Climate Integrate

Japan's Spending Plan for Climate and Energy 2025

Unpacking the National Budget and GX Investment

日本の気候・エネルギー予算 2025

政府予算とGX投資の分析

Contents

The Government of Japan allocates funds for climate and energy in its annual budget. Since FY2023, Japan has also conducted investments to promote what is referred to as the Green Transformation (GX). For expenditures in the climate and energy category, the government publishes the aggregated results of the draft initial budget each fiscal year as the "Budget for Global Warming Countermeasures."[1] However, it is challenging for observers to determine the full extent of expenditures, as the supplementary budget is not included in those numbers, and public disclosure only occurs six months after the Cabinet adopts the draft initial budget.

In the interest of clarifying the overall picture of the government's climate and energy budgets, this report analyzes the size of those budgets in Fiscal Year (FY) 2024 and FY2025[2] as well as allocations, by ministry and by budget category. It then summarizes and discusses the status of achievement for budget plans and category-by-category allocations for GX investments.

Key takeaways

- Of the government's FY2025 budget of 129 trillion yen,[3] the total climate and energy budget was 4.7 trillion yen (3.6% of the total budget), an increase of 313.5 billion yen from FY2024. Of this amount, the GX budget accounted for 1.5 trillion yen, or 32% of the climate and energy budget, a decrease from FY2024.
- By ministry, the Ministry of Economy, Trade and Industry (METI) accounted for more than 70% of the total budget for both FY2024 and FY2025, while the Ministry of the Environment (MOE) and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) each accounted for about 10%.
- By category, fossil fuels (including hydrogen, ammonia, and CCUS) increased from FY2024, accounting for 38% of the total. Energy efficiency accounts for 32% of the total. On the other hand, the budget for renewables is very small, at only about 4% of the total. In the energy efficiency category, a large budget is allocated to housing/buildings, IT (semiconductors, etc.), and automotive. Budgets for fossil

1 Ministry of the Environment (MOE) website "Budget for Global Warming Countermeasures" (in Japanese)

2 Similar to how the government does its reporting, in this analysis we summarize the actual budget implementation year as one combined budget. In other words, we consider the FY2024 budget to be the FY2023 supplementary budget and FY2024 initial budget, and the FY2025 budget to be the FY2024 supplementary budget and FY2025 draft initial budget.

3 At the time of the FY2025 draft initial budget.

fuels and nuclear power increased from FY2024, while battery storage decreased.

- The GX budget share was high for the categories of battery storage, automotive, and IT in FY2025. The share for fossil fuels and nuclear power increased sharply compared to FY2024, while the share for battery storage decreased significantly.
- The government plans to issue 20 trillion yen in GX Economy Transition Bonds over 10 years to fund projects under the GX budget. The first issuance of Climate Transition Bonds (GX Economy Transition Bonds issued as individual issuance) in FY2023 totaled about 1.6 trillion yen, followed by the second issuance in FY2024, totaling about 1.4 trillion yen. The plan for FY2025 is about 1.2 trillion yen. The annual issuance amount has been decreasing year by year.
- Ammonia co-firing was not included in the use of proceeds in the first issuance. In the second issuance, however, the use of proceeds included paying for the price differences between hydrogen as well as ammonia and fossil fuels.
- Some information lacks transparency, as the FY2023 Allocation Report does not specify the allocation amounts for the 13 projects under the Green Innovation Fund.

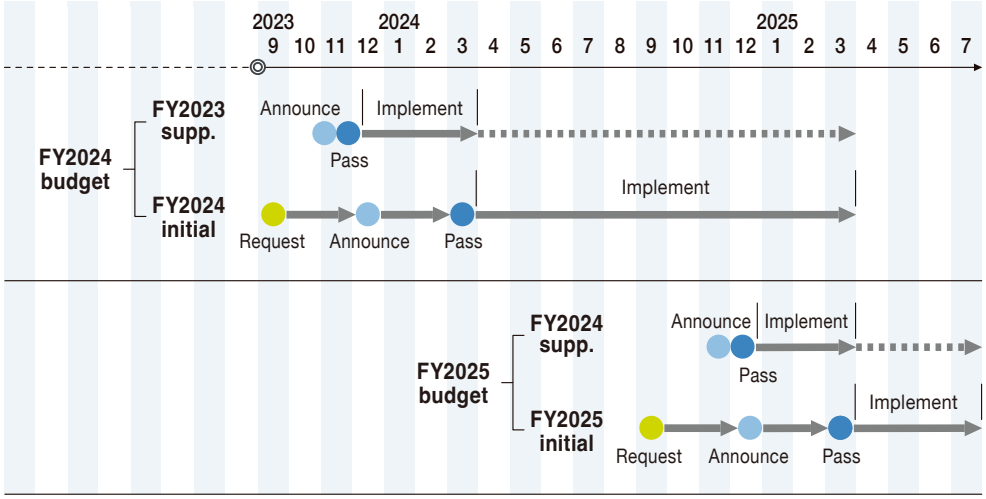
01 Climate and energy budgets in FY2024 and FY2025

1-1 Overview

1) Budget years analyzed

As is common practice with government documents (e.g., METI and MOE), the analysis in this report considers the year when funds are actually spent as one budget. Hence, we compile the FY2023 supplementary budget and FY2024 initial budget as the "FY2024 Budget", and the FY2024 supplementary and FY2025 draft initial budgets as the "FY2025 Budget" (Figure 1).

