Phase 3 Greenhouse Gas Periodic Regulatory Goals

I. Legal Basis

Taiwan's Greenhouse Gas Periodic Regulatory Goals (below, "Periodic Regulatory Goals") are established pursuant to Article 10 of the *Climate Change Response Act*, as amended and promulgated on February 15, 2023, and Article 5 of the *Enforcement Rules of the Climate Change Response Act*, as amended and promulgated on December 29, 2023.

II. Scope of the Periodic Regulatory Goals

The national greenhouse gas (GHG) emission targets are expressed in terms of net emissions, which are calculated by subtracting carbon sink volumes from the total GHG emissions. In accordance with Article 3 of the *Climate Change Response Act*, the total GHG emissions include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), and any other substances publicly announced by the central competent authority. In the future, progress toward meeting the Periodic Regulatory Goals will be assessed based on the statistical results of the National Greenhouse Gas Inventory.

To achieve the national long-term GHG reduction goal, the Periodic Regulatory Goals are established in stages and implemented on a 5-year basis in accordance with Article 10 of the *Climate Change Response Act*. These goals include national periodic regulatory goals; sectoral periodic regulatory goals for the energy, manufacturing, residential and commercial, transportation, agriculture, and environment sectors, and periodic regulatory goals for electricity emission factors. Phase 2 of the Periodic Regulatory Goals is effective from 2021 to 2025, and Phase 3 of the Periodic Regulatory Goals will be implemented from 2026 to 2030.

III. Process of Developing the Periodic Regulatory Goals

1. Taiwan's Carbon Reduction Pathway

Taiwan declared its 2050 net-zero emissions target in 2021. The government announced the *2050 Net-zero Emissions Pathway and Strategy Overview* on March 30, 2022, and subsequently, on December 28, 2022, released the *Twelve Key Strategic Action Plans*, thereby completing the planning for Taiwan's net-zero transition pathway. On February 15, 2023, the 2050 net-zero emissions target was incorporated into the *Climate Change Response Act.*

To align with international standards, and pursuant to Article 4.8 of the *Paris Agreement* as well as Decision 4/CMA.1 and Decision 1/CMA.3 of the Conference of

the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) under the United Nations Framework Convention on Climate Change (UNFCCC), Taiwan updated its 2030 Nationally Determined Contribution (2030 NDC) on December 28, 2022. The new target is a 24% ± 1% reduction in GHG emissions by 2030 compared to the 2005 base year.

According to the *2024 Republic of China National Greenhouse Gas Inventory Report*, Taiwan's total GHG emissions in 2022 amounted to 285.967 $MtCO_2e$, with net emissions of 264.133 $MtCO_2e$ after subtracting carbon sink volumes. In the base year (2005), the total GHG emissions were 291.183 $MtCO_2e$, with net emissions of 268.893 $MtCO_2e$ after subtracting carbon sink volumes.

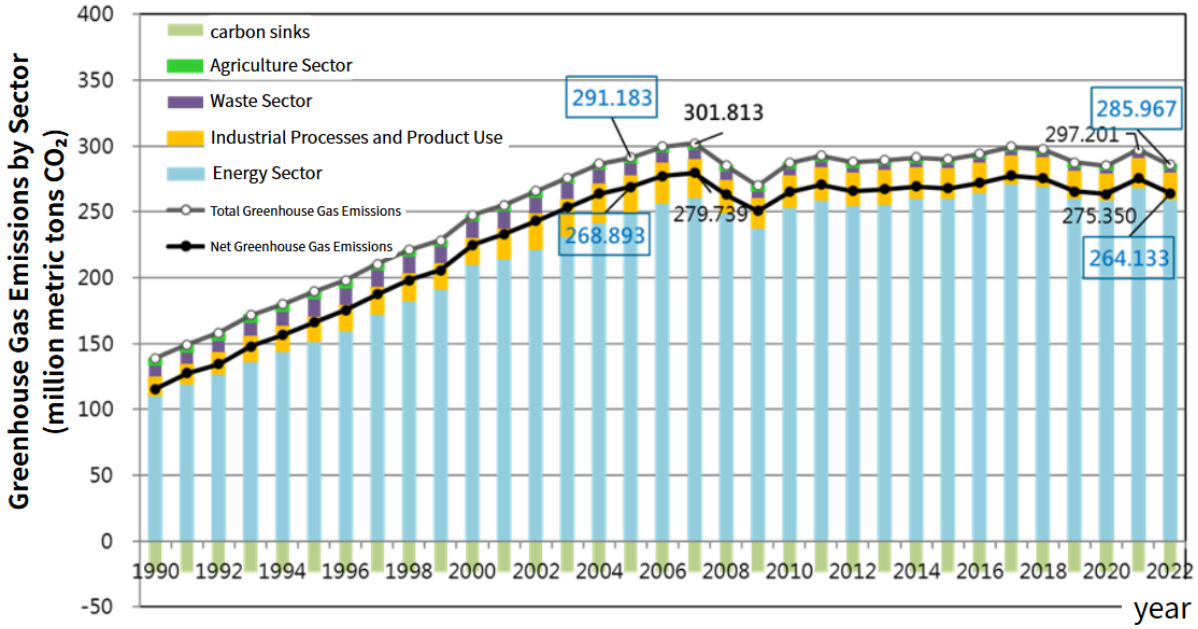


Figure 1. National Greenhouse Gas Emissions Trend

On May 20, 2024, Taiwan launched the National Project of Hope, which emphasizes "Green Growth and 2050 Net-zero Transition" as a core policy objective. The plan outlines five key strategies for achieving transformation to net-zero: constructing intelligent and shared strategies for green energy, promoting dual-axis transformation of industries in digitalization and green development, creating a sustainable, net-zero lifestyle of living green, positioning the government as the strongest pillar for net-zero transition, and ensuring an inclusive and just transition for all. These strategies aim to realize Taiwan's new national carbon reduction targets. Additionally, on June 19, 2024, the Office of the President established the National Climate Change Committee, which governs climate policy and fosters international cooperation from a holistic national development perspective. Comprising

representatives from the industry, government, academic, and research sectors, the Committee focuses on seven major themes: net-zero pathway, green energy and carbon reduction technology, green and digital twin transformation, sustainable green lifestyle, just transition, green finance, and sustainable homeland and adaptive resilience. By providing a communication platform for strengthening climate change response, the Committee aims to accelerate policy implementation and enhance public engagement.

At the third meeting of the National Climate Change Committee on January 23, 2025, the Ministry of Environment presented a draft of the *New National Carbon Reduction Targets*, and the National Development Council introduced *Taiwan's Action Plan on Comprehensive Carbon Reduction*. The plan sets progressive reduction targets relative to the 2005 base year, aiming to reduce emissions by 28%±2%, 32%±2%, and 38%±2% by 2030, 2032, and 2035, respectively. These targets were formulated through a bottom-up approach, where individual ministries proposed Sectoral Carbon Reduction Plans and rolling reviews of existing strategies. A top-down approach was also adopted to focus on six major sectors through Flagship Carbon Reduction Projects, intensifying carbon mitigation efforts. These efforts are underpinned by six strategic pillars: technological innovation, financial support, carbon pricing, regulatory adjustment, green-collar professionals, and community-driven approaches. Together, these pillars systemically integrate the six major sectors' carbon reduction actions, establish necessary financial support mechanisms, and facilitate the steady pursuit of the goal of reaching net zero by 2050.

Figure 2. Taiwan's Action Plan on Comprehensive Carbon Reduction

2. Technical Consultation with Scholars and Experts

To formulate the Phase 3 Greenhouse Gas Periodic Regulatory Goals, the Ministry of Environment convened a Phase 3 Greenhouse Gas Periodic Regulatory Goals (Draft) Interagency Working Group Meeting on May 30, 2023, and a Preparatory Meeting for the Formulation of Phase 3 Greenhouse Gas Periodic Regulatory Goals on November 27, 2023. These meetings established the guiding principles for GHG emissions trend projections and scenario analyses.

Furthermore, in accordance with Article 10 of the *Climate Change Response Act*, a Phase 3 Greenhouse Gas Periodic Regulatory Goals Technical Advisory Panel composed of scholars and experts was established on January 24, 2024. The panel convened meetings on February 16, 2024, and March 20, 2024, to review submissions from each sector, including GHG emissions trend projections and scenario analyses, electricity emission factors, projected growth of electricity demand, sectoral GHG reduction scenarios, estimates of emission reduction contributions, and cost assessments. Based on experts' feedback, all sectors revised their respective data. However, after integrating the emissions trend projections from all sectors, the results indicated that the projected outcomes would still fall short of achieving Taiwan's 2030 NDC target of a 24%±1% reduction compared to the 2005 base year.

3. Interministerial Coordination

In accordance with Article 8 of the *Climate Change Response Act*, to promote climate change response and strengthen cross-sectoral governance, the National Council for Sustainable Development (NCSD) of the Executive Yuan is responsible for coordinating, delegating, and integrating interministerial affairs related to the nation's climate policy guidelines and major strategies. Accordingly, after this matter was submitted to the Executive Yuan, it was referred to the NCSD Climate Change and Net-zero Transition Task Force (below, the "Net-zero Task Force") for interministerial coordination. Pursuant to the meeting resolutions, Taiwan's carbon reduction targets were assessed using both bottom-up and top-down approaches, as described below:

(1) Top-down: The Ministry of Environment and the National Development Council took inventory of the carbon reduction targets that should be implemented by Taiwan. The targets were then distributed through an additional target allocation mechanism.

(2) Bottom-up: Each ministry proposed its own carbon reduction targets and action plans, while outlining related needs and areas requiring support.

