TORAY
Innovation by Chemistry

100TH

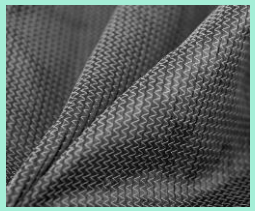
TORAY IR Day

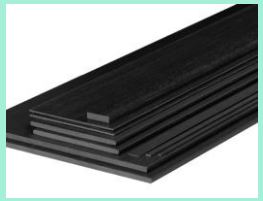
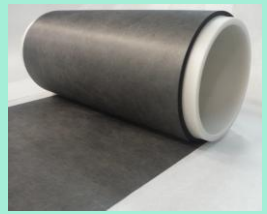
Medium-Term Management Program Project “IGNITION 2028”

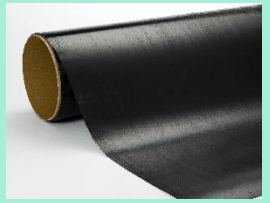
Carbon Fiber Composite Materials Business

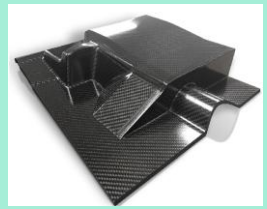
June 9, 2026

Takashi Yoshiyama
Senior Vice President,
General Manager, Torayca & Advanced Composites Division
Toray Industries, Inc.







INDEX

Ⅰ Overview of Carbon Fiber Composite Materials Business P.4

Ⅱ Reviewing Medium-Term Management Program “Project AP-G 2025” P.6

Ⅲ Medium-Term Management Program “IGNITION 2028”

1. Demand Outlook P.8
2. Basic Policies of "IGNITION 2028" P.9
3. Major Tasks P.10-12
4. Growth Drivers P.13-15
5. Large Tow Business（ZOLTEK） P.16
6. Carbon Neutrality P.17
7. Main applications for Future Growth after 2030 P.18
8. Target P.19

Overview of Carbon Fiber Composite Materials Business

Overview of Carbon Fiber Composite Materials Business

General

Start of Commercial Production : **1971**

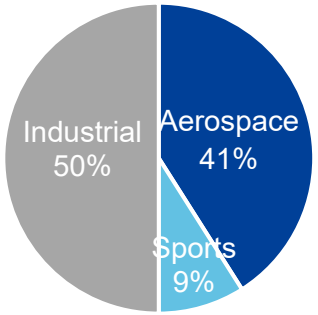
Products Brand : **Torayca™** TORAYCA

Subsidiaries : **10 Companies**

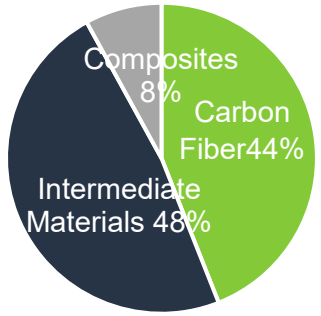
(Japan 1, Overseas 9)

Sales Breakdown (FY2025)

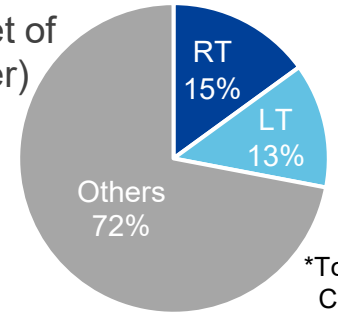
By Application



By Product



Market Share (Whole Market of Carbon Fiber)

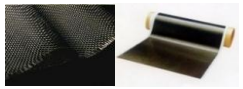


*Toray (RT) includes CMA, CFE and TAK

Main Production Sites / Capacities

Precursor

Carbon Fiber



Intermediate Materials

Composites

Asia	Japan	Toray	Toray/TCM
	Korea	TAK	
	Thailand		CMTH
	China	TACQ	PMC
North America	USA	CMA	CMA/TACUS / ZOLTEK
	Mexico	ZOLTEK	
Europe	France	CFE	
	Italy/Germany		CIT/DELTA / EACC
	Hungary	ZOLTEK	
	Netherlands/UK		TAC-G

CF Capacities

Unit: t/year

CFE	Toray	TAK	CMA	RT Total	LT Total
5,200 (6,200)	8,970	4,700 (7,950)	9,900 (13,150)	28,770 (36,270)	35,000

* Figures in parentheses show capacity after new equipment startup.