Figure 1. Budget years analyzed in this report



※ Supplementary budgets are usually implemented within the same fiscal year, but in some cases they are carried over to the following fiscal year.
Prepared by Climate Integrate from government documents

Column 1. Relationship between supplementary budget and initial budget

A supplementary budget is one that makes changes to an adopted budget in the event a shortfall arises due to changes in circumstances after that budget was prepared, or when it becomes necessary to make changes to the details of adopted budget.[4] However, our analysis of government budgets showed that the prior year supplementary budget was passed around the same time the current year's draft initial budget was compiled, indicating that the supplementary budget for the previous fiscal year was being used to supplement or adjust the draft initial budget in a given year.

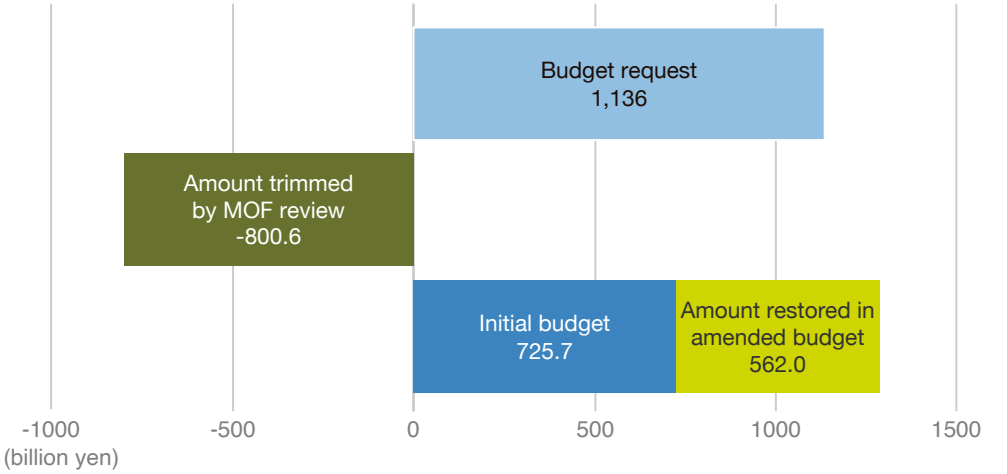
The total draft initial budget for climate and energy for FY2025 was 2.0 trillion yen, or 491.6 billion yen below the budget request of 2.5 trillion yen. It is presented as if the Ministry of Finance (MOF) had trimmed the budget amount during the review process, all items that were assessed at zero in the draft initial budget and several items that had been trimmed were in fact incorporated into the FY2024 supplementary budget (total 2.7 trillion yen) that had passed immediately prior to the FY2025 draft initial budget.

For example, 800.6 billion yen were trimmed from the GX portion of the FY2025 budget request of 1.1 trillion yen, while the budget was increased for items that had not been requested such as perovskite photovoltaics and innovative nuclear reactors, ending up as 725.7 billion yen in the draft initial budget. However, all or a portion of the requested budget items ended up being incorporated into the FY2024 supplementary budget (corresponding to 562 billion yen within the supplementary budget's total of 771.1 billion yen) (see chart below in this column). Of particular note, five budgetary requests (totaling 510.2 billion yen) in the categories of housing/buildings, battery storage, and automotive were assessed at zero in the draft initial budget, but more than the full amount (totaling 520.8 billion yen) reappeared and was allocated in the supplementary budget.

In this way, the government routinely makes coordinated adjustments between the prior fiscal year's supplementary budget and the current year's initial budget, with amounts cut from a budget request being covered by using the supplementary budget.

4 MOF website "Explanation of terminology" (in Japanese)

GX budget review process and allocation by supplementary budget



Note: The amount of the FY2025 draft initial budget includes items not included in the budget request, and is not consistent with the amounts trimmed by MOF in the budget review process.
Prepared by Climate Integrate from government documents

2) Total climate and energy budget

Our independent calculations of the total climate and energy budgets[5] show them at 4.4 trillion yen of the government's FY2024 budget of 126 trillion yen,[6] and 4.7 trillion yen of the government's FY2025 budget of 129 trillion yen.[7] These totals amounted to 3.5% and 3.6% of the overall government budget, respectively, with the FY2025 amount representing a 313.5 billion yen increase from the previous year. Within the totals, the government's Special Account for Energy Measures accounted for 1.4 trillion yen in FY2024 and 1.3 trillion yen in FY2025, or 31% and 27% of the total climate and energy budget, respectively.

The GX budget, financed by GX Economy Transition Bonds, accounted for 39% (1.7 trillion yen) of the annual climate and energy budget in FY2024 and 32% (1.5 trillion yen) in FY2025. The GX budget in FY2025 was down by 206.1 billion yen from FY2024. Battery storage

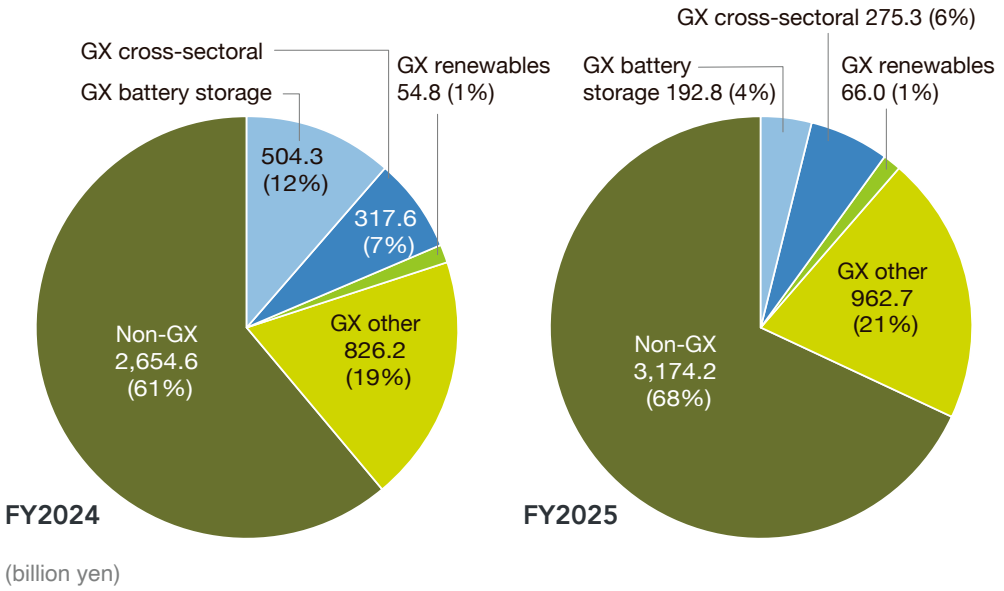
5 The total amount of the climate and energy budget within the national budget. This covers the GX budget, mitigation-related budget, and energy-related budget (including international cooperation programs), but does not include budget items related to forests and other sinks, funding for international organizations, climate observation, adaptation, the Special Account for Reconstruction from the Great East Japan Earthquake, and programs for which only a portion of the budget is used for climate and energy.