(3) Based on bottom-up assessments of the gap between carbon reduction achievements and the top-down targets of the six major sectors, a total of 20 Flagship Carbon Reduction Projects for the Six Major Sectors were proposed to enhance the nation's Periodic Regulatory Goals:

i. Energy sector: Strengthen energy transition policies through accelerating renewable energy development (solar power and off-shore wind), renewable energy breakthroughs (geothermal energy and small hydropower), advanced energy storage, methane pyrolysis, hydrogen (including ammonia) supply chain, and Carbon Capture, Utilization, and Storage (CCUS).
ii. Manufacturing sector: Strengthen industrial transition policies through voluntary industry-led reductions, deep energy saving improvements in manufacturing, and GHG reduction by state-owned enterprises, e.g., CSC and CPC Corporation.
iii. Residential and Commercial sector: Strengthen lifestyle transformation policies through net-zero buildings and deep energy saving in the residential and commercial sectors.
iv. Transportation sector: Strengthen transportation transition policies through the adoption of electric and carbon-free commercial vehicles and Sustainable Aviation Fuel (SAF).
v. Agriculture sector: Enhance carbon reduction through agricultural resilience, carbon sinks, and low-carbon and sustainable agriculture.
vi. Environment sector: The Ministry of Environment has completed sub-laws for carbon fee collection, and 2025 marks the beginning of the carbon pricing era in Taiwan. It has also launched flagship actions for resource recycling and a net-zero sustainable green lifestyle to support all sectors in improving the effectiveness of carbon reduction.

Following a comprehensive review and enhancement of the carbon reduction strategies and measures across the six major sectors, the Phase 3 Greenhouse Gas Periodic Regulatory Goals established a national target of a 28%±2% reduction in GHG emissions by 2030 compared to the 2005 base year.

Additionally, pursuant to the resolutions adopted at the 35th meeting of the Net-zero Task Force on August 15, 2023, annual GHG emission targets and yearly breakdowns were newly added. In accordance with Article 11 of the *Climate Change Response Act*, the six major sectors subsequently revised their phase 3 greenhouse gas reduction action plans, and they will be required to set annual GHG emissions targets for the period from 2026 to 2030.

Moreover, to achieve the Phase 3 Greenhouse Gas Periodic Regulatory Goals while upholding the principle of leaving no one behind in the course of sustainable

development, each sector assessed potential impacts. The compiled and consolidated findings are summarized below:

(1) Economic dimension: These measures will enhance Taiwan's economic and industrial competitiveness internationally. Low-carbon industries will become the new drivers of economic growth, although there may be changes in industrial value-added growth rates.

(2) Social dimension: Energy costs and livelihood protection for disadvantaged groups, including families in special circumstances, low-income, and lower-middle-income households, may be impacted. Additionally, fiscal implications may arise in terms of taxation, public spending, and government finances. However, the transition is also expected to create green jobs and increase public social welfare.

(3) Environmental dimension: In addition to achieving GHG emissions reduction, co-benefits include improvements in air quality, changes in public behavior, enhanced living environments, and other environmental gains.

Considering the aforementioned economic, social, and environmental impacts, each sector is required to incorporate impact assessments into its Phase 3 Greenhouse Gas Reduction Action Plan to ensure social justice during implementation.

4. Public Engagement

Pursuant to Article 10 of the *Climate Change Response Act*, on December 30, 2024, the Ministry of Environment released its draft of the Phase 3 Greenhouse Gas Periodic Regulatory Goals, along with details about the public hearing thereof. In accordance with the law, these documents were also announced and published on the designated website of the central competent authority (i.e., the Climate Information Disclosure Platform of the Climate Change Administration, Ministry of Environment), and notifications were sent to relevant central and local agencies, scholars, experts, and NGOs. During a public hearing on February 7, 2025, the Ministry of Environment and the six major sectors presented the draft of the Phase 3 Periodic Regulatory Goals. Members of the public could also register to speak at the hearing, and participants included statutory technical advisory panel members, human rights and gender equality experts and scholars, NGOs, young people, and students. The hearing covered a wide range of topics, including government policy, technical consultation, human rights, gender equality, and public engagement. The collected feedback was compiled and published on February 10, 2025. Each ministry was required to refer to and respond to the feedback, and the Ministry of Environment compiled the official responses and made them publicly available in the "New National Carbon Reduction Targets" webpage of the Climate Change Administration's website.

Furthermore, the Ministry of Environment also disclosed the entire

process of formulating the draft of the Phase 3 Periodic Regulatory Goals—including minutes and materials from the Technical Advisory Panel meetings and the public hearing—in the "New National Carbon Reduction Targets" webpage of the Climate Change Administration's website and on the Climate Information Disclosure Platform to ensure full transparency and public access to the information.

IV. Phase 3 Greenhouse Gas Periodic Regulatory Goals

1. National Periodic Regulatory Goal: By 2030, the national net GHG emissions will be reduced by 28%±2% compared to the 2025 base year, resulting in a target range of 198.980 to 188.225 $MtCO_2e$.

2. Sectoral Greenhouse Gas Emissions Targets for 2030:

   (1) Energy sector: 27.300 $MtCO_2e$

   (2) Manufacturing sector: 117.377 $MtCO_2e$

   (3) Residential and Commercial sector: 37.331 $MtCO_2e$

   (4) Transportation sector: 30.373 $MtCO_2e$

   (5) Agriculture sector: 5.226 $MtCO_2e$

   (6) Environment sector: 2.596 $MtCO_2e$

3. Target Electricity Emission Factor for 2030: 0.319 $kgCO_2e/kWh$

Attachment: Taiwan's Action Plan on Comprehensive Carbon Reduction by the National Development Council (January 23, 2025)

Pathway to Net-zero Emissions: Taiwan's Action Plan on Comprehensive Carbon Reduction

National Development Council

January 23, 2025

Contents of Presentation

1. The Background
2. Targets for Greenhouse Gas Reduction
3. Carbon Reduction Plans
4. Institutional Innovations
5. Financial Planning
6. Anticipated Benefits

1. The Background

Development History of the Pathway to Net-zero Emissions in 2050

To implement the five strategies for “2050 Green Growth and Net-zero Transition” contained in President Lai’s “National Project of Hope,” align with international standards by establishing Nationally Determined Contribution (NDC) targets, and draft a comprehensive carbon reduction action plan, the administration team is taking pragmatic and steady steps to achieve the 2050 net-zero emission goal.

2021 4/22
Net-zero Targets
President’s Declaration
Achieving Net-zero Transition by 2050 is Taiwan’s Target

2022 3/30
Pathway to Net-zero Emissions
Government Announcement
Taiwan 2050 Net-zero Emissions Pathway and Strategy Overview

2022 12/28
Key Strategies
Government Announcement
Phased goals and 12 key strategies of Net-zero Transition

2023 2/15
Target Enacted into Law
President’s Declaration
Climate Change Response Act incorporates the 2050 Net-zero Emissions target

2024 5/20
National Project of Hope
President’s Declaration
Five Strategies for 2050 Net-zero Transition

2024 6/19
Climate Governance
Established by the President
National Climate Change Committee

2025 1/23
New Targets for Carbon Reduction
Government Announcement
Taiwan’s Action Plan on Comprehensive Carbon Reduction

Taiwan's Action Plan on Comprehensive Carbon Reduction

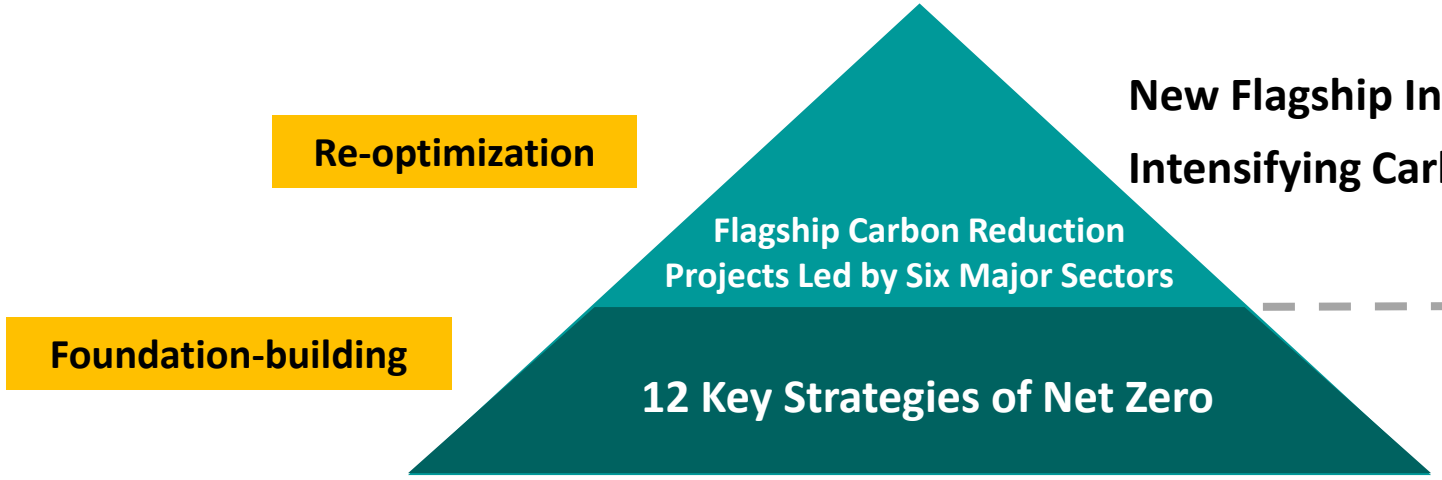
National Vison

Green Growth and 2050 Net-zero Transition

Five Strategies for Project of Hope

- Constructing Intelligent Strategies for Green Energy
- Promoting Dual-axis Transformation of Industries in Digitalization and Green Development
- Creating a Net-zero, Sustainable Green Lifestyle
- Government as the Strongest Pillar for Net-zero Transition
- An Inclusive and Just Transition for All