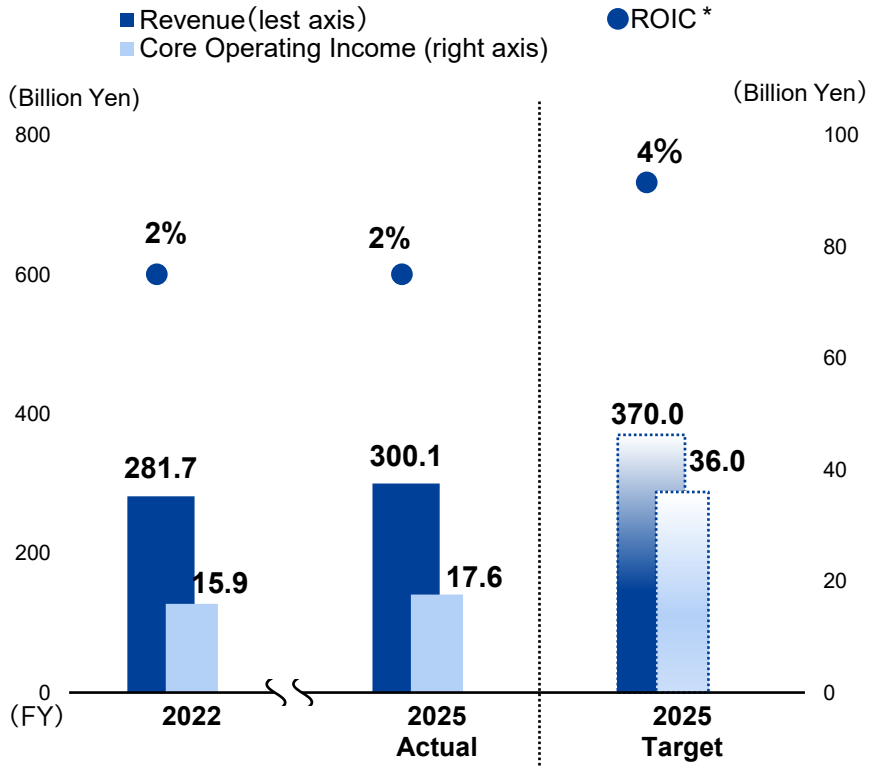
Copyright © Toray Industries, Inc.

II

Reviewing Medium-Term Management Program “Project AP-G 2025”

While the target was not met, we achieved higher profit than in FY2022

Performance trend (Carbon Fiber Composite Materials Segment)



* ROIC=core operating income after tax / average invested capital (average if the balances at beginning and end of the period)

Variance Analysis of Core Operating Income vs. FY2025 Target

		Variance (Billion Yen)	Factors for Increase / Decrease
Quantity		-51.0	● Demand for hydrogen vehicles did not expand due to slow infrastructure development and persistently high hydrogen introduction costs, leading to reduced demand for pressure vessels (CHG) and fuel cell. ● Inflation and high interest rates increased wind power project costs, reducing materials demand. ● Slower-than-expected demand growth led to postponed start-up of new facilities and inventory-adjustment shutdowns.
Prices	Sales Price	-7.0	Intensifying price competition due to slower-than-expected demand growth.
	Raw materials and Fuel	+19.0	Acrylonitrile and electricity prices fell below our expectation.
Fixed Cost		+10.0	Delayed start-up of the new facilities lowered the fixed costs.
Others		+10.6	FX impact, etc.
Total		-18.4	

Copyright © Toray Industries, Inc.

III

Medium-Term Management Program “IGNITION 2028”

Carbon Fiber Demand Outlook

Expecting high annual growth of 9%, driven mainly by the recovery in commercial aircraft demand and the expansion of renewable energy demand.

The shift away from oil dependence may further accelerate demand for renewable-energy applications such as pressure vessels and wind power.

Aircraft, space & defense

- Growth at 10% annually, driven by **the recovery in commercial aircraft demand.**
- Increasing rocket launch frequency and rising demand for communication satellites are **expanding the needs for high performance carbon fibers and intermediate materials.**