6 Sum of the FY2023 supplementary budget (13.2 trillion yen) and the FY2024 initial budget (112.6 trillion yen), which comes to a total of 125.8 trillion yen).

7 Sum of the FY2024 supplementary budget (13.9 trillion yen) and the FY2025 draft initial budget (115.5 trillion yen), which comes to a total of 129.5 trillion yen (as of the time of the FY2025 draft initial budget).

accounted for a high share in FY2024, but their allocation in FY2025 was about the same as other categories (Figure 2).

Figure 2. Climate and energy budgets for FY2024 and FY2025 (GX and non-GX)



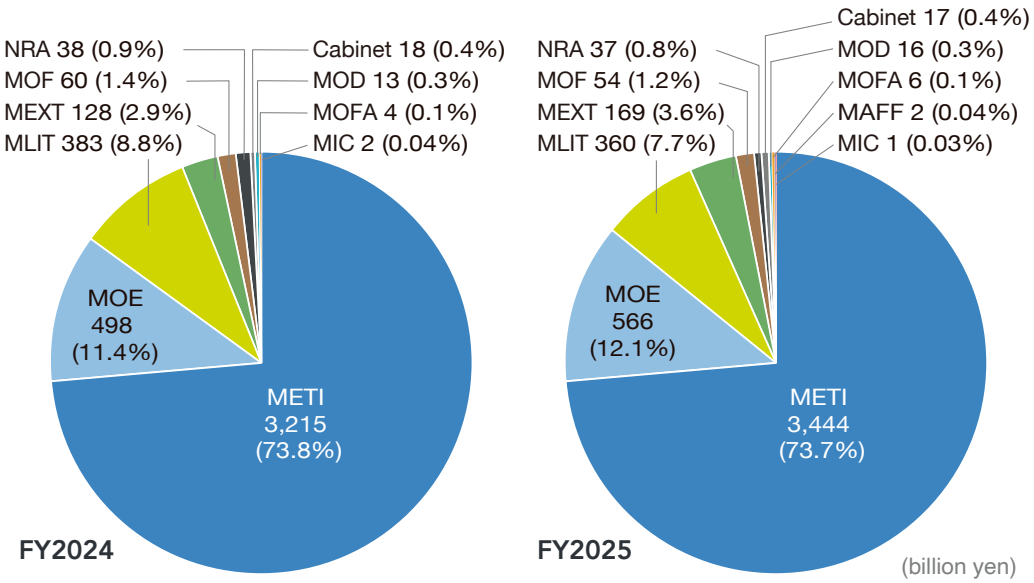
(billion yen)

Prepared by Climate Integrate from government documents

1-2 Share by ministry

Examining the share of the total climate and energy budget by ministry, METI accounted for more than 70% of the total budget in both FY2024 and FY2025, while MOE and MLIT each accounted for about 10% of the total budget (Figure 3).

Figure 3. Climate and energy budgets for FY2024 and FY2025 (by ministry)



* Full names of ministries
METI (Ministry of Economy, Trade and Industry), MOE (Ministry of the Environment), MLIT (Ministry of Land, Infrastructure, Transport and Tourism), MEXT (Ministry of Education, Culture, Sports, Science and Technology), MOF (Ministry of Finance), NRA (Nuclear Regulatory Agency), Cabinet (Cabinet Office), MOD (Ministry of Defense), MOFA (Ministry of Foreign Affairs), MIC (Ministry of Internal Affairs and Communications), MAFF (Ministry of Agriculture, Forestry and Fisheries)

