Forecasting PV Installed Capacity in Japan 2025 to 2040

May 2026

RTS Corporation

Forecasting PV Installed Capacity in Japan 2025 to 2040

Table of Contents

Introduction

The Seventh Strategic Energy Plan was approved by the Cabinet in February 2025, and the expansion of PV power generation is entering a new phase towards 2040. While maintaining the conventional S+3E principle (Safety, Energy Security, Economic Efficiency and Environment), the Plan states that securing decarbonized power sources is also important for strengthening industrial competitiveness in response to the potential increase in electricity demand due to the progress of DX (digital transformation) and GX (green transformation). Under the policy of maximizing the introduction of renewable energy as the main power source, the projected proportion of PV power in the energy mix has been significantly increased from the previous 14 - 16% to 23 - 29%, which corresponds to the generation capacity of 203 - 280 GW_{AC}, showing PV's position as the top power source in Japan in FY 2040. Since the cumulative installed capacity by FY 2024 is estimated to be around 77 GW_{AC}, achieving the 2040 target will require an average of 8 - 13 GW_{AC} annual installed capacity over the next 16 years. Given that the current annual installed capacity is below 5 GW_{AC}, it is necessary to accelerate deployment with the combined efforts of both the public and private sectors.

On the other hand, there have been cases of PV power plants that lack consideration for ensuring harmony with the natural environment and local communities. As a countermeasure, the Package of Measures for MW-scale PV Projects was decided upon by the Ministerial Council at the end of 2025. While taking strict action against inappropriate projects, the policy is to continue supporting and promoting further deployment of desirable PV projects (ground-mounted, building-mounted, Agro PV, etc.) that comply with relevant laws and regulations balancing various public interests, such as ensuring the safety of land development and electrical facilities, protecting living and natural environments, and that ensures harmony with the local community.

Japan is said to have the world's highest PV installed capacity per unit of land area, and further expansion requires promoting new deployment strategies. In this report, how to promote the introduction of PV in various fields, including residences, private buildings, public buildings and infrastructure facilities, ground-mounted PV systems in harmony with local communities, farmland utilization (Agro PV) and floating PV (FPV) has been examined, in consideration of the following: dissemination environment and market conditions, technological advancements and the areas in which PV can be introduced and utilized. Amidst changing social environment, PV power generation needs to become a reliable energy source and transform itself into a self-sufficient power source to serve as a future main power source. Moving away from the previous expansion of introduction through the FIT/FIP programs and towards a desirable form of integration into the electricity market, the PV installed capacity to be introduced by 2040 was forecasted by application (introduction field) and capacity range, based on the Seventh Strategic Energy Plan, taking into account various factors, such as introduction schemes, business models, technological innovations, the shift to green electricity from the side of electricity consumers and the improvement of social acceptance.

We hope that this report will be useful in planning your future business development and strategies.

January 2026 (original report in Japanese)　(Translated into English in May 2026)

Forecasting PV Installed Capacity Team
RTS Corporation

RTS Corporation

Main differences from the previous version of this report

Main differences from RTS report "Forecasting PV Installed Capacity in Japan 2023 to 2035" published in October 2023

■ "Strategic Energy Plan"

While the previous 2023 version was based on the Sixth Strategic Energy Plan (approved by the Cabinet in October 2021), the latest version's analysis and forecast are based on the target PV installed capacity set in "the Seventh Strategic Energy Plan", approved by the Cabinet in February 2025. In line with the target fiscal year in the Seventh Strategic Energy Plan, the end of the forecast period has been extended from the previous FY 2035 to FY 2040.