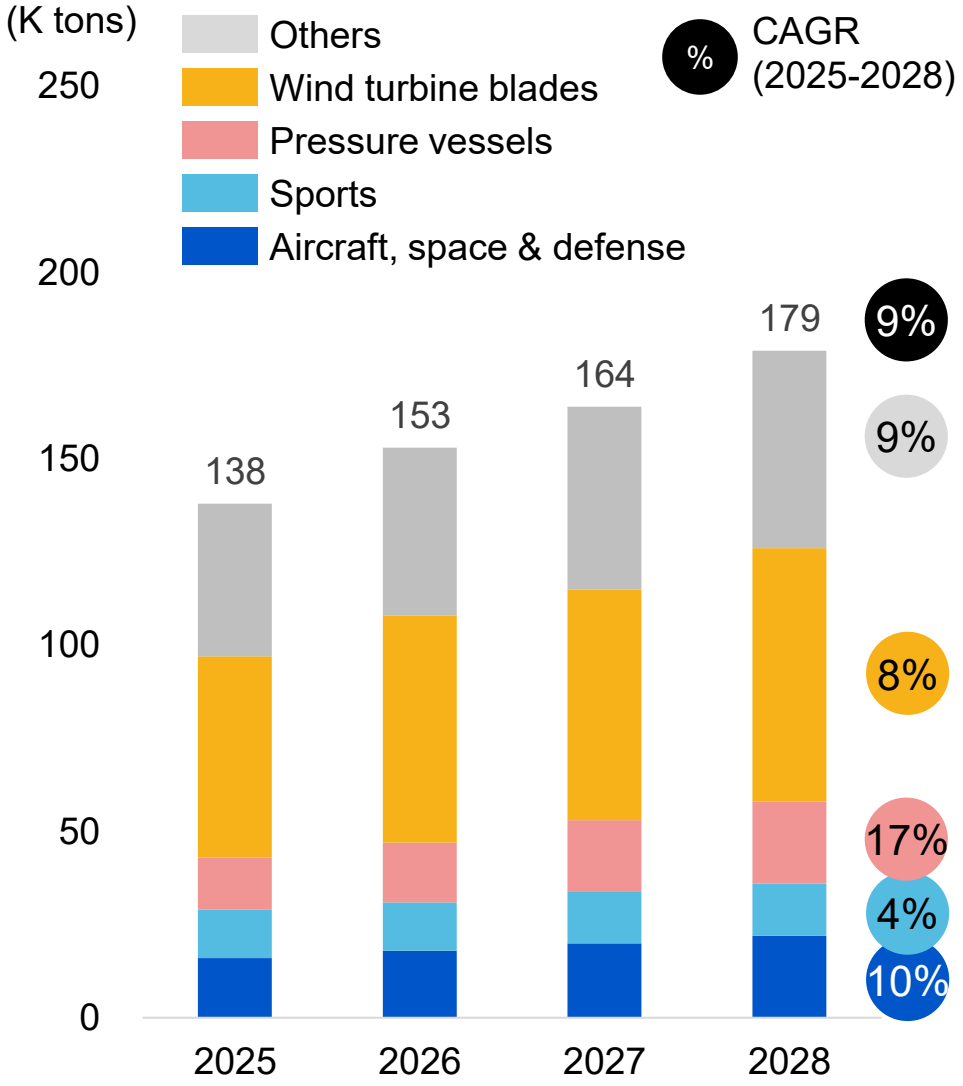
Sports

- Steadily expanding, with 4% annual growth.

Industrial

- Growing at 10% annually, driven by **renewable-energy demand** (Pressure vessels 17%、Wind turbine blades 8%)
- Demand for automotive, construction/civil engineering, and cable core applications is also steadily expanding.

Carbon Fiber Demand Forecast (Toray's estimate)



Copyright © Toray Industries, Inc.

Basic Policies of "IGNITION 2028"

We will promote business expansion and profitability improvement as our growth engine by **fully leveraging existing resources and advancing structural reforms**, and **we will achieve core operating income commensurate with invested capital.**

Basic Policies

1. Capturing areas with existing and expanding demand as a foundation for earnings.
2. Marking key customers and domains in areas where demand is expected to grow due to environmental regulations and government support measures to secure future potential.
3. Strengthening earnings power through accelerated product upgrading and expansion of intermediate materials.

Priority Areas in “IGNITION 2028”

■ Commercial airplane, Space & Defense

- Business expansion leveraging the strengths of our products in **high functionality and reliability**.