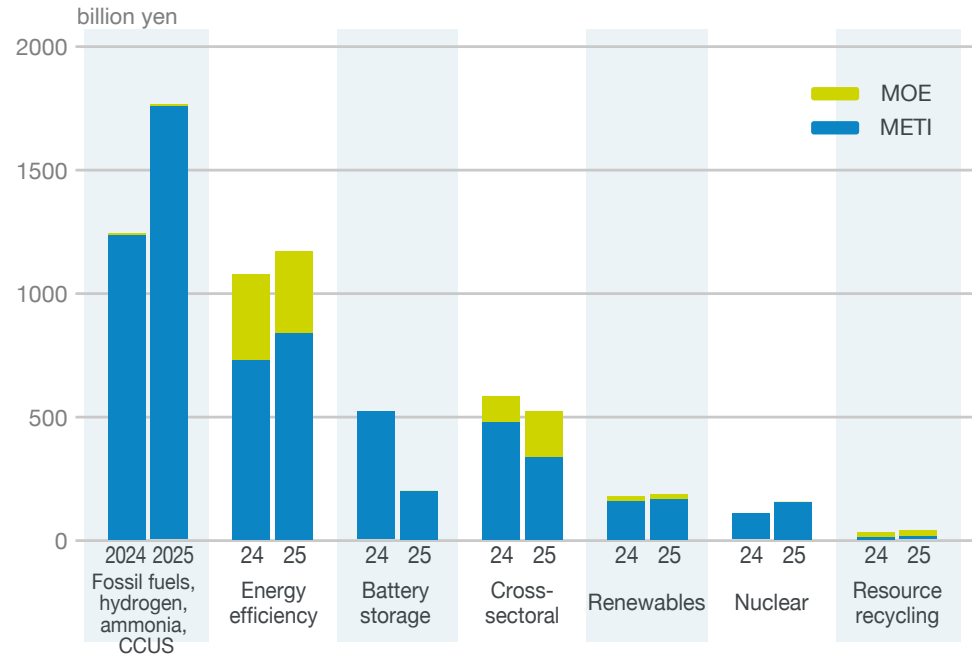
Prepared by Climate Integrate from government documents

1-3 Budgets for METI and MOE

METI has a particularly large budget, about six times that of MOE. METI's budget exceeds that of MOE in most climate- and energy-related categories. MOE's budget is allocated to energy efficiency and cross-sectoral categories (mainly regional decarbonization).

The budget for fossil fuels (including hydrogen, ammonia, and CCUS) is particularly large, and expected to increase by about 40% from FY2024 to FY2025. Also, while the budget allocation for battery storage decreased, the allocation for nuclear power increased (Figure 4).

Figure 4. Climate and energy budgets for FY2024 and FY2025 (METI and MOE)



Prepared by Climate Integrate from government documents

1-4 Share by category

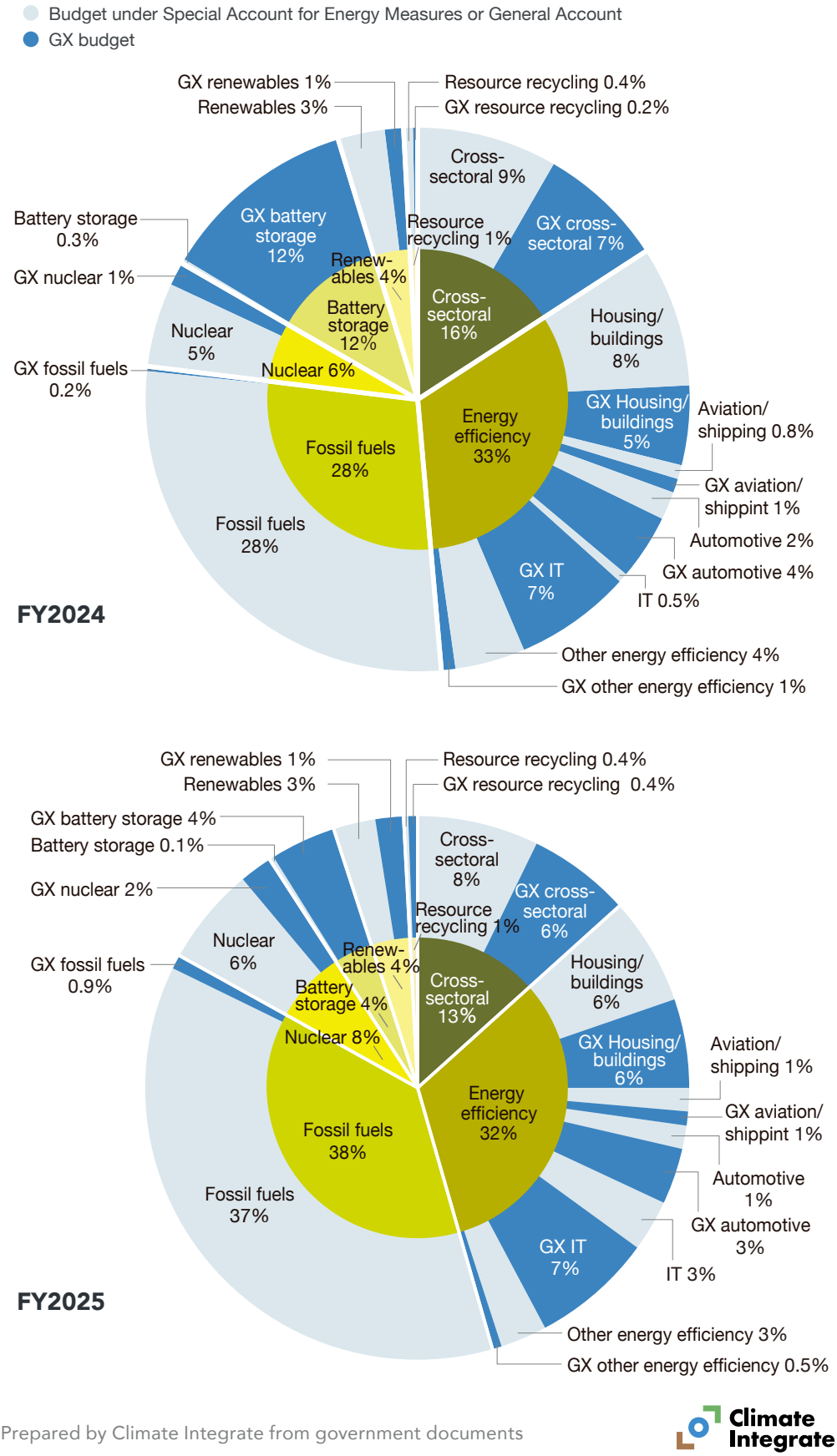
Examining the budget by category, fossil fuels and energy efficiency account for a large share. Of these, fossil fuels' share increased from 28% in FY2024 to 38% in FY2025, while energy efficiency accounted for more than 30% in both years. The remainder is allocated to cross-sectoral,[8] nuclear power, battery storage, and renewables, etc. (inner circle in Figure 5). In the energy efficiency category, a large amount of the budget is allocated to housing/buildings, IT, and automotive.