Action Plan

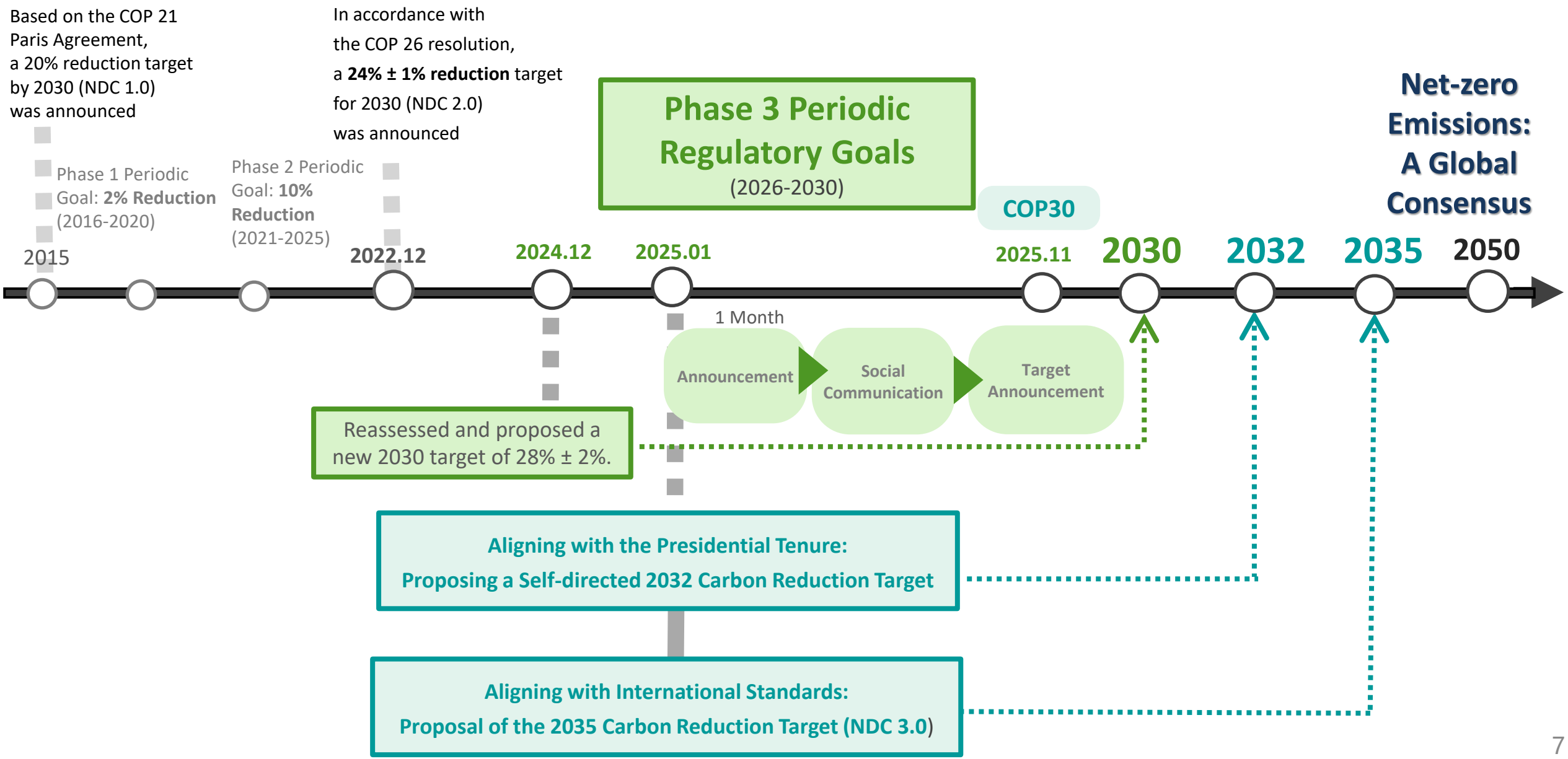


Six major innovative mainstays

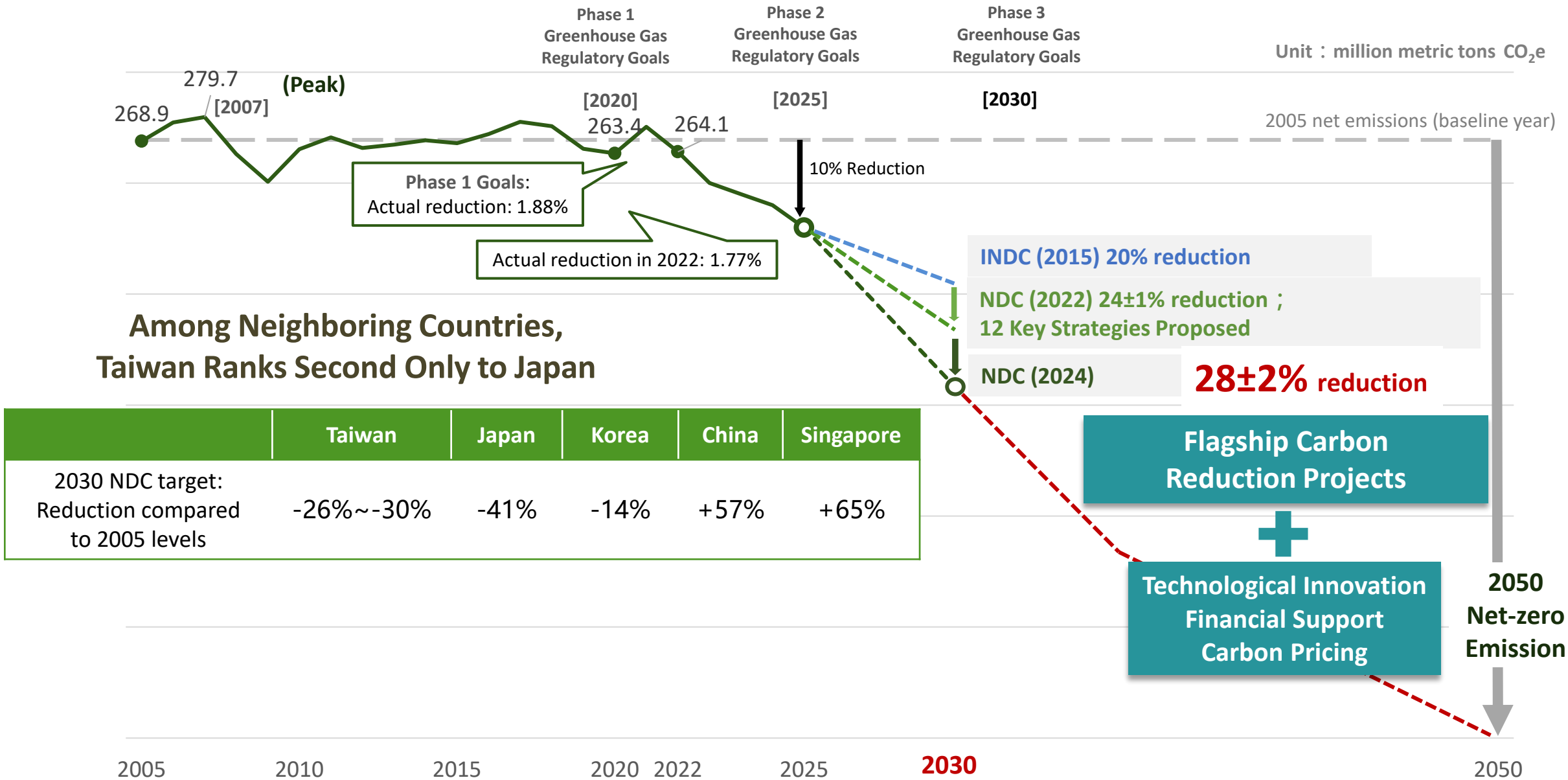
- Technological Innovation
- Financial Support
- Carbon Pricing
- Regulatory Adjustment
- Green-collar Professionals
- Community-driven Approaches

2. Reduction Targets for Greenhouse Gas Emissions

New Carbon Reduction Targets



Phase 3 Greenhouse Gas Periodic Regulatory Goals



Among Neighboring Countries, Taiwan Ranks Second Only to Japan

	Taiwan	Japan	Korea	China	Singapore
2030 NDC target: Reduction compared to 2005 levels	-26%~-30%	-41%	-14%	+57%	+65%

3. Carbon Reduction Plans

Taiwan's Action Plan on Comprehensive Carbon Reduction

Top Down: Introduce 20 Flagship Carbon Reduction Projects for Six Major Sectors and Intensifying Carbon Reduction Efforts

Energy Sector
Ministry of Economic Affairs

- Accelerating Renewable Energy Development – Solar Photovoltaics [Ministry of Economic Affairs]
- Accelerating Renewable Energy Development – Offshore Windpower [Ministry of Economic Affairs]
- Renewable Energy Breakthrough – Geothermal [Ministry of Economic Affairs]
- Renewable Energy Breakthrough – Small hydro [Ministry of Economic Affairs]
- Energy – Storage Technology [Ministry of Economic Affairs]
- Methane Pyrolysis [Ministry of Economic Affairs]
- Supply Chain of Hydrogen energy (with Ammonia) [National Development Council]
- Carbon Capture, Utilization and Storage (CCUS) [National Development Council]

Manufacturing Sector
Ministry of Economic Affairs

- Industrial Self-regulated Emission Reduction [Ministry of Economic Affairs]
- Energy Efficiency - Manufacturing Sector [Ministry of Economic Affairs]
- State-owned Enterprise Carbon Reduction - China Steel Corporation [Ministry of Economic Affairs]
- State-owned Enterprise Carbon Reduction - CPC Corporation [Ministry of Economic Affairs]

Transport Sector
Ministry of Transportation

- Commercial Vehicle Electrification and Decarbonization [Ministry of Transportation]
- Sustainable Aviation Fuel (SAF) [Ministry of Transportation]