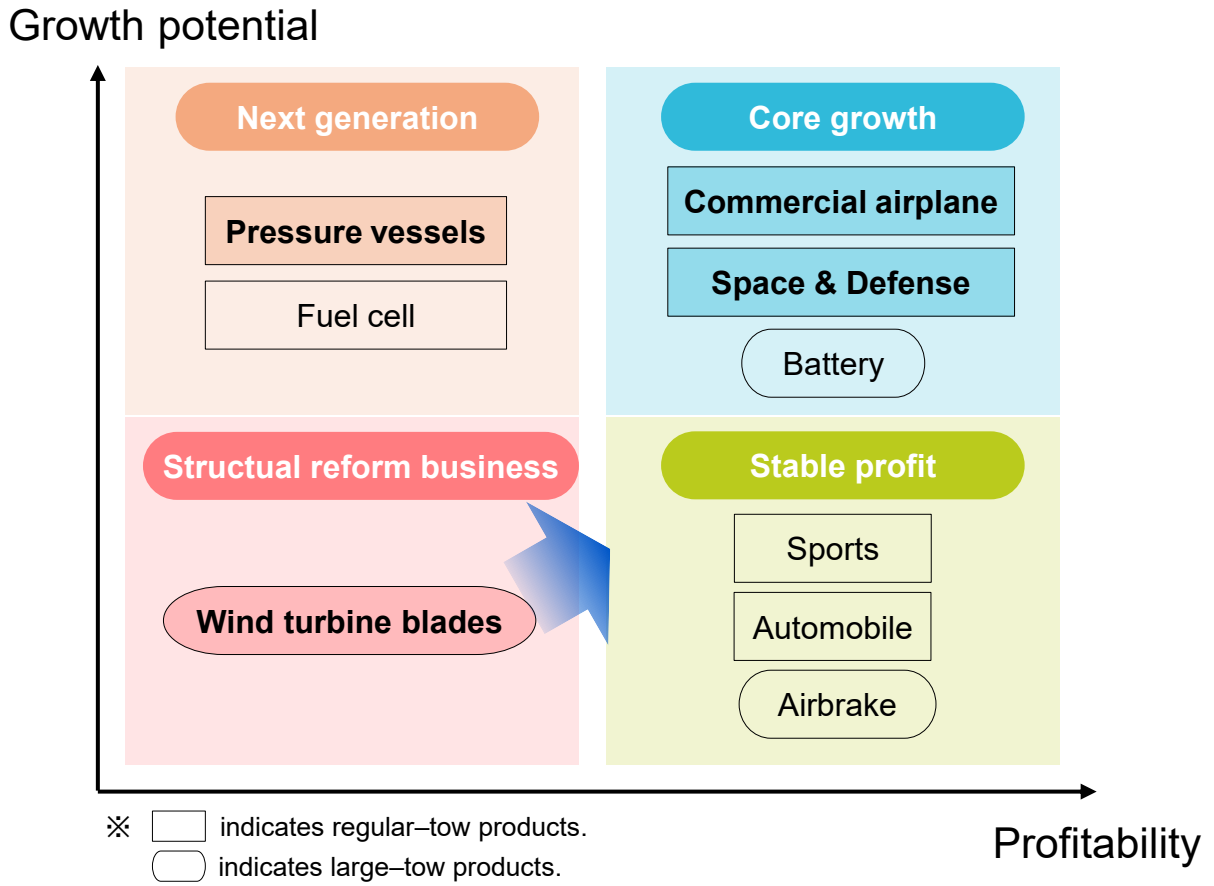
■ Pressure vessels

- Ensuring stable supply of **CNG tanks** in anticipation of growing demand.
- **Promoting development of differentiated products** to capture future demand growth for CHG tanks.

■ Wind turbine blades

- **Returning to a growth trajectory** through structural reforms and capturing market expansion.

Business Portfolio (as of March 2026)



Copyright © Toray Industries, Inc.

Main Tasks (1) Capture the Recovering Demand for Aircraft

Production Plan Announced by Boeing

- Transitioned 787 production rate to 8 per month by the end of 2025, with a target of 10 per month in the second half of 2026
- Plans 777X initial deliveries to airlines starting in 2027

Production Plan Announced by Airbus

- Plans to increase A320 production rate to 75 per month around 2027
- Plans to establish A350 production system capable of 12 per month by 2028

Demand Growth for Next-generation Aircrafts

- Boeing announces plans to introduce a next-generation narrow-body single aisle airplane, a successor to 737 MAX, with entry into service from the mid-2030s onward
- Airbus announces the development of a next-generation single aisle airplane, a successor to A320neo family, with improved fuel efficiency and environmental performance, aiming to entry into service in the late 2030s

Our Response

- Preferential supply from qualified existing production lines
  → Reorganize production bases (securing personnel, etc.) at each site (JPN, USA, and Europe) without delay in order to supply reliably
- Promote increase in capacity of existing machines (RT)
  → Minimize impact on other applications
- Promote material development and selection for next-generation aircrafts

Our Supply Bases for Boeing, Airbus and Next-gen Aircrafts*

● Thermosetting material
● Thermoplastic material

	Boeing	Airbus	Next-gen Aircraft
TORAY (JPN)	● Prepreg Carbon Fiber	● Prepreg Carbon Fiber	● Prepreg Carbon Fiber
CMA (USA)	● Prepreg Carbon Fiber	–	● Prepreg Carbon Fiber
CFE (FRA)	Carbon Fiber	Carbon Fiber	–
TAC-G (USA・NLD)	●● Prepreg	● Prepreg	● Prepreg

* For primary and secondary structural materials

Copyright © Toray Industries, Inc.

Main Tasks (2) Enhancing the earnings base by fully utilizing existing resources

Build a solid earnings base over the next three years by fully utilizing its stable supply capability, technological expertise, customer trust, and brand strength.

Capturing Growing Industrial Market Demand

Respond to growing demand in industrial markets by utilizing expanded carbon fiber production capacity in Europe, the U.S., and Korea.

- Secure long-term supply agreements with major pressure vessel and wind turbine blade customers in Europe and the U.S., backed by high performance and stable supply.
- Expand our business in areas where differentiation is achievable through product performance.
- Strengthen non-price competitiveness by enhancing technical services.

New Regular Tow Carbon Fiber Production Facilities

	Location	Capacity	Production Start
Regular Tow Carbon Fiber	KOR	3,250t/y	2H 2026
Regular Tow Mid/high-modulus Carbon Fiber	FRA	1,000t/y	2H 2026
Regular Tow Carbon Fiber	USA	3,250t/y	1H 2027

Strengthening of Profit Structure

- Improving Profitability through **Differentiated Products, Brand Strength, and Strategic Pricing**
  - Enhance product value and strengthen customer appeal.
  - Accelerate the development and commercialization of high-performance, high value-added carbon fiber.
- Expanding Midstream and Downstream Value Capture through **Intermediate Materials and Composites Businesses**
  - Respond to localization requirements in aerospace and defense markets.
  - Strengthen integration between carbon fiber operations and intermediate materials and composite processing sites across Europe, the U.S., and Asia.
- **Completing Structural Reforms** of Low-Profit Businesses
  - Rebuild the large tow carbon fiber business (Zoltek).

Copyright © Toray Industries, Inc.