The GX budget share is high in the categories of battery storage, automotive, and IT (blue outer circle in Figure 5).

Compared to the FY2024 total climate and energy budget, fossil fuels and nuclear power in FY2025 have increased and now account for more than 40%, while battery storage and renewables have decreased, each accounting for only about 4% of the total.

8 Within the cross-sectoral category of FY2025 budget, the GX budget include corporate capital investment (108 billion yen), funding for GX Acceleration Agency (70 billion yen), and interest payments on GX Economy Transition Bonds, etc. (54.2 billion yen). Items other than the GX budget in the cross-sectoral category include regional (160.8 billion yen), and sites for power generation (77.7 billion yen).

Figure 5. Climate and energy budgets for FY2024 or FY2025 (by category)[9]



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9 In the outer circle of the graph, "GX" in the label indicates it is a GX budget item, while items without "GX" are in the Special Account for Energy Measures or the General Account.

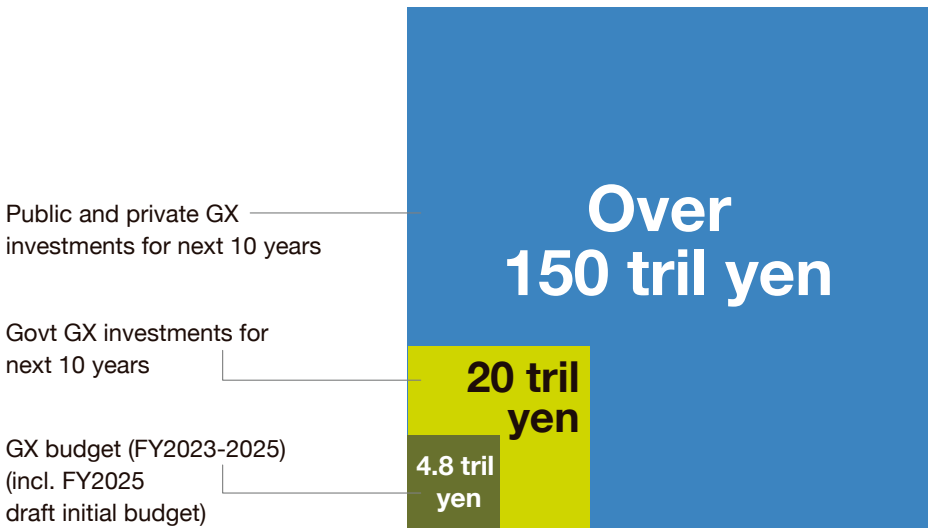
02 GX budget

Next, we summarize the GX budget within the climate and energy budget.

2-1 Scale and status of GX budgets over 10 years

The government plans to implement 20 trillion yen in upfront investment support funded by GX Economy Transition Bonds ("GX Bonds"), and with private investment expects to see a total of more than 150 trillion yen in investment over the 10-year period that started in FY2023. GX investments by the government to date (from FY2023 to FY2025) total 4.8 trillion yen (Figure 6).[10] It is unclear how the expected additional private sector investments (130 trillion yen) will be achieved to bring the total to 150 trillion yen.

Figure 6. Relative size of GX investments (next 10 years) and GX budget (FY2023-2025)



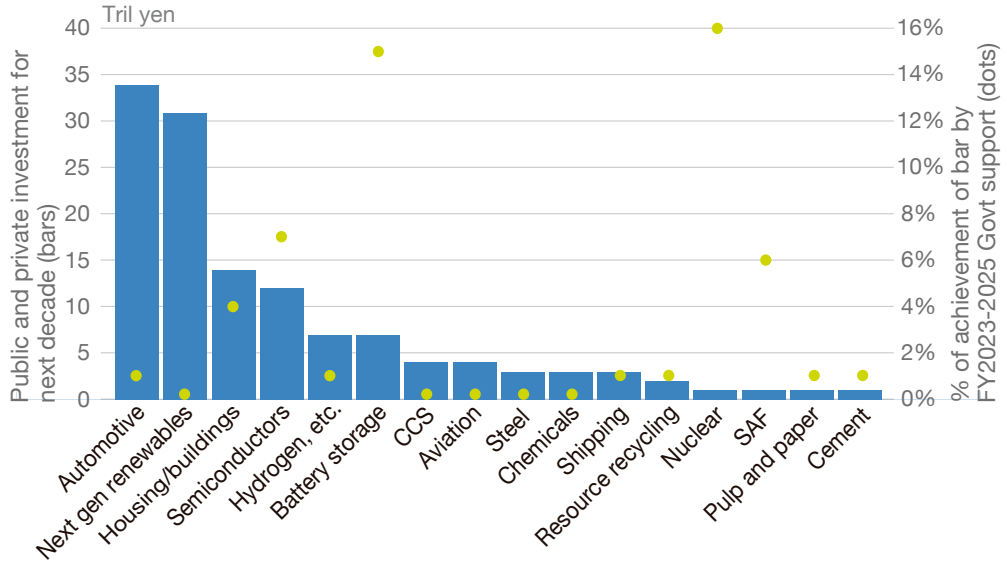
Prepared by Climate Integrate from government documents