■ Price forecasts

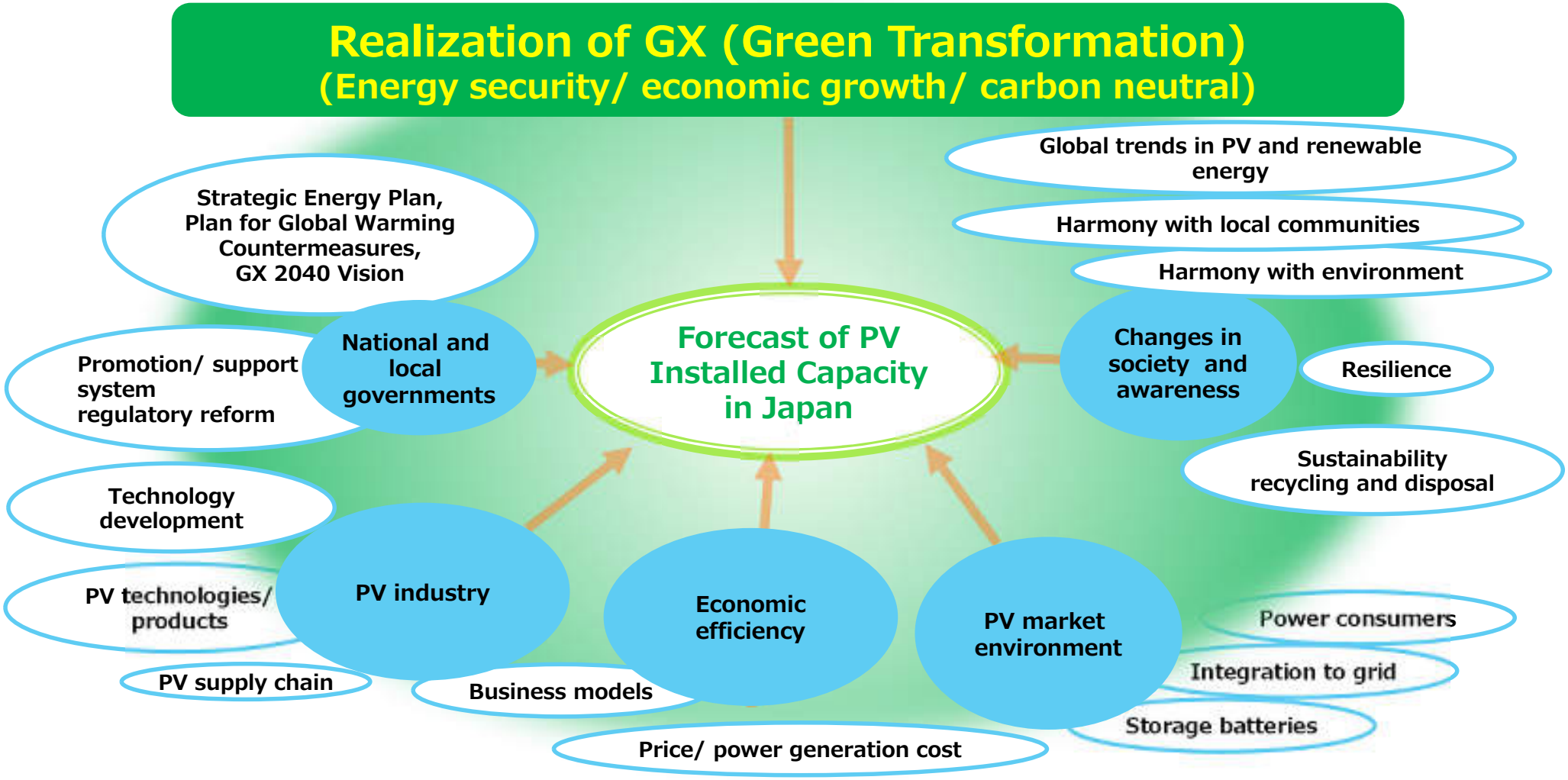
As "actual values" for price trends related to PV power generation, values from the Procurement Price Calculation Committee of the Ministry of Economy, Trade and Industry (METI) were adopted and analyzed to estimate the price of PV systems up to FY 2040 and the extended lifespan of PV systems. Forecasts for power generation costs up to FY 2040 are made based on these assumptions.

■ Assumption of dissemination environment

To achieve the target PV installed capacity set in the Seventh Strategic Energy Plan, assumptions were made that "the momentum of introduction and deployment" of PV power generation in Japan will continue to grow, driven by stakeholders of various sectors, such as strengthened dissemination promotion measures by relevant governmental ministries and agencies as well as municipalities; the development of the PV industry responsible for supply; the expansion of new markets including Agro PV and building installations (including building-integrated PV (BIPV)); progress in coordination and integration with energy storage technologies; and the acceleration of the shift to green power among electricity consumers.