Main Tasks (3) Cost Competitiveness & Adding Value

Advantages of Our Carbon Fiber Composite Materials Business

Global Power

- Strategic business design to turn economic security into Opportunity
- Turning our global supply capacity into value
  Production 25, Sales 18, R&D 18
- Diverse Human Resources (Europe, Americas, KOR and JPN)

Quality Liability

- Qualified materials for aircraft, space & defense applications
- Accumulated data over 50 years and its reliability

Development Capability

- Diverse technologies

Regular Tow	Thermoset
Large Tow	Thermoplastic

- Development capacity from carbon fiber to intermediate materials and composites

Enhancement of Cost Competitiveness

- Promote increase in production capacity and expansion of production lines in proper locations
- Optimization of SCM globally
- Promote development of innovative processes and continuous cost reduction through digital transformation

Adding Higher-Value

- Creation of leading-edge materials and products
- Global quality standardization
- Deepen customer partnerships / integration of processing and molding
- Improving product recyclability and reducing carbon footprint of products
- Building a patent portfolio that captures the structural characteristics of products through the pursuit of excellence

Copyright © Toray Industries, Inc.

Strategies for Growth Drivers
(1) Aircraft, Space & Defense

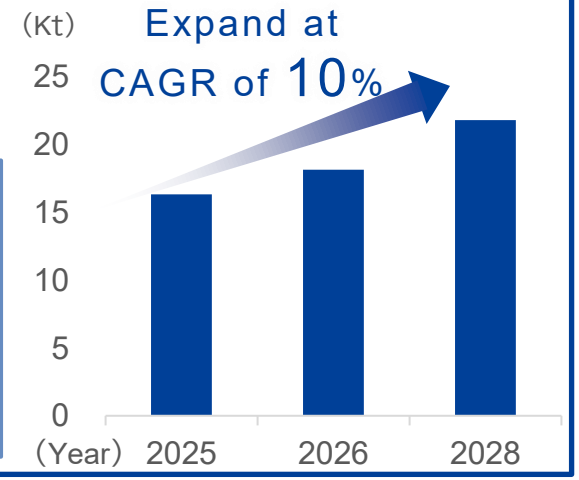
TORAY

Demand Increases Along the Production Rate Recovery of Existing Models
Develop and Propose the Best Materials for High-rate Production of Next-gen Aircraft

Business Environment

- The commercial aircraft market is recovering, led by Boeing and Airbus programs
- In the space sector, expansion of communication networks driven by satellite constellations and progress in space development programs are increasing rocket launch demand
- In the 2030s, next-generation aircraft programs—premised on environmental compliance and high-rate production—are expected to emerge

Carbon Fiber Demand Forecast



Materials Required for Aircraft

- High **reliability, safety and quality control**
- Capability to develop and propose **the cutting-edge material**
- Stable **supply capacity** and commitment

Basic Policy

- Ensure reliable supply for the expanding commercial aircraft market
- Expansion of aircraft, space & defense applications in Europe
- Achieve de-facto standardization of our products in rocket structures and fuel tanks
- Expand share in space and defense applications by leveraging TAC-G's European bases

Major Tasks

- **Strengthen supply capacity** for Boeing programs, **reduce costs**, and **ensure quality stability**
- **Optimization of manufacturing systems** and **expansion of product varieties**
- Develop and propose optimal materials and drive specification inclusion for **next-generation single-aisle aircraft**
- Expand share in the artificial **satellite market**
- Develop new **space markets** in **emerging countries**

Copyright © Toray Industries, Inc.

Promoting Higher Profitability through Differentiation and Structural Reform via New Products and Intermediate Material Strategies

Business Environment

- Industrial: Growing at 10% annually driven mainly by renewable energy demand

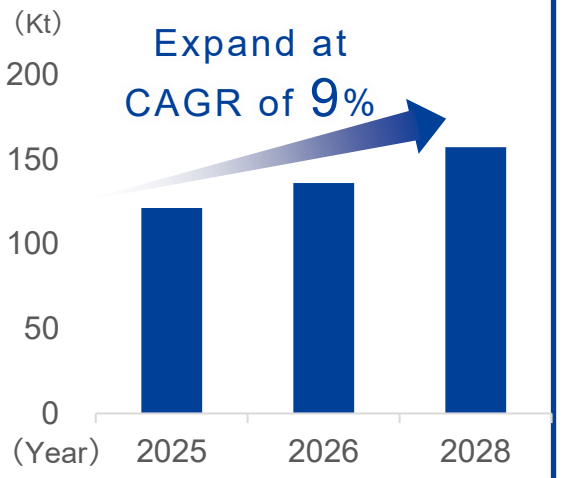
CNG	2025	7.2 kt	→	2028	12.3 kt
Wind Turbine Blade	2025	53.8 kt	→	2028	67.9 kt

- Sports: Steady expansion at approx. 4% annual growth

Major Applications

- Growth in demand for CNG tanks and cable core
- Expansion of hydrogen society is delayed, although expected to grow in long term
- Increasing size of wind turbine blades leading to increase in CFRP usage ratio
- Steady expansion in sports application

Carbon Fiber Demand Forecast



Basic Policy

- Industrial: Key application supporting utilization of existing facilities
- Sports: Fast product development cycles, requiring differentiation from competitors
- Large Tow: Expand beyond wind turbine blades into new application and markets
- Composites: Strengthen business foundation across core areas(PC casing, Medical, FC substrate)

Major Tasks

- Reinforce global operation; running new facilities at full capacity
- Improve profitability through high value-added products and high-margin new products for sports application
- Rebuild and strengthen global composites business
- Structural reform of low-profit subsidiaries, ZOLTEK & EACC
  ZOLTEK: Business restructuring and cost reduction via Darwin project
  EACC: Business downsizing, market focus refinement, and Europe-centered operation

Copyright © Toray Industries, Inc.