10 Includes FY2025 draft initial budget. The total amount excluding the FY2025 draft initial budget is 4.1 trillion yen.

2-2 GX public and private investment plan for 10 years vs current tally

Next, we look at a breakdown of the GX budget by category. The government has provided a breakdown of public and private investments over the next 10 years, expected to total more than 150 trillion yen, in descending order: automotive (34 trillion yen), renewables (31 trillion yen), housing/buildings (14 trillion yen), semiconductors (12 trillion yen), hydrogen, etc. (7 trillion yen), battery storage (7 trillion yen), etc. (bars in Figure 7). The government's GX investments in these seven categories for FY2023 to FY2025 include battery storage (1 trillion yen), semiconductors (873.3 billion yen), housing/buildings (559.5 billion yen), automotive (423.6 billion yen), renewables (120.8 billion yen), and hydrogen, etc. (50.3 billion yen). Compared to the amount of public and private investment over the next 10 years, the current amount of government investment in renewables is very small, while large amounts are being invested in battery storage and nuclear power (dots in Figure 7). The government's budgetary allocations for GX investments to date have been heavily biased in specific categories, when compared to the government's projected public and private investments over the next 10 years.

Figure 7. Public and private investment over the next 10 years (by GX category)

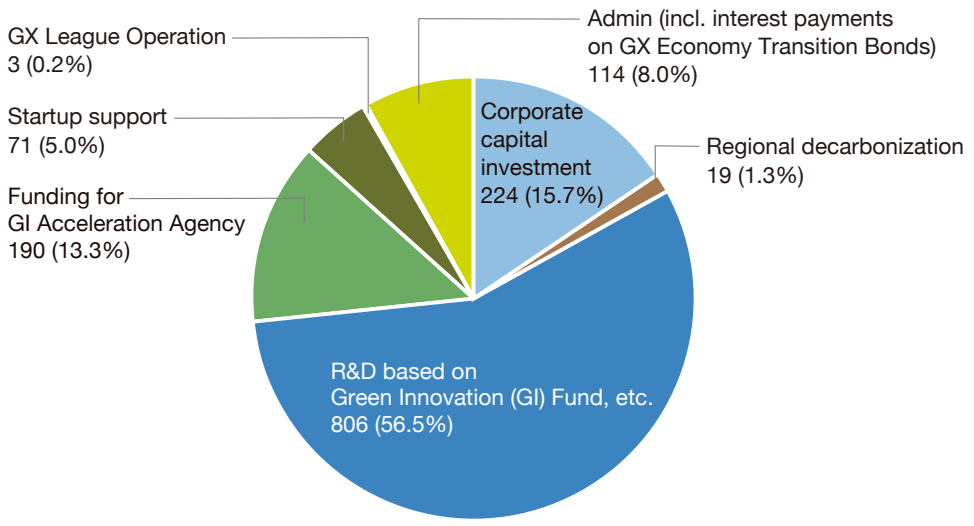


* Figures do not include GX investments by the government in cross-sectoral categories (total 1.4 trillion yen).
* The amount of investment in steel, chemicals, pulp and paper, and cement is equally allocated from the budget (58.3 billion yen) of the program targeting these four sectors (Program to Support Energy and Manufacturing Process Conversion in Industries with Difficulty in Emission Reductions).

Prepared by Climate Integrate based on the government's investment strategy (p. 11) and website (in Japanese)

Separate from the investments in these specific categories (total 3.4 trillion yen), the government has made GX investments in cross-sectoral categories (total 1.4 trillion yen). More than half of this is for R&D, followed by corporate capital investment, and the GX Acceleration Agency (Figure 8).

Figure 8. Actual GX investment in cross-sectoral categories (billion yen)



(billion yen)

Prepared by Climate Integrate from government documents

2-3 Issuance of GX Economy Transition Bonds

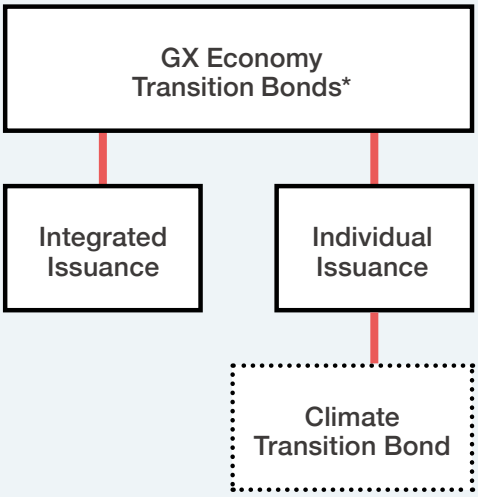
The government plans to issue about 20 trillion yen of GX Bonds over 10 years based on the GX Promotion Act, enacted in May 2023. GX Bonds are issued in two ways: (1) "integrated issuance" as part of the conventional Japanese Government Bonds (Construction Bonds, Special Deficit-Financing Bonds, Reconstruction Bonds, etc.), or (2) "individual issuance" of Japan Climate Transition Bonds (CTB) (Figure 9)[11] based on the Japan Climate Transition Bond Framework,[12] which specifies the use of proceeds. CTB proceeds are used to fund projects

11 MOF Public Relations Magazine "Finance" Special Edition: GX Economy Transition Bonds (in Japanese) May 2024 (p.3)

12 MOF website "Japan Climate Transition Bond Framework" November 2023

under the GX budget, but GX Bonds issued in an integrated manner cover administrative expenses such as bond interest payments.

