



Green innovation fund Project / Development of next-generation solar cells

NEDO's Projects

Project Period : 2021~2030
Budget : 80.05 billion yen

In order to achieve carbon neutrality by 2050, it is necessary to maximize the introduction of renewable energy, including solar power, as a major source of electricity. At the same time, we aim for the early social implementation of next-generation solar cells that can be installed even in locations where installation has been difficult until now.

	2021年度	2022年度	2023年度	2024年度	2025年度	2026年度	2027年度	2028年度	2029年度	2030年度
【研究開発内容①】 次世代型太陽電池 基礎技術開発事業	1) 開発環境・評価設備整備 2) 新材料等の共通基盤開発 3) 評価・分析体制の構築 4) 国際標準の推進（2024年度から追加）									
						5) タンデム化技術開発				
【研究開発内容②】 次世代型単接合太陽 電池実用化事業	1) 製造技術の確立 2) 製品の大規模プロトタイプ開発（TRL：5） ※太陽電池の性能を満たす技術の確立									
【研究開発内容③】 次世代型単接合太陽 電池実証事業				1) 最終プロトタイプ開発（TRL：6） ※最終製品として性能を含む仕様を満たす技術の確立 2) 実証試験（TRL：7） ※最終製品として性能・仕様を実証的に立証						
【研究開発内容④】 次世代型タンデム太 陽電池量産技術実証 事業					1) 製造技術の確立 ※太陽電池の性能を満たす技術の確立 2) 製品化を想定した最終プロトタイプ開発（TRL：6） ※最終製品として性能を含む仕様を満たす技術の確立 3) 実証試験（TRL：7） ※最終製品として性能・仕様を実証的に立証					

(1) Development of next-generation solar cell base technologies

- Development, analysis, and evaluation of common base technologies for perovskite solar cells.
- Development of technologies which contribute to improvements in durability and efficiency and cost reduction.
- Collaborate with the company side of development (2).

(2) Practical application project of next-generation solar cells

- Establishment of a technology to fabricate practical-size modules (900 cm² or larger) of perovskite solar cells.
- Development of element technologies to achieve a power generation cost of 20 yen/kWh or less under certain conditions.
- Establishment of element technologies for each manufacturing process to achieve scale-up.

(3) Demonstration project of next-generation solar cells

- Aim to achieve a power generation cost of 14 yen/kWh or less through field demonstration of the production process established in Research and development (2).
- Develop technologies to achieve high throughput and high yield.
- Verify the performance including installation and construction methods which take advantage of lightweight and flexibility.

(4) Demonstration project of Next-Generation Tandem Solar Cell Mass Production Technology

- Conduct research and development aimed at establishing manufacturing process technology for large-scale modules of high-performance tandem perovskite solar cells.
- Develop mass production technology that achieves short takt time and high yield rate to reduce power generation costs.
- Conduct demonstration tests assuming social implementation forms such as rooftop and ground installations, and verify power generation performance.