Strategies for Growth Drivers

(3) Strategies for intermediate materials and composites

Expanding high-profit businesses, including aircraft, space & defense, by strengthening our global supply networks for intermediate materials and composites and leveraging our extensive track record in material supply.

Business Environment

- **Growing demand for "local" intermediate materials**, particularly in aircraft, space & defense.
  - ➢ Our existing supply chains in Asia, Europe and U.S,, we hold a competitive advantage in capturing new business opportunities.
  - ➢ Expanding our production, sales, and technical-service bases to unlock **new opportunities and drive business growth**.
- Quality catch-up and capacity expansion by Asian carbon-fiber competitors
  - ➢ Concerns over expanding presence of Asian competitors in European and U.S. markets.

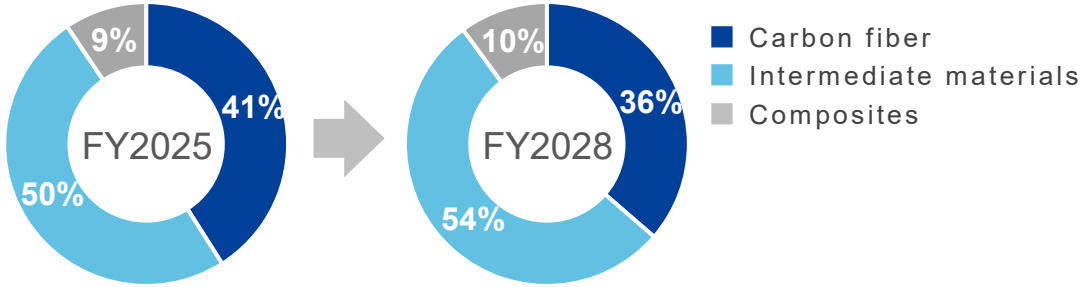
Our Strengths and Value Proposition

- **A proven history of supplying intermediate materials** for aircraft structures with **high quality and supply stability.**
- A global production and sales structure that enables **comprehensive technical services**
- **A broad product lineup** of carbon fibers and intermediate materials
- **Material proposal capabilities** unique to a fully integrated carbon-fiber manufacturer
- A robust **outsourced-processing network**

Business Strategy

- **Driving growth in space & defense applications** by leveraging the technological capabilities cultivated in the aircraft business and expanding our global supply chains.
- **Business expansion of high-performance intermediate materials** for sports and industrial applications
- Enhancing competitiveness through **stronger cross-group collaboration in product development**
- Expansion of the composites business and **global collaboration**

Marginal Profit Structure by Product Form in the regular-tow business



The proportion of marginal profit from intermediate materials and composites will rise to 64%, up 5 points from FY2025

Copyright © Toray Industries, Inc.

Large Tow Carbon Fiber (ZOLTEK)

TORAY

Strengthen Earnings through Cost Reduction via Optimized Production, expansion of New Products and Applications, and Structural Reform

Business Environment

- Demand for large tow carbon fiber increases at approx. 9% annually.
  Demand for wind turbine blades continues to grow steadily.

  Wind Turbine Blades 2025 **53.8 Kt** → 2028 **67.9 Kt**

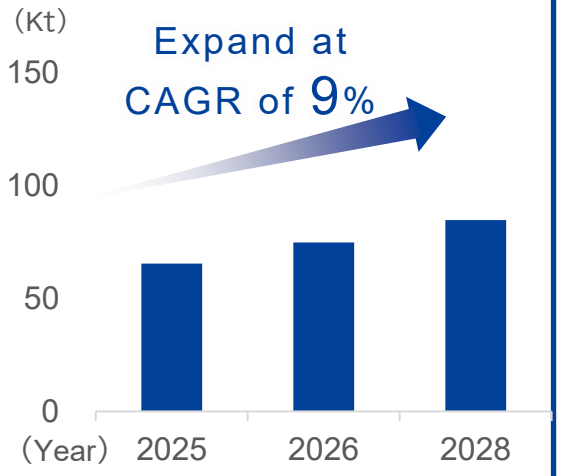
  →Solid demand, but intensifying price competition from Chinese competitors.

- Demand for Zoltek OX
  Aircraft brake applications show steady growth.
  Industrial demand is driven by growing data center energy storage demand.

  →Currently struggling due to delayed demand growth.

  *impacted by the removal of energy storage requirements from Chinese subsidy for solar and wind power.

Carbon Fiber Demand Forecast



Basic Policy

- Shift from carbon fiber material to pultrusion product sales.
- Increase added value through launch and expansion of high-performance new products.
- Zoltek OX：Maintaining steady expansion of the aircraft brake application as a core business; while promoting new application expansion in industrial market.
- Reduce dependence on wind power business through diversification of business portfolio.