Figure 9. Issuance methods of GX Economy Transition Bonds



*Includes Refunding Bonds associated with GX Economy Transition Bonds

Prepared by Climate Integrate from MOF documents

Table 1. Types of Japanese Government Bonds (JGBs) (breakdown by governing legislation)

JGBs	General Bonds	Construction Bonds
		Special Deficit-Financing Bonds
		Reconstruction Bonds
		GX Economy Transition Bonds
		Refunding Bonds
	Fiscal Investment and Loan Program Bonds (FILP Bonds)	

Prepared by Climate Integrate from MOF documents[13]

Table 2. Climate Transition Bonds: Issuance overview and plans

	Auction Date	Term (years)	Issuance Amount (billion yen)	Yield (%)	Bid Ratio	Maturity Date
FY2023 (Issue No. 1) Total issuance of about 1.6 trillion yen	Feb 14, 2024	10	799.5	0.740	2.90	Dec 20, 2033
	Feb 27, 2024	5	799.8	0.339	3.39	Dec 20, 2028
FY2024 (Issue No. 2) Total issuance of about 1.4 trillion yen	May 28, 2024	10	349.6	1.040	3.15	Mar 20, 2034
	July 18, 2024	5	349.6	0.595	4.04	Jun 20, 2029
	Oct 22, 2024	10	350.0	0.943	3.31	Mar 20, 2034
	Jan 29, 2025	5	349.8	0.888	3.19	Jun 20, 2029
FY2025 Scheduled auctions Total issuance of about 1.2 trillion yen	Jul 2025 (planned)	5	About 300.0	—	—	—
	Oct 2025 (planned)	10	About 300.0	—	—	—
	Jan 2026 (planned)	5	About 300.0	—	—	—
	Mar 2026 (planned)	10	About 300.0	—	—	—

Prepared by Climate Integrate from MOF documents[14]

13 MOF Finance Bureau "Debt Management Report 2023" (p. 34)

14 MOF website "Japan Climate Transition Bonds"

The government plans to issue a total of 20 trillion yen of GX Bonds over 10 years, but the amounts of annual CTB issuance have declined from approximately 1.6 trillion yen in FY2023 to 1.4 trillion yen in FY2024 and 1.2 trillion yen scheduled for FY2025 (Table 2). The bid ratio (competitive bids divided by bids accepted or issuance amount) for the five-year CTB auction in January 2025 was 3.19, down from 4.04 for the 5-year CTB auction in July 2024.

Table 3. GX budget and CTB planned allocation amount

Fiscal Year	GX Budget*	Budget Allocation	CTB Total Planned Allocation Amount	CTB Issuance Amount
2023	1,608.9 billion yen	1,103.5 billion yen (FY2022 supplementary) 505.4 billion yen (FY2023 initial)	1,608.9 billion yen	About 1.6 trillion yen
2024	1,643.3 billion yen	1,039.6 billion yen (FY2023 supplementary) 603.7 billion yen (FY2024 initial)	1,643.3 billion yen	About 1.4 trillion yen
2025	1,442.6 billion yen	771.1 billion yen (FY2024 supplementary) 671.5 billion yen (FY2025 draft initial)	(TBD)	About 1.2 trillion yen (planned)

* Excluding administrative expenses such as bond interest payments.
Prepared by Climate Integrate based on government documents[15] [16] [17] [18] and JCR reports[19] [20] on the MOF website

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The supplementary budget accounted for a large share at two-thirds of the total GX budget in FY2023 and FY2024, but its share fell to around half of the total for FY2025. The GX budget equals the total planned allocation amount for the CTB. According to the government, the CTB issuance amount is fixed at less than the total planned allocation amount because the GX budget includes many subsidies, and not all of the budget is implemented. The difference is getting larger from about 10 billion yen in FY2023 to 240 billion yen in FY2024, and about the same amount estimated for FY2025. It is unclear how the difference will be funded, but CTB or GX Bonds issued in an integrated manner will likely be issued. The CTB issuance amount is determined by the government based on discussions with market participants in response to market conditions and investor appetite.[21]

15 METI website "List of PR Material of METI's FY2023 Draft Budget: GX Budget" (in Japanese) March 28, 2023
16 METI "Sector-Specific Investment Strategies" (in Japanese) December 22, 2023 (p.11)
17 METI website "FY2023 Supplementary Budget for GX Projects" (in Japanese) November 29, 2023
18 METI "Sector-Specific Investment Strategies (ver.2)" (in Japanese) December 27, 2024 (p.11)
19 MOF website "Climate Transition Bond Evaluation Results (JCR)" February 27, 2024 (p.28-30)
20 MOF website "Preliminary Climate Transition Bond Evaluation Results (JCR)" May 31, 2024 (p.27-31)
21 MOF website "Meeting of JGB Market Special Participants"

2-4 Use of proceeds of GX Economy Transition Bonds

1) Overview

More than half of the total planned allocation amounts were allocated to Research & Development in FY2023, but the R&D share decreased significantly in FY2024 when more than 60% was allocated to capital investment (Table 4). In FY2024, 12 out of 22 projects were new, and subtracting the 120 billion yen for the GX Acceleration Agency, the new projects amounted to 260.5 billion yen, less than 16% of the total planned allocation amount.