Factors considered in forecasting PV installed capacity (Overall)

- In order to realize the **“GX 2040 Vision”,** which aims to simultaneously achieve “stable supply of energy”, “economic growth”, and “carbon neutrality”, it is important to **“make renewable energy a main power source”** as indicated in the **“Seventh Strategic Energy Plan”**. Among renewables, the expansion of PV deployment is the key to achieving it
- Various factors related to the PV installations were analyzed to forecast PV deployment through FY 2040

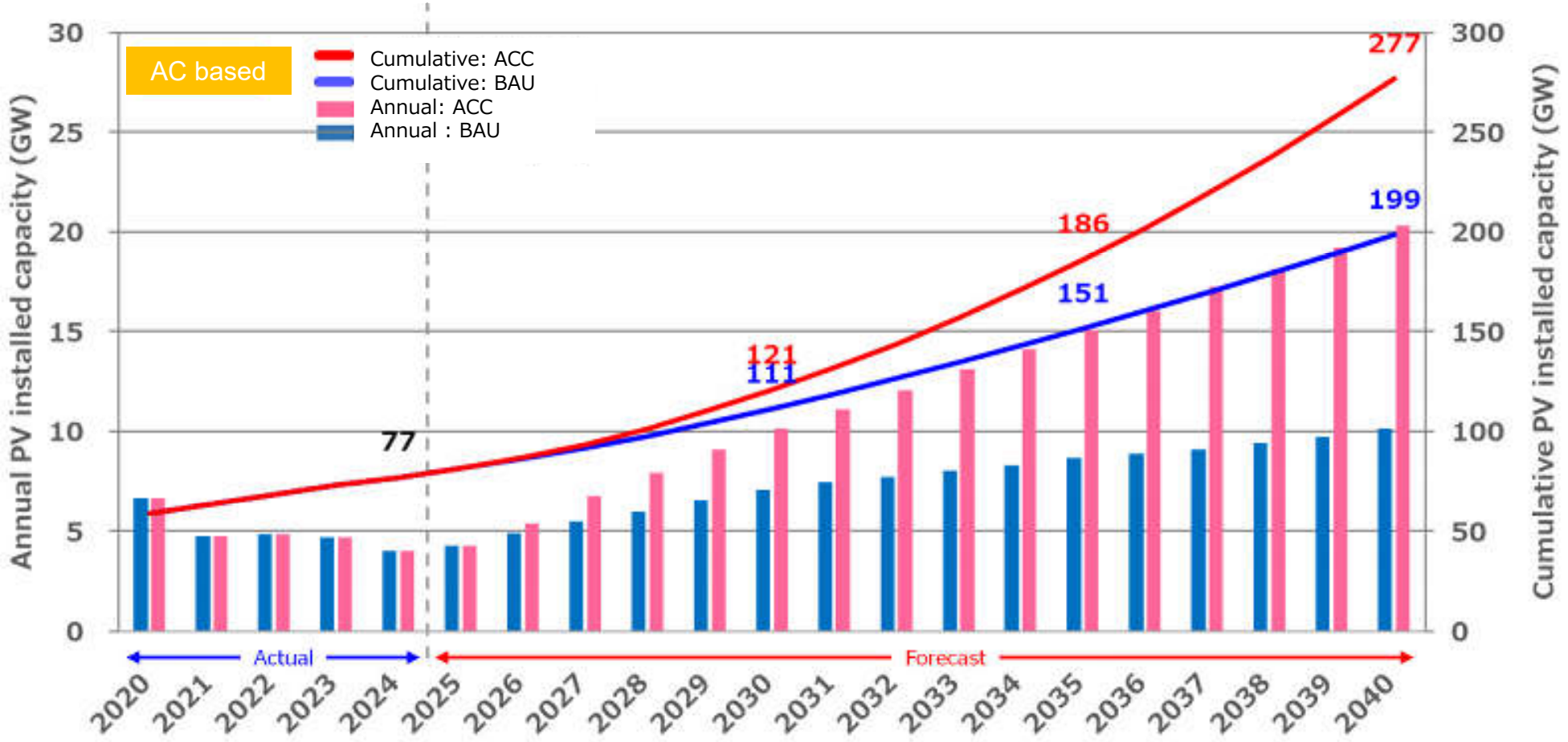


Specifications of installed capacity forecast

Items	Specifications
Scenario	Two scenarios are set: the "**BAU (Business As Usual) scenario (BAU)**", in which the PV deployment is forecasted to expand based on an extension of the current situation, and the "**Accelerated scenario (ACC)**", in which the PV deployment is expected to progress significantly toward the early realization of GX (Green Transformation) - **BAU scenario:** PV power generation is assumed to account for **23%** in the energy mix in FY 2040 as indicated in the Seventh Strategic Energy Plan - **ACC scenario:** PV power generation is assumed to account for **29%** in the energy mix in FY 2040 as indicated in the Seventh Strategic Energy Plan