Residential & Commercial Sector
Ministry of the Interior

- Net-zero Buildings [Ministry of the Interior]
- Deep Energy Saving – Residential and Commercial Sectors [Ministry of Economic Affairs]

Agriculture Sector
Ministry of Agriculture

- Agricultural Ecological Resilience and Carbon Sinks [Ministry of Agriculture]
- Low-Carbon Sustainable Agriculture [Ministry of Agriculture]

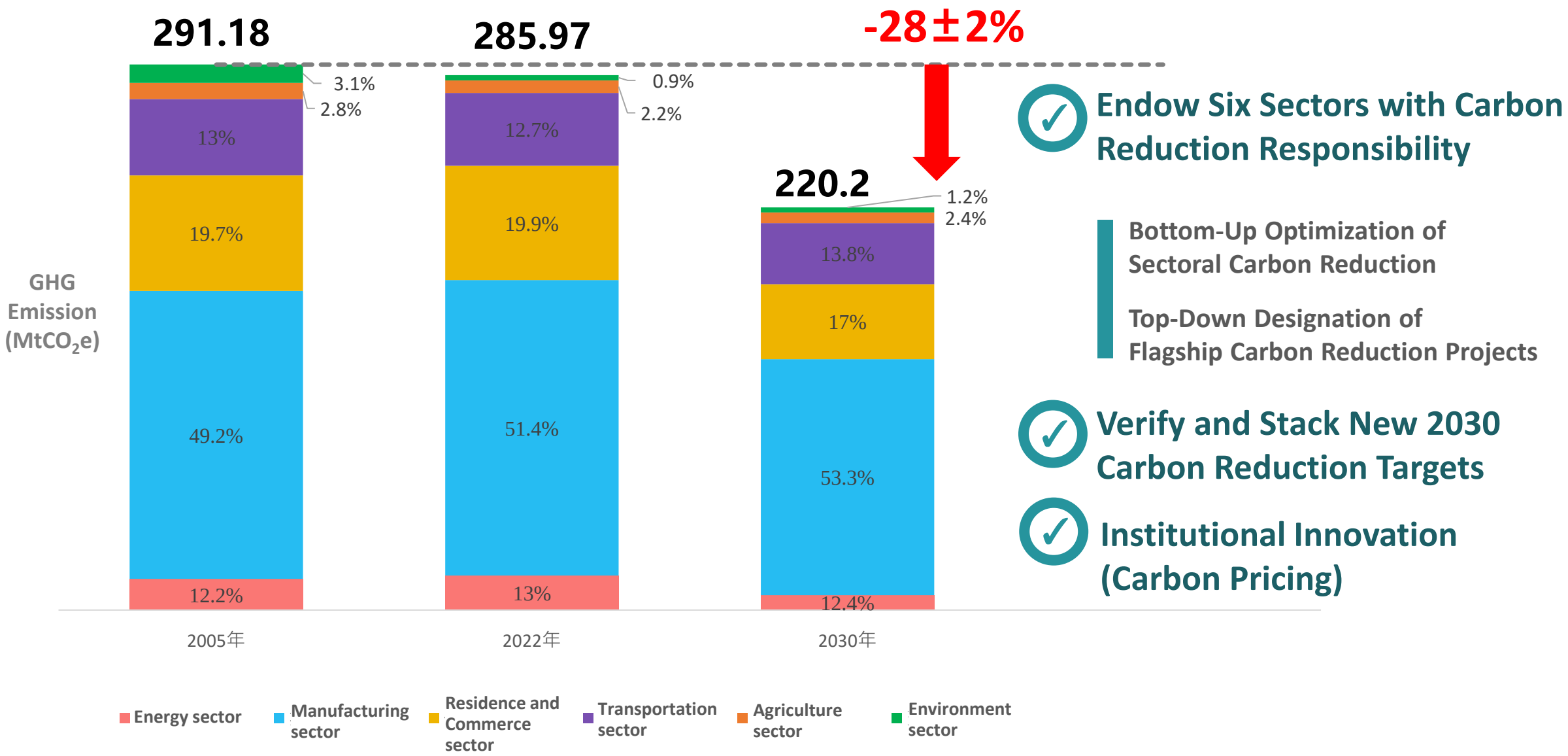
Environment Sector
Ministry of Environment

- Resource Recycling [Ministry of Environment]
- Net-Zero Sustainable Green Living [Ministry of Environment]

* The Environmental Department's Flagship Program Supports Carbon Reduction in Manufacturing, Residential and Commercial, Transportation, and Agricultural Sectors.

Bottom-Up: Dynamically Adjust 12 Key Strategies and Propose 80 Sectoral Carbon Reduction Plans

Comprehensive Carbon Reduction Targets for Six Major Sectors



Endow Six Sectors with Carbon Reduction Responsibility

Bottom-Up Optimization of Sectoral Carbon Reduction

Top-Down Designation of Flagship Carbon Reduction Projects

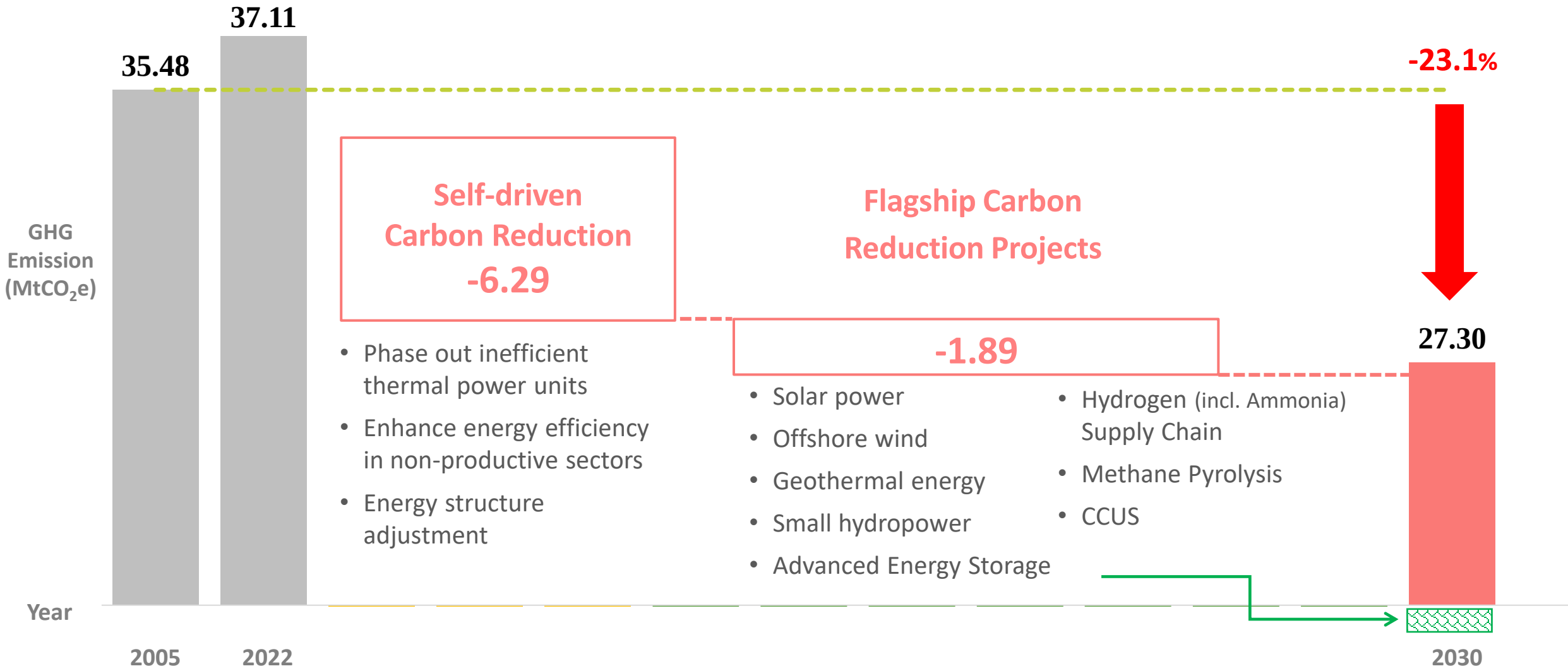
Verify and Stack New 2030 Carbon Reduction Targets

Institutional Innovation (Carbon Pricing)

Note: The carbon reduction target for 2030 is calculated based on a 27% reduction.