Table 4. Use of proceeds of Climate Transition Bonds

Fiscal Year	Total Planned Allocation Amount	No. of Projects	R&D	Subsidies	Capital Investment	GX Acceleration Agency	New Projects
2023	1,608.9 billion yen	24	893.4 billion yen (55.5%)	715.5 billion yen (44.5%)	—	—	—
2024	1,643.3 billion yen	22	125.4 billion yen (7.6%)	397.5 billion yen (24.2%)	1,000.4 billion yen (60.9%)	120.0 billion yen (7.3%)	260.5 billion yen (15.9%)

Prepared by Climate Integrate based on JCR reports[19] [20] on the MOF website

2) Ammonia and hydrogen projects

While the Framework for CTB provides for the use of proceeds for unproven technologies such as ammonia co-firing in coal-fired power plants, this technology was excluded from the first CTB issuance in FY2023 and the government received a certification from the Climate Bonds Initiative (CBI), an international certification body, which does not allow ammonia co-firing in the use of proceeds.[22] However, the government did not obtain a CBI certification for the second issuance in FY2024, and the use of proceeds included covering "the price gap to build supply chains for hydrogen and its derivatives" (8.9 billion yen).[23] The reference to "hydrogen and its derivatives" includes ammonia. The amount for this project in the FY2025 draft initial budget increased to 35.7 billion yen, and it is expected to total about 3 trillion yen over 15 years.[18]

22 Climate Bonds Initiative (CBI) website "Japan will issue $11bn Climate Transition Bond, Certified under the Climate Bonds Standard" February 8, 2024

23 MOF "Appropriation Projects (FY2024)" (p. 3)

Column 2. GX Acceleration Agency (GXAA)

GX Acceleration Agency (GXAA)[24] was established on July 1, 2024, under the GX Promotion Act. With significant capital appropriated in the GX budget, GXAA is expected to play a critical role in providing financial support in the form of debt guarantees and equity investments, operation of carbon emissions trading system, collection of "GX-surcharge" (surcharge on fossil fuel supply), and stakeholders' outreach programs on GX policies and practices. The basic premise of GXAA financial support is to identify and take the risks that private financial institutions cannot take to implement new GX technologies.[25] However, support for existing and developed technologies, such as solar and wind power generation, is considered out of scope.

3) Information transparency

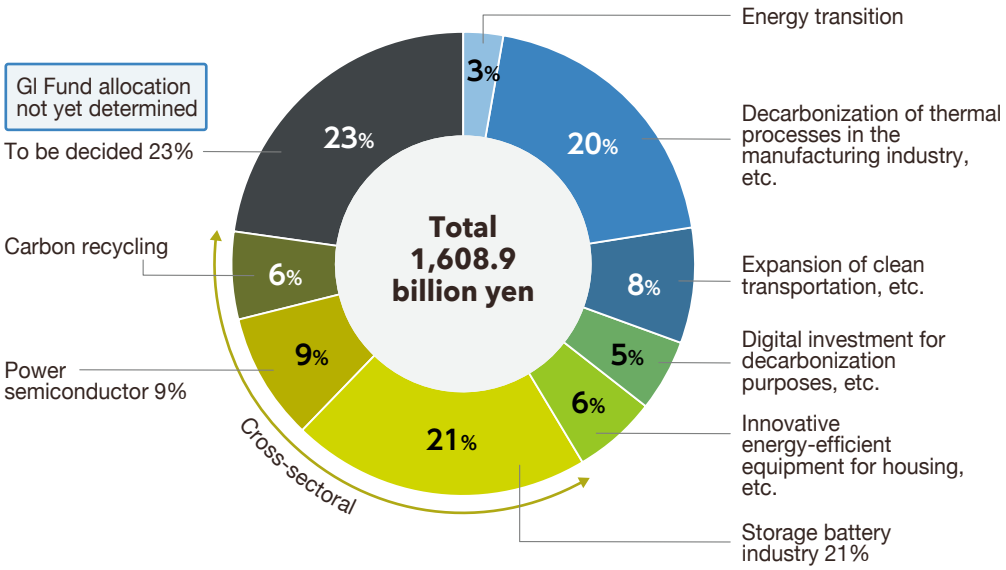
In late December 2024, the MOF published the Allocation Report on the FY2023 CTB,[26] outlining the actual allocation to the R&D Program (137 billion yen) and Subsidy Program (715.5 billion yen), but not including the allocation details for the 13 projects under the Green Innovation Fund (GI Fund, 756.4 billion yen). The GI Fund allocation details were expected to be disclosed in the Allocation Report, including the amounts for 7 projects (around 360 billion yen, or 23% of the total) that had not been determined before the CTB issuance (Figure 10).[19] Instead, the report merely states that 756.4 billion yen was allocated to the GI Fund without any details of the amount for each of the 13 projects. The government is encouraged to disclose the details of allocations for each project under the GI Fund, and to increase transparency for the benefit of investors.

24 GX Acceleration Agency website

25 GX Acceleration Agency website "Financial Support"

26 MOF "Japan Climate Transition Bonds Allocation Report for FY2023 Issuance" December 2024

Figure 10. Breakdown of the use of proceeds of the FY2023 CTB



Prepared by Climate Integrate based on JCR Report[19] on the MOF website

03 Conclusions

As in our previous analysis (March 2024), this report summarizes Japan's climate and energy budget. It was a challenge to accurately grasp the overall situation because government budget-related materials span multiple ministries, and it is often difficult to precisely categorize each program. Despite these challenges, we made our best effort to grasp and analyze the budget by examining official documentation and making direct inquiries to the relevant ministries.

As a result, we found that the Japanese government's FY2025 climate and energy budget has increased slightly from the previous year, fossil fuels and nuclear power are receiving more funding while storage batteries are receiving less, and that the renewables share remains low at 4%. We also found that the latest GX budget is lower than in FY2024, although the share of allocations for fossil fuels and nuclear have increased, and hydrogen and ammonia projects are also included.

For Japan to achieve carbon neutrality, it is important to assess the status and impacts of budgetary measures, and to carefully examine budgets and GX investments every year, ensuring the steady reduction of GHG emissions toward the country's NDC targets for FY2030, FY2035, and FY2040. To this end, it is hoped that the government will improve transparency and information disclosure in comprehensible ways.

Japan's Spending Plan for Climate and Energy 2025
– Unpacking the National Budget and GX Investment –

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