Forecast period	FY 2025 - FY 2040 (16 years) (*fiscal year, not calendar year)
Forecasted capacity	- The capacity of operational PV systems installed in Japan and at each point in time (Including increased capacity due to repowering and decreased capacity due to decommissioning of equipment)
Subjects of forecast	- Please refer to the attached table for the classification of generation capacity - AC (AC side, inverter output capacity) - DC (DC side, PV module capacity) - The AC-to-DC conversion is based on the value of the "overpanelling ratio" at the Procurement Price Calculation Committee, and is estimated for each fiscal year by generation capacity
Target systems	- PV systems and storage batteries installed in Japan that are used for general purpose power (*Excluding small consumer equipment, emergency power supplies, dedicated independent power supplies, etc.) - See attached table for classification by application

Annual installed capacity and cumulative installed capacity: Total AC base (Graph)

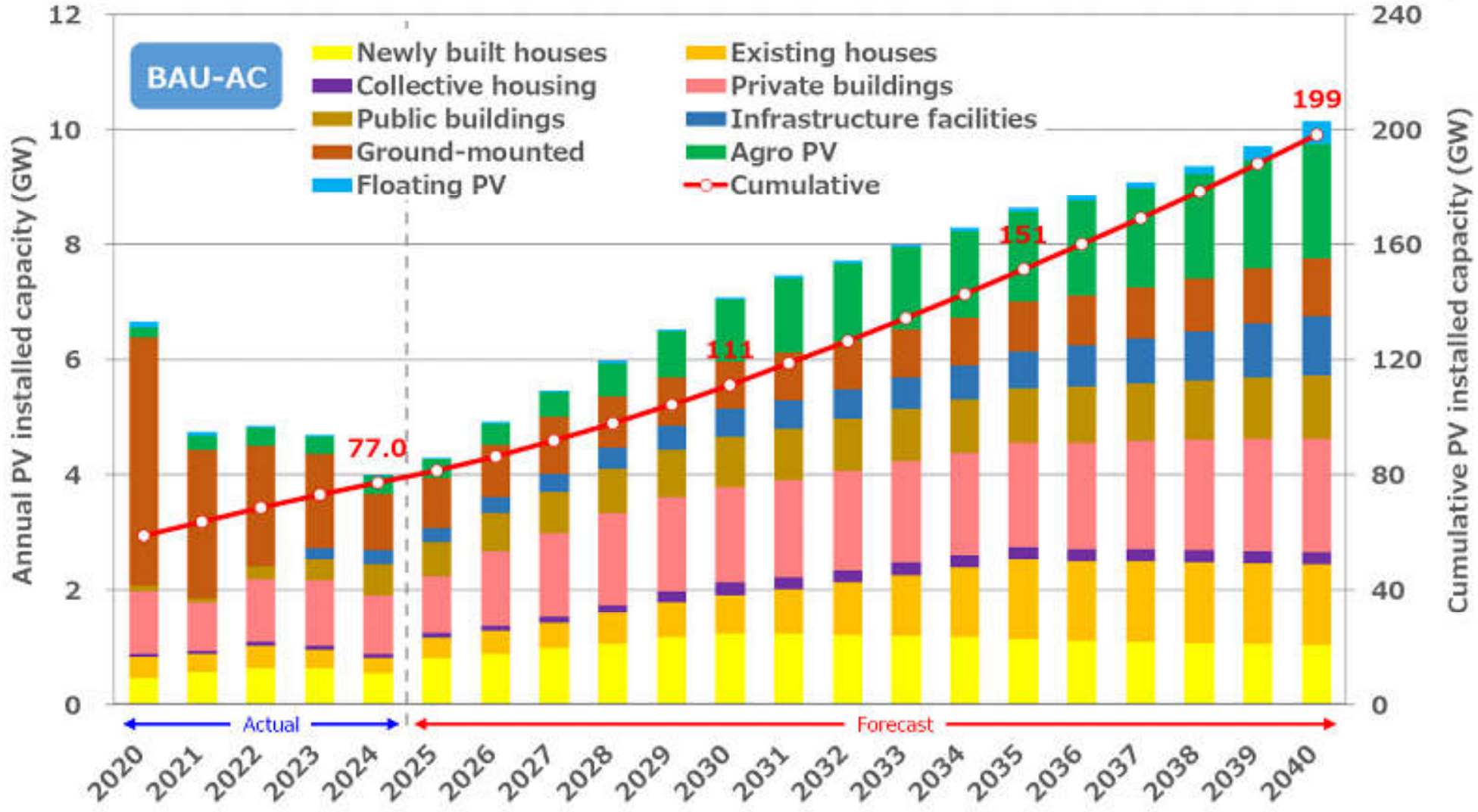
	FY 2024 (Actual)		FY 2030		FY 2035		FY 2040	
	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative	Annual	Cumulative
ACC	4.0	77.0	10.1	121	15.1	186	20.3	277
BAU			7.1	111	8.6	151	10.2	199