Structural Reform without Sanctuary

- **Reorganization of US sites** for pultrusion products for wind turbines.
- Promote **cost reduction** through **production optimization**:
  CF/OX・・・Concentrate production at Mexico plant (shift from Hungary)
  Pultrusion・・・Concentrate production at Hungary plant (US site limited to selected product manufacturing)

Copyright © Toray Industries, Inc.

Road to Carbon Neutrality

Policy of Carbon Fiber Composite Materials Business

As a leading carbon fiber company, we will promote progressive approach and proactive communication.

By 2035

Increase in emissions expected due to full-scale operation and capacity expansion; **increase will be minimized** through energy-saving, operational optimization, introduction of CO_2-free power sources.

By 2040

Over 50% reduction in CO_2 Emission
Target Carbon Neutrality in Europe

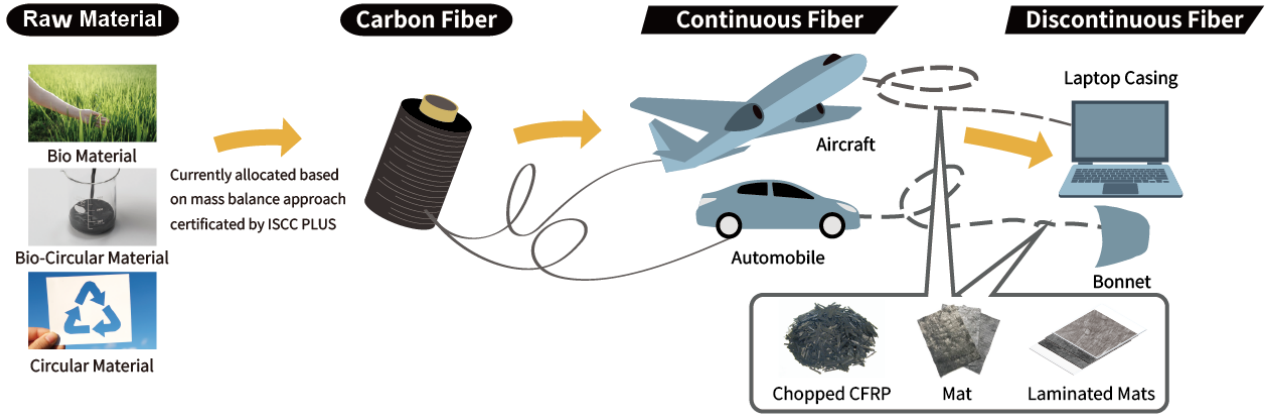
By 2050

Target Carbon Neutrality
Introduction of **CCUS**

Strategy for Carbon Neutrality

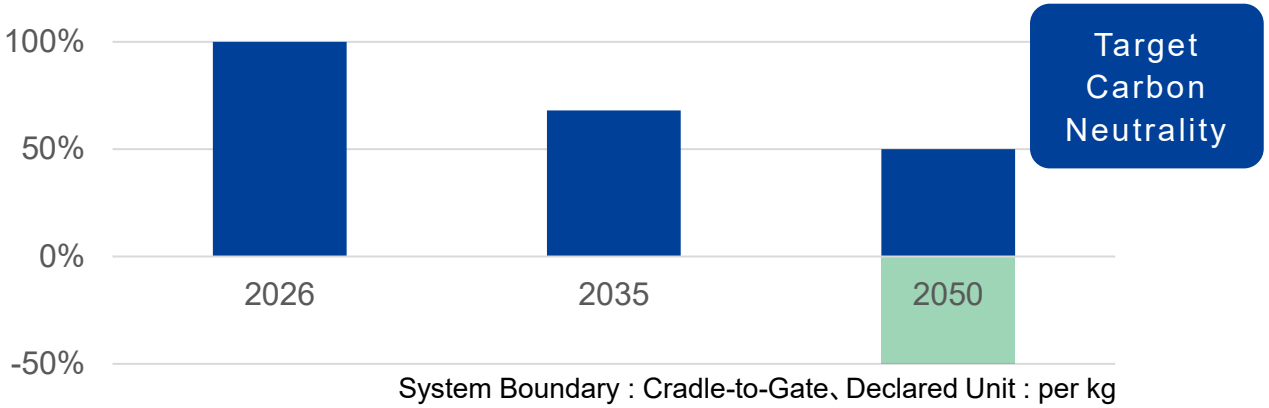
① **GHG Emission Reduction** and **CFP reduction of our products** (Carbon Fiber, Intermediate materials)
② Promote Resource Utilization Model（use of **recycled / bio-based raw materials**）
③ **Quantify LCA improvement effect** on customer's product, public disclosure and communicating benefits to customers

Carbon Fiber Resource Utilization Model



Milestone for Achieving Carbon Neutrality of Carbon Fiber

T700S-24K Product CFP Global Average Target

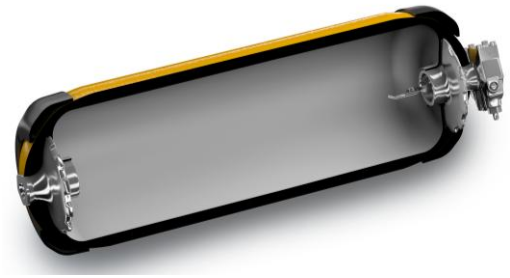


System Boundary : Cradle-to-Gate、Declared Unit : per kg

Copyright © Toray Industries, Inc.