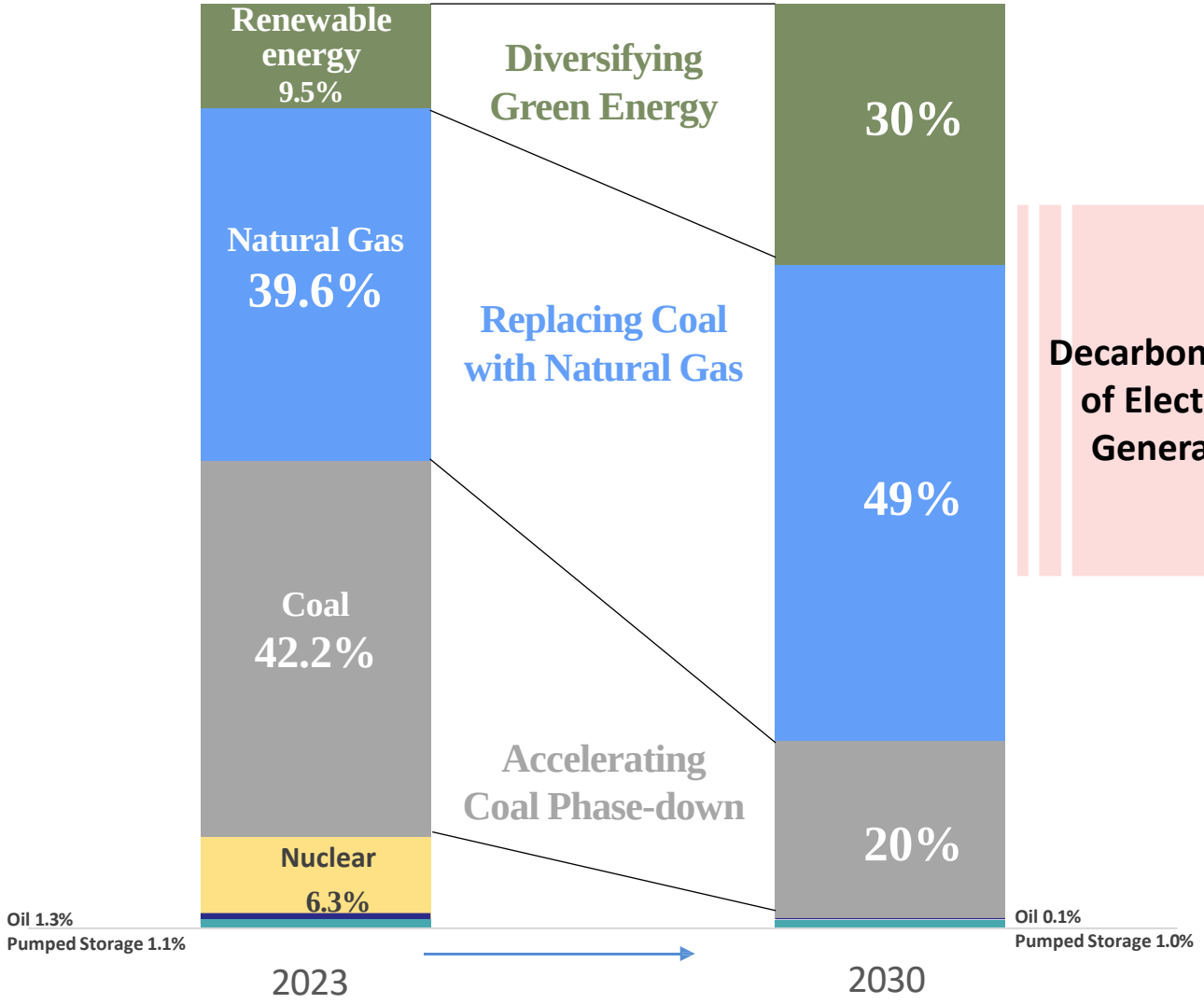
Energy Sector GHG Reduction Actions (1/4)

GHG reduction by 2030: 8.18 $MtCO_2e$

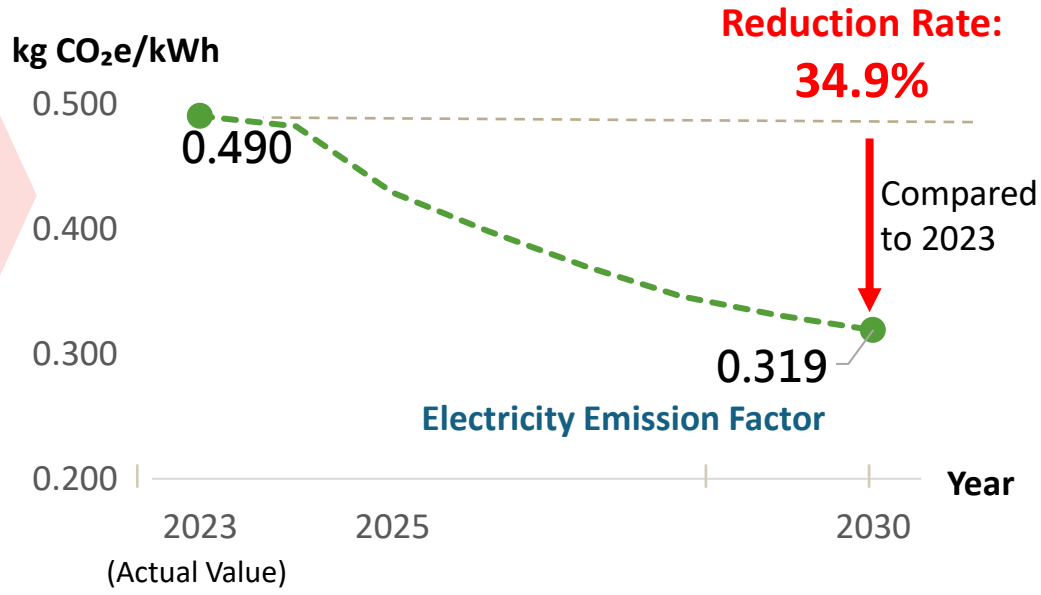


Energy Sector GHG Reduction Actions (2/4)

■ Electricity emission factor to decrease to 0.319 kg CO_2e/kWh by 2030



Decarbonization of Electricity Generation



Note: Electricity Emission Factor = (GHG Emissions from Power Sold by Electricity Enterprises - GHG Emissions from Line Loss) / Total Electricity Sales

Energy Sector GHG Reduction Actions (3/4)

Flagship Carbon Reduction Projects

Accelerating Renewable Energy

Solar Power

- **Installation Space** — Incentives for rooftops; mandatory installation requirement for new buildings
- **Efficiency Improvement** — Replacement of existing facilities with high-efficiency solar panels
- **Procedural Reform** — Inter-governmental coordination mechanism; application support platform

Off-shore Wind

- **Zonal Development** — Continue promoting zonal development
- **Marine Spatial Inventory** — Identify potential new offshore areas
- **Capital Investment** — Attract private funds for windfarm development

Breakthroughs in Renewable Energy

Geothermal Energy

- **Capacity Enhancement** — State-owned enterprises leading the introduction of drilling equipment
- **International Cooperation** — Expansion of deep geothermal drilling projects
- **Procedural Reform** — Inter-governmental coordination mechanism; indigenous tribal consultation

Small Hydropower

- **Project Sources Expansion** — Investigate potential sites
- **Incentive Increase** — Review feed-in tariffs; develop reward mechanisms
- **Procedural Reform** — Govt-led land integration for project investment

Deploying Advanced Technologies

Advanced Energy Storage

- **End User Energy Storage** — Design the time-of-use tariff for behind-the-meter storage; establish off-site joint demo zones
- **FC Subsidy Expansion** — Provide subsidies for fuel cell installation.

Energy Sector GHG Reduction Actions (4/4)

Flagship Carbon Reduction Projects

Deploying Advanced Technologies

Hydrogen (Incl. Ammonia) Supply Chain

- **Hydrogen Application** Expand hydrogen/ammonia co-firing technology and fuel cell deployment
- **Infrastructure** Build hydrogen refueling station; expand liquid ammonia storage
- **Hydrogen supply** Prioritize low-carbon ammonia imports; develop domestic hydrogen production technology

Methane Pyrolysis

- **Pilot site** Establish hydrogen co-firing pilot site
- **Expansion** scale up hydrogen production from methane pyrolysis

Carbon Capture, Utilization, and Storage (CCUS)

- **Technology Boost** develop efficient and low-cost carbon capture technology and promote steel-carbon co-production
- **Site Setup** Establish carbon storage pilot and commercial sites

Self-driven Carbon Reduction

Phase-out Inefficient Thermal Power Units

- Replace old units with newly installed units by 2030

Enhance Energy Efficiency in Non-productive Sectors

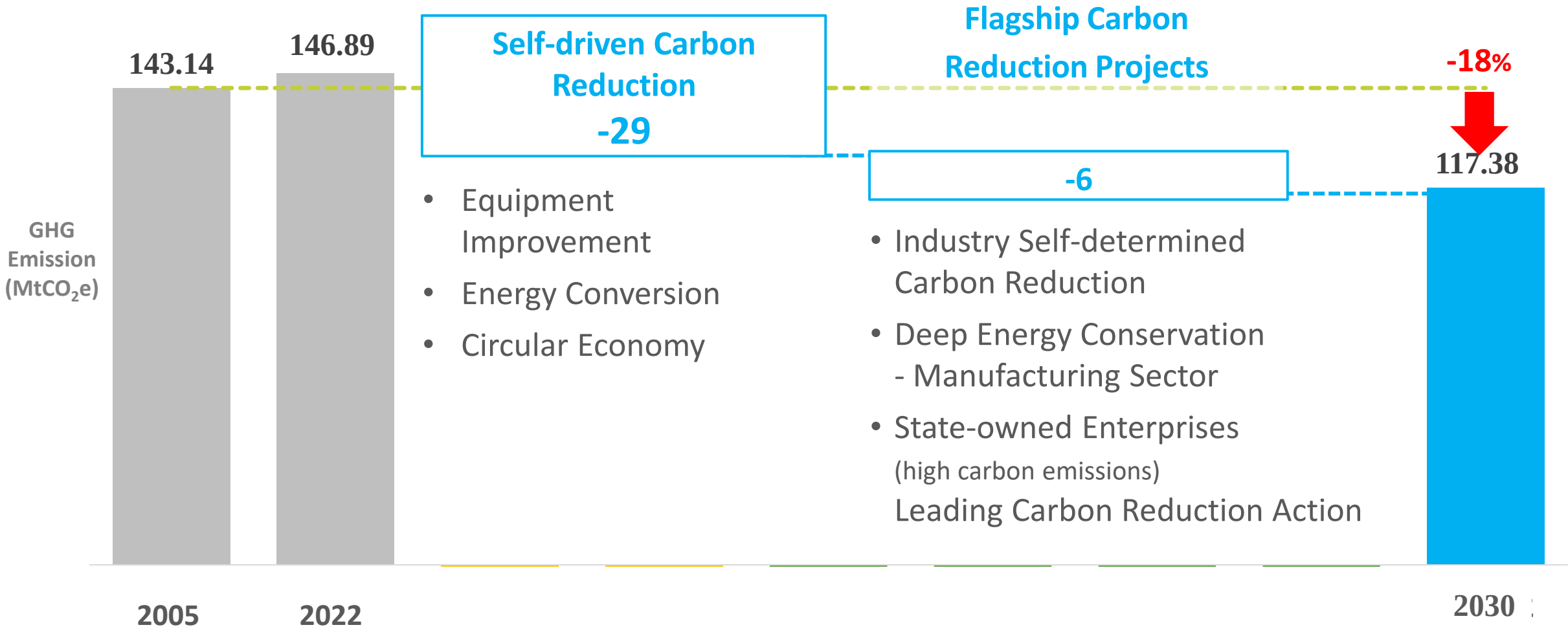
- Evaluate replacement of air conditioning facilities over 9 years old with high-efficiency and convertible models

