turbines made mostly from carbon fiber is still small, but we anticipate that it will increase 50-fold over the ten-year period from 2007 through 2017. Accordingly, we expect to see a dramatic increase in demand for carbon fiber for windmill applications.

Wind power generation systems do not virtually produce any carbon dioxide emissions when generating power. Toray Group is expanding its CFRP business for windmill applications with the aim of contributing to the reduction of carbon dioxide emissions.

Outlook for Wind Power Generation Market



Including Reverse Osmosis (RO) Membranes, a range of products addressing the various needs of water treatment are available

Not only are water treatment plants that use the RO process economic than plants using thermal process, but they also help reduce the amount of energy used and carbon dioxide emitted. Toray holds a world-leading position in the field of water treatment membrane technology. We have developed an RO membrane that rejects boron from seawater with high efficiency, a process that is technologically

difficult, and a membrane for the recycling of wastewater that does not clog easily. Furthermore, we boast various types of proprietary membranes that can handle any kind of water treatment needs, for instance, micro-filtration (MF) membranes used for water purifying treatment and the membranes used in membrane bioreactors (MBR) for treatment of wastewater.

Separation Targets and Membrane Types

Size	0.001µm	0.01µm	0.1µm	1µm	10µm
Separation Materials	Ion, Low Molecule Weight Organics Trihalomethane Monovalent Ions	Agricultural & Organic Material Multivalent Ions	High Molecular Weight Polymer	Colloid	Clay Coliform Cryptosporidium
Types	Semi-permeable Membrane RO (Reverse Osmosis)		NF (Nanofiltration)	Low Pressure Membrane UF (Ultrafiltration) MF (Microfiltration)	
Toray's Membrane Products	Ultrapure Water Seawater Desalination Wastewater Reclamation RO membrane		Softening Removal of Toxic Matter NF membrane	Municipal Drinking Water Reuse of Wastewater Pre-treatment for Seawater Desalination UF membrane MF membrane MBR	



Developing Non-edible Biomass

Toray Group is engaged in the development of biomass-based polymer products made from plant-derived feedstock, which makes a huge contribution to the reduction of carbon dioxide throughout their life cycle. It also addresses the issues that are caused by the depletion of petroleum and the other fossil fuels. We put considerable emphasis on developing products made from polylactic acid (PLA), a plant-based polymer. We are also working on developing PLA applications for fibers, films and plastic resins employing our proprietary polymer modifying technologies, as well as expanding this business.

In addition, we are undertaking research aimed at the efficient extraction of polymer ingredients from non-edible biomass. This is particularly important from the perspective of using alternatives to corn and other food sources as raw materials to prevent the depletion of food supplies. Our aim is to commercialize polymers made from non-edible biomass by combining Toray's unique technologies and entering into technical alliances with external entities. Also, recently we succeeded in making a "Bionylon" prototype as a result of a research project on making polymer ingredients from non-edible biomass using microorganisms.



LONG-TERM TARGETS

By 2020: Targeting ¥1 Trillion in Sales of Environmentally-friendly Products; More Contribution to CO₂ Emission Reduction Exceeding 200 Million Tons

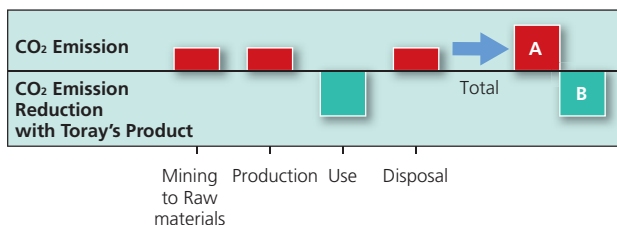
Project "EcoChallenge" is a long-term initiative setting out important challenges that do not have deadlines. Nonetheless, we have set two near-term targets to be reached by around 2020.

The first is to increase sales of environmentally-friendly products business which provides solutions to global environmental issues, to ¥1 trillion.

The second is to expand our businesses in environmentally-friendly products for more contribution to reduce carbon dioxide emissions with Toray products by more than 200 million tons based on life cycle assessment (LCA) measures.

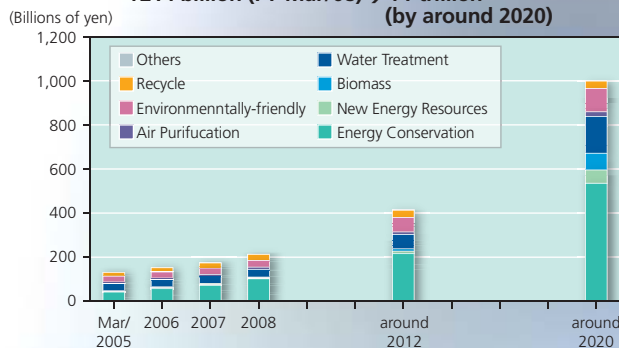
CO₂ Emission Reduction in Life Cycle

- CO₂ emission from mining of natural resources to disposal: **A**
 - CO₂ emission reduced in the use of the product: **B**
 - Total CO₂ emission reduced in the product life cycle: **B-A**
- LCA**



"EcoChallenge" Targets

Target 1: Expand environmentally-friendly products business ¥214 billion (FY Mar/08) → ¥1 trillion (by around 2020)



Target 2: More Contribution to reduce CO₂ emissions with Toray products 16 million tons (FY Mar/08) → over 200 million tons (by around 2020)