RTS Corporation

Forecast of PV installed capacity by market: BAU scenario, AC-based

Unit: GW (AC)



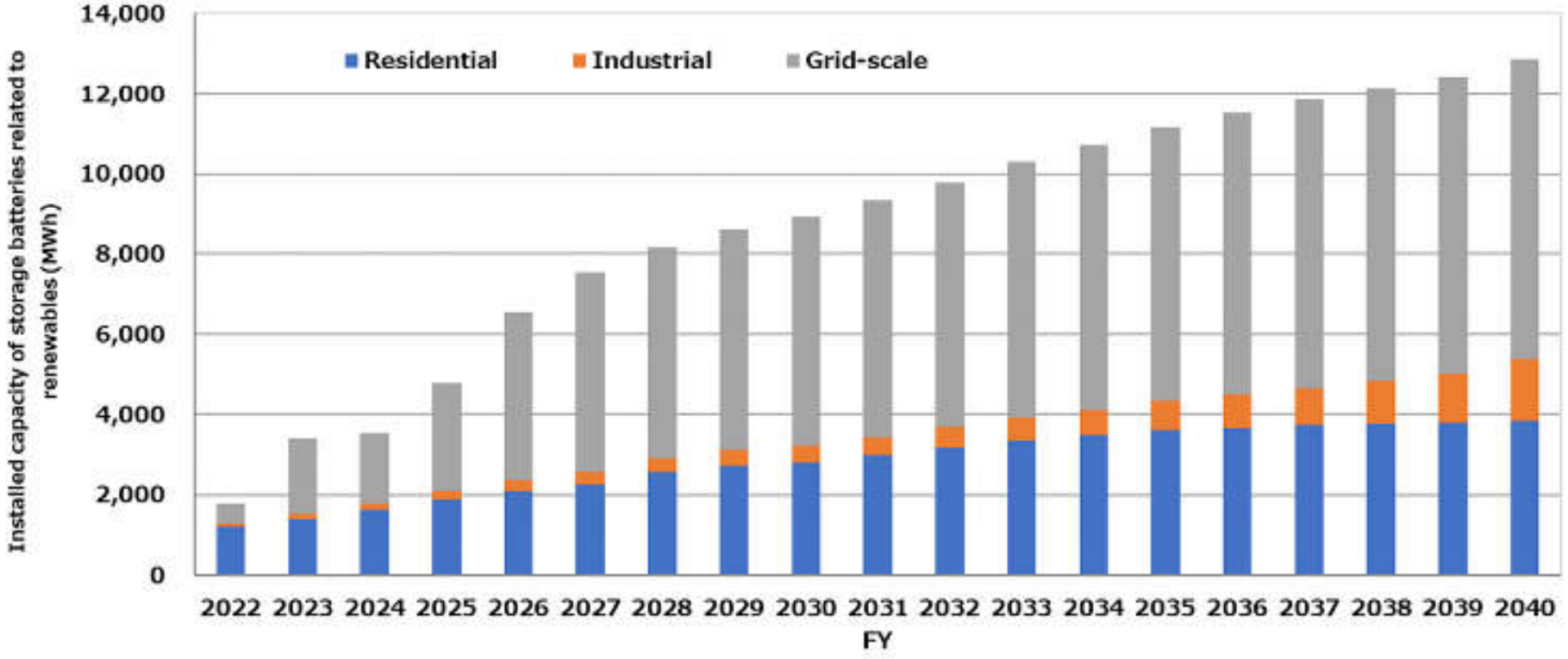
[BAU]

RTS Corporation

Forecast of residential, industrial, and grid-scale battery system installations toward 2040

- The sum of the installation forecasts for residential, industrial, and grid-scale batteries in this forecast

Installed capacity



Source: RTS Corporation

RTS Corporation

Qus Hatchobori Daiichi Bldg. 4F,
3-19-2, Hatchobori, Chuo-ku, Tokyo 104-0032,
Japan
TEL : +81-3-3551-6345