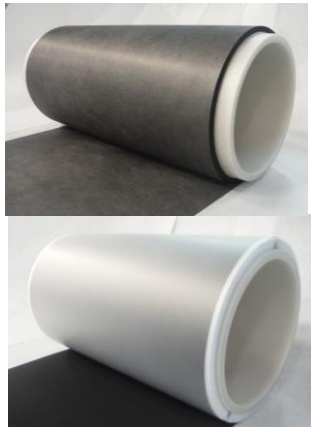
Main Applications Expected to Expand After 2030

Hydrogen Tanks



© TOYOTA MOTOR CORPORATION

GDL Base Materials



(Top) Torayca® Carbon Paper
(Bottom) GDL

Cable Core

Aircraft (Body, Engine)

©Boeing

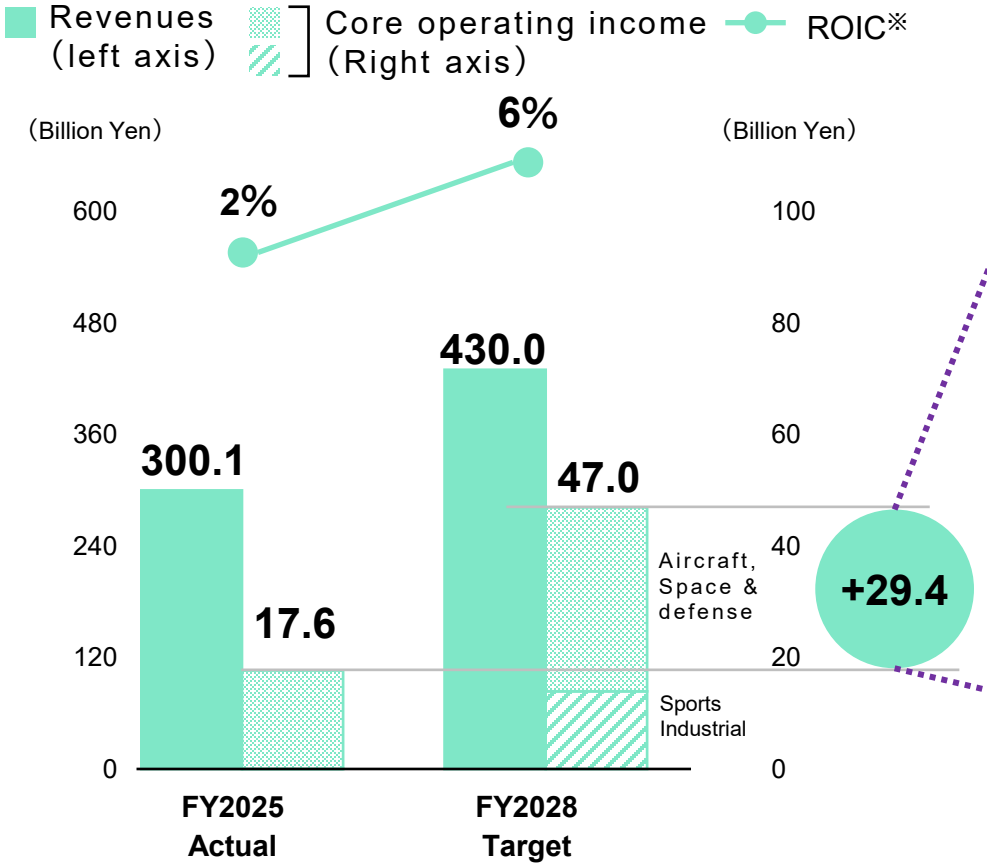
©Boeing

Space (Satellite・Rocket)

Urban Air Mobilities

Copyright © Toray Industries, Inc.

IGNITION 2028 Target



(Billion Yen)

Revenue target by application

	FY2025 Actual	FY2028 Target	vs. FY2025
Aircraft, space & defense	121.6	186.0	+53%
Sports	28.5	30.0	+5%
Industrial	150.0	214.0	+43%
Total	300.1	430.0	+43%

Growth Strategy	Capturing the recovery in aircraft demand
	Strengthening intermediate materials strategies and maximizing supply-chain profitability
	Leveraging the growing demand in sports and general industrial application
Structural Reform	ZOLTEK structural reforms and rebuilding of the large-tow business
	Reorganizing the global network for the composites business

We aim to achieve core operating income **47.0 billion yen**, an increase of 29.4 billion yen from FY2025 and improve ROIC to **6%** (a 4-point increase),

by reliably leveraging the growing demand in each market and completing our structural reforms, we will drive business expansion and improve profitability as a core growth engine.

* ROIC=core operating income after tax / average invested capital (average if the balances at beginning and end of the period)

Copyright © Toray Industries, Inc.

Descriptions of predicted business results, projections, and business contained in this material are based on predictive forecasts of the future business environment made at the present time.

The material in this presentation is not a guarantee of the Company’s future business performance.

Copyright © Toray Industries, Inc.

Innovation by Chemistry

Copyright © Toray Industries, Inc.