Energy Structure Adjustment

- Expand renewable energy and low-carbon energy supply

Manufacturing Sector GHG Reduction Actions (1/2)

■ GHG reduction by 2030: 25.77 $MtCO_2e$



Manufacturing Sector GHG Reduction Actions (2/2)

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Industry Self-determined Carbon Reductions

Flagship Carbon Reduction Projects

- **Assist the top 500 emitting manufacturers in implementing self-determined carbon reductions**
  - Expert site visits; implement carbon reduction measures
- **Assist 140,000 SME manufacturers with low-carbon transformation**
  - Promote carbon reduction in supply chains through "large enterprises leading small ones" with support from government resources

Deep Energy Conservation - Manufacturing Sector

- **Implement three key guarantees to strengthen ESCO service capacity**
  - $NT10 billion project loan with credit guarantee
  - Risk reduction through insurance claims
  - Investment matchmaking for ESCO's
- **Three-stage Plan for implementing industrial energy conservation**
  - Establish an ESCO model (18 entities)
  - Introduce ESCO in state-owned enterprises (379 entities)
  - Expand to private enterprises (3,018 entities)

State-owned Enterprises (with high carbon emissions) to Lead Carbon Reduction Actions

- **CSC Corporation Carbon Reduction**
  - Enhance energy efficiency
  - Apply low carbon material in blast furnaces
  - Increase steel scrap use
  - Apply carbon-free fuel in industrial furnaces
- **CPC Corporation Carbon Reduction**
  - Refining procedural adjustments
  - Use renewable energy
  - Use low-carbon materials
  - Enhance energy efficiency

Self-driven Carbon Reduction

Process Improvement

- Provide system optimization technical services
- Implement energy management and monitoring systems
- Promote green factory certificates

Fuel Switch

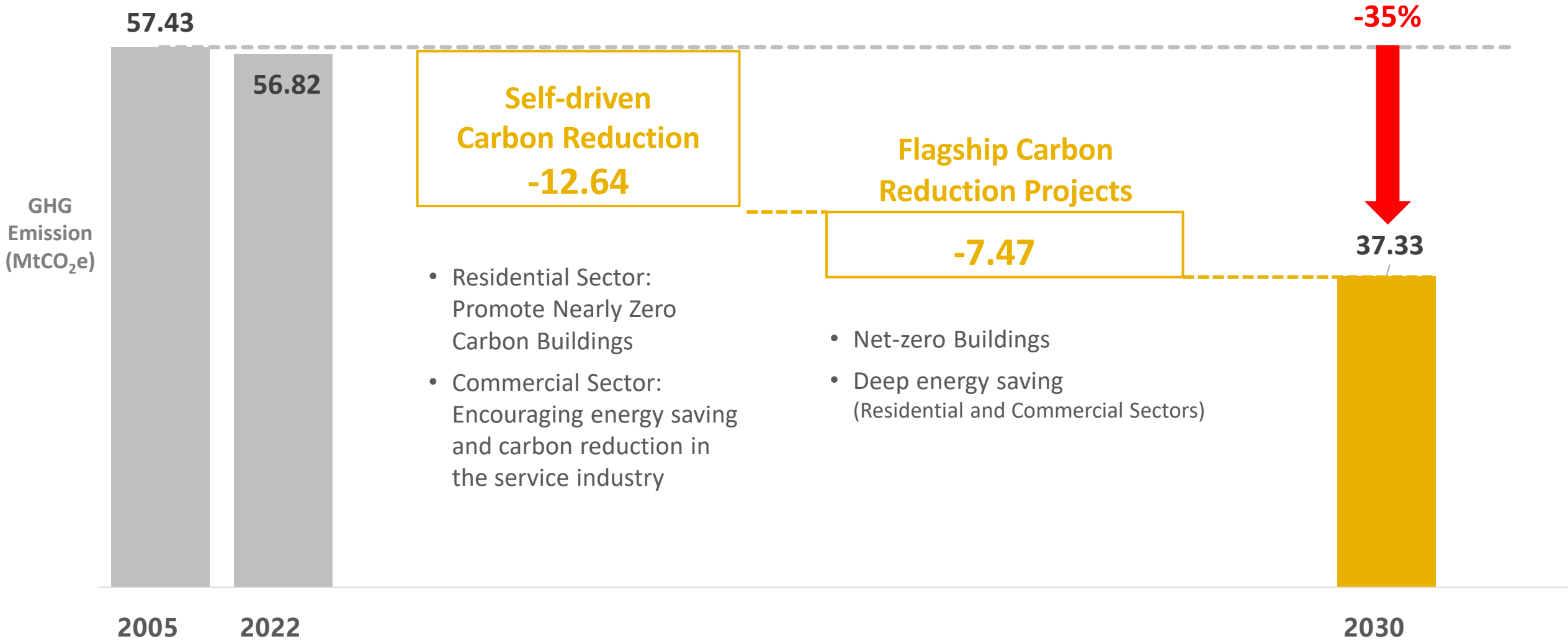
- Promote low-carbon production
- Match supply and demand for biofuels
- Expand green power use in manufacturing sector

Circular Economy

- Regional energy integration
- Invest in innovative tech R&D
- Waste resource recycling

Residential and Commercial Sectors Carbon Reduction Projects (1/2)

Carbon Reduction Target for 2030: 20.1 (Mt CO_2e)



Residential and Commercial Sectors Carbon Reduction Projects (2/2)

內政部 經濟部

Flagship Carbon Reduction Projects

Net-zero Buildings

- Old residential buildings and social housing move toward low carbon and net zero development
- Expand building energy efficiency improvements
- Dual transformation of smart and net zero building

Existing Buildings — Building Energy Efficiency Improvement Demonstration Subsidy

Public-owned Building Demonstration Public Participation

- Public-owned existing buildings and national park service buildings
- Expand public participation in the real estate industry, cooperatives, and building security industry

New Buildings — Building Regulation Amendments and Implementation

- Revised energy conservation design standards (building energy efficiency)
- Develop and issue mandatory installation of solar PV regulation

Innovative Technology — Apply Low-carbon Construction Methods and Digital Net-zero Applications

Deep energy saving (Residential and Commercial Sectors)

- Advanced Energy Efficient Equipment and Practices
- Mandatory control measures
- Independent carbon reduction
- Carbon reduction incentive mechanisms

Residential — Boost Replacement of old, inefficient appliances before Raise Minimum Energy Performance Standards

- Extend the Appliance Replacement Campaign to 2026 and the Commodity Tax Refund Program for highly efficient appliances to 2030
- Enforce the current level 3 as new MEPS of refrigerators and air conditioners from 2030

Commercial — Prioritizing the Large Energy Users & Implementing Energy-saving Measures

- Implementing ESCOs energy-saving plan, providing energy-saving equipment subsidies
- Raising the annual energy-saving target from 1% to 1.5% for large energy users
- Encouraging independent carbon reduction in the service industry (counseling, training, low-carbon fuel replacement, etc.)

Self-driven Carbon Reduction

Residential Sector： Promote Nearly Zero-Carbon Buildings

- ☑ Promote green buildings
- ☑ Nearly Zero-Carbon Building assessment
- ☑ Promote renewable energy
- ☑ Develop a building energy efficiency labeling system
- ☑ Existing buildings energy reduction management

Commercial Sector： Encouraging energy saving and carbon reduction in the service industry

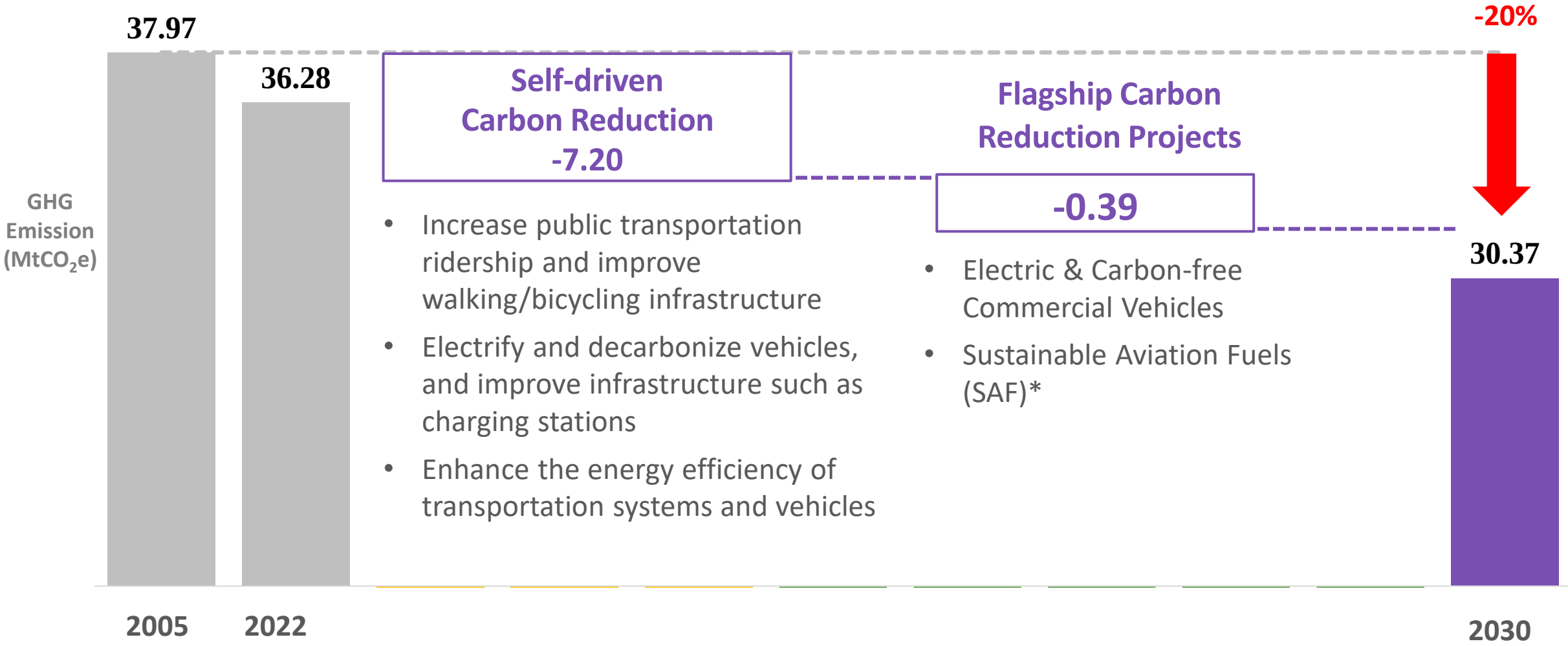
- ☑ Establishing mandatory control measures for the service industry
- ☑ Providing incentive mechanisms for carbon reduction in the service industry
- ☑ Encouraging independent carbon reduction in the service industry

Transportation Sector Carbon Reduction Action Plans (2/2)

交通部 經濟部

■ The emission reduction target is 7.59 million metric tons of CO_2e by 2030.

Unit： million metric tons of CO_2e



* Carbon Reduction for International Aviation is not included as it falls outside the scope of the NDC.

Transportation Sector Carbon Reduction Action Plans (2/2)

交通部 經濟部

Flagship Carbon Reduction Projects

Electric & Carbon-Free Commercial Vehicles

		2024 Nov.	2030
Electric light-duty trucks	Rate of adoption	0.05%	5% (Demonstration project: from 2026 to 2027; Expansion project: starts in 2028)
Electric heavy-duty trucks	Number of Vehicles	7	600 (Demonstration project: from 2028 to 2030)
Electric commercial sedans	Rate of adoption	1.8%	50% (Continuously promote to increase the rate of adoption)
Hydrogen fuel-cell electric buses	Number of Vehicles	-	35 (Pilot project: starts in 2024, with subsidy of TWD $10-20 million per vehicle.)

Sustainable Aviation Fuels (SAF)

SAF Task Force Platform

Usage Side

- By 2025, SAF will be introduced on flights departing from Taoyuan, Taipei Songshan, and Kaohsiung airports.
- By 2030, the target of SAF usage by Taiwanese airlines will be at least 5% of total fuel consumption.

Supply Side

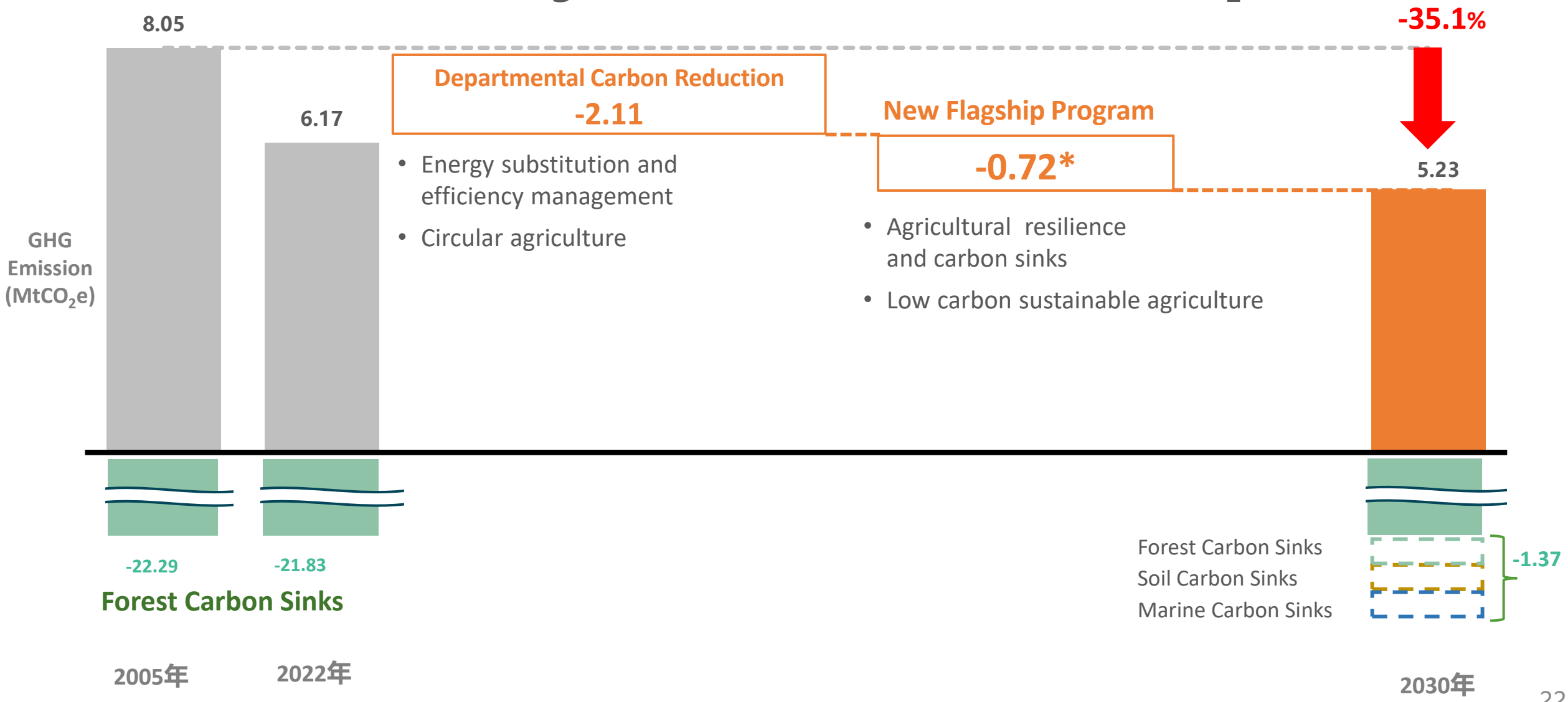
- By 2025, develop SAF feedstock strategies, include allowing the import and prohibiting the export of used cooking oil.
- By 2030, formulate mandatory regulations for fuel suppliers to provide fuel containing SAF.

Self-driven Carbon Reduction

- **Increase public transportation ridership and improve walking/bicycling infrastructure**
  - ☑ Enhance the public transportation system
  - ☑ Provide fare discounts
- **Electric and carbon-free vehicles, and improve infrastructure such as charging stations**
  - ☑ Promote the electrification of city buses, passenger cars and scooters, and enhance the supporting infrastructure for the user environment.
- **Enhance the energy efficiency of transportation systems and vehicles**
  - ☑ Develop intelligent transportation systems, enhance vehicle energy efficiency and energy-saving tire management, switch to low-carbon garbage trucks, and promote the shore power program.

Carbon Reduction in the Agricultural Sector (1/2)

■ Carbon reduction target for 2030: 2.82 million tons CO_2e



Carbon Reduction in the Agricultural Sector (2/2)

Agricultural Resilience & Carbon Sinks

New Flagship Program

- **Agricultural resilience** — Enhancing agricultural climate risk management and discovering diversified agricultural patterns
- **Forest Carbon Sinks** — Increase afforestation area; Improved forest management
- **Marine Carbon Sinks** — Restoration and management of seagrass, mangroves, wetlands and salt marshes
- **Soil Carbon Sinks** — Adjustment of crop tillage patterns; Application of soil biological resources

Departmental Carbon Reduction

Energy substitution and efficiency management

- Acquisition of fishing boat; Encouragement of fishing rest; Energy saving waterwheel; Rice bran instead of fuel

Low Carbon & Sustainable Agriculture

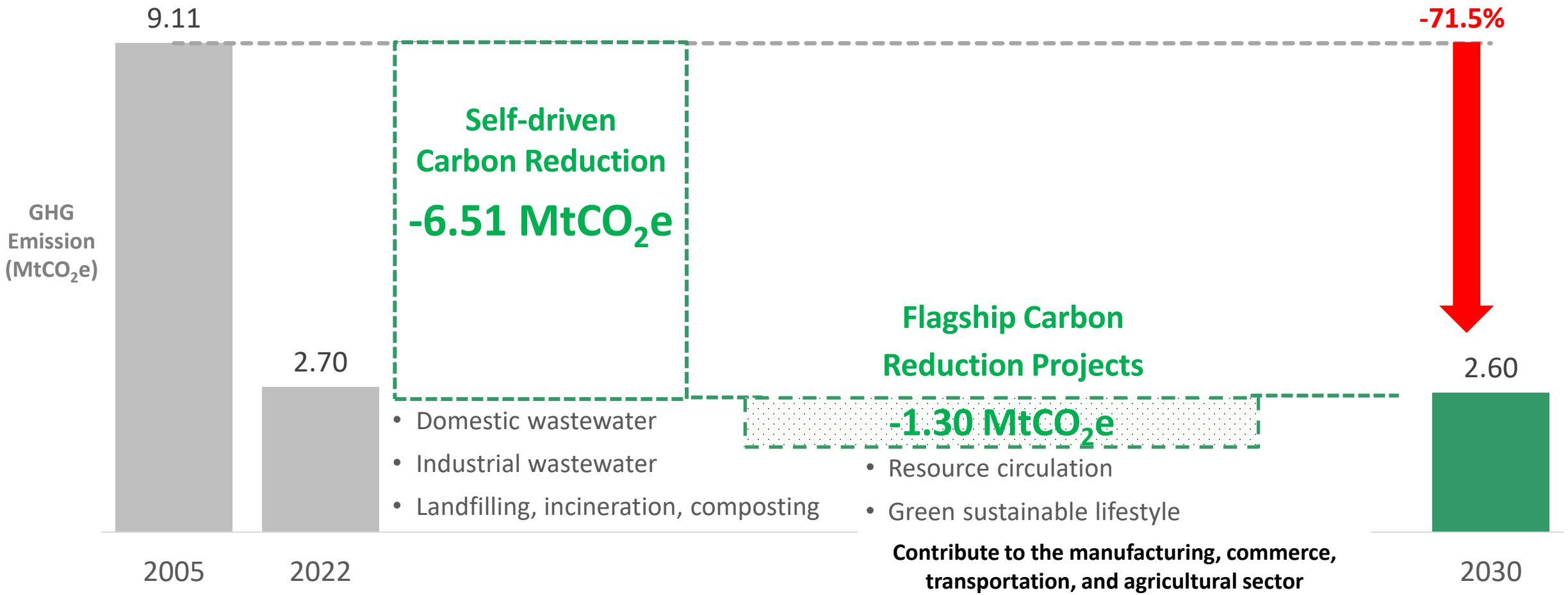
- **Paddy Fields** — Alternative wet and dry (AWD); Precision fertilization
- **Energy Efficiency Management** — Acquisition of oversea based fishery ship; Livestock farm electricity saving
- **Circular Agriculture** — Efficient and low carbon emission livestock nutrition model; Energy, feed, material and fertilizer for agricultural residues
- **Energy Substitution** — Electric Farming Machines

Circular agriculture

- Livestock Biogas Reuse
- Livestock manure application

Environmental Sector GHG Emission Reduction Actions (1/2)

2030 GHG Emission Reduction Target : 6.51 $MtCO_2e$



Environmental Sector GHG Emission Reduction Actions (2/2)

Resource Recycling

Enhancing Carbon Recycling and Supporting Other Sectors in Carbon Reduction

Flagship Carbon Reduction Projects

☑ Resource Recycling	Climate Circular Technology Parks, 8+N Resource Recycling Alliances, Fully Electric Resource Recycling Vehicles
☑ Public Incineration Plants	Establishing low-temperature power generation and enhancing power facilities, Setting Up Carbon Capture & Reduction Facilities
☑ Pollution Control & Energy Efficiency Upgrades for Carbon Reduction	Replacing High-Efficiency Energy-Saving Equipment, Building Recycling Systems, Upgrading to Energy-Saving Lighting
☑ Animal Husbandry	Biogas power generation, subsidies for wastewater energy-saving projects

Net-Zero Sustainable Lifestyle

Driving Industrial Supply-Side Carbon Reduction Through Behavioral and Consumption Pattern Changes

☑ Eco-Labeling & Green Procurement	Subsidizing business applications and expanding government green procurement
☑ Thermal Insulation Improvement for Existing Homes	Subsidizing insulation improvements and prioritizing local green materials
☑ Eco-Friendly Restaurants Low-Carbon Transition	Promoting low-carbon diets and reducing single-use tableware
☑ Encouraging Low-Carbon Lifestyles	Promoting behavioral change through eco-points incentives
☑ Building Green Living Pilot Zones	Collaborating with local governments to create low-carbon residential & commercial spaces
☑ Low-Carbon Sustainable Community Certification & Resilient Home Development	Assist villages and communities in applying for the Low Carbon Sustainable Homeland Certification, create locally characteristic low-carbon lifestyles, and develop community green-collar talents

Self-driven Carbon Reduction

Domestic wastewater

- ☑ Increasing domestic wastewater treatment rate
- ☑ Developing sustainable & smart sewage system

Industrial Wastewater

- ☑ Promoting wastewater methane recovery
- ☑ Biogas power generation, improving river water quality

Landfilling, Incineration, Composting

- ☑ Diversified waste treatment, waste reduction & recycling, and carbon reduction technologies

4. Institutional Innovation

Six Major Innovative Mechanisms

2050 Transition to Net-zero Emissions

National Council for Sustainable Development

League of Sustainability Officers

Public Private Partnership (PPP)

Led by the Government

- technological innovation
- financial support
- carbon pricing
- regulatory adjustment
- green-collar professionals
- community-driven

Technological Innovation

Key Focus Areas of Net-Zero Technology

Energy transition technology

- Sustainable Low-Carbon Hydrogen
- Multiple Usages in Ocean Energy
- Forward-Looking Deep Geothermal Energy

Decarbonizing industry

- Carbon Storage Integrated with Social Governance
- Biomass Sustainable Energy Resource Utilization
- Circular Resource Green Design
- Industrial Equipment Integration with AIoT for Innovative Energy Saving

Net-zero infrastructure

- Net-zero Smart Grid
- Infrastructure and Built Environment

Forward-Looking Technology Development Field Trial

Flagship Carbon Reduction Projects by Six Sectors

經濟部
- Methane Pyrolysis
- Small Hydro
- Geothermal
- Deep energy saving
- Energy storage technologies

環境部
- Carbon Capture and Storage
- Resource Circulation
- Carbon pricing and international cooperation

國家發展委員會
Hydrogen (including Ammonia) Supply Chain

Sustainable Aviation Fuel (SAF) and Transportation Decarbonization

Financial Support

金管會 經濟部

Green Finance 3.0 — Green and Transition Finance Action Plan

- Announce the Second Edition of the Reference Guidelines For the Recognition of Sustainable Economic Activities, expand the scope of applicable industries (e.g., chemicals, steel, semiconductors, etc.)
- Announce Recommended Coverage for Transitional Plans, assist enterprises in orderly transformation and serve as a basis for discussions in the financial sector

- Guide the financial sector in assessing and disclosing carbon emissions from their own operations and investment portfolios (Scope 3)

- Incorporate corporate Self-determined Reduction Plans, Voluntary Mitigation, and Taiwan Offset Project (TOP) as priorities in investment and financing decision-making assessments

- Guide funds into green and sustainable development sectors. Release Sustainability Bond and Green Financial Products to support green growth.

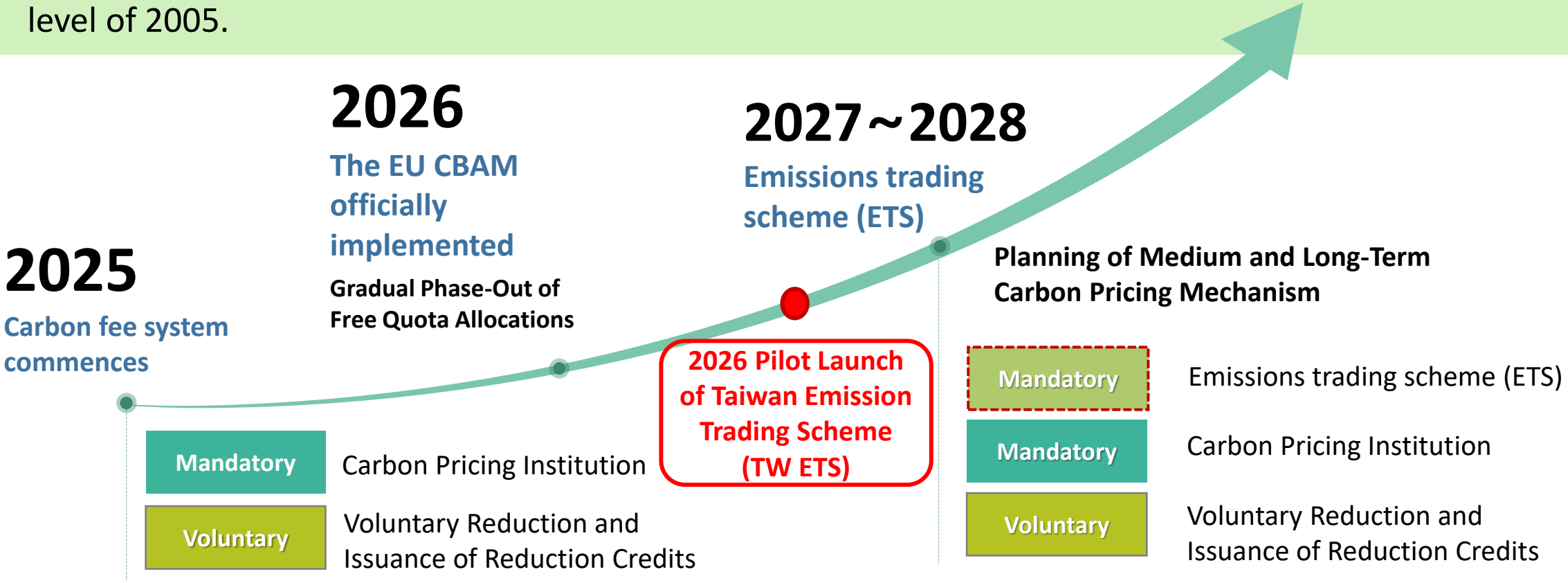
Expand ESCO Assistance

- Expand the scale of ESCO credit guarantee, strengthen the credit guarantee + insurance system, and reduce business risks

Carbon Pricing

Align with international best practices to promote carbon pricing in Taiwan

- Implement carbon fees first, with incentivized rates to promote effective emission reductions, accompanied by diverse reduction mechanisms such as voluntary emission reduction credit issuance.
- The carbon fee system will reduce 37 million tons of CO_2e by 2030, approximately 14% of the emissions level of 2005.



Regulatory Adjustments

New or Revised Regulations Related to Net Zero:

11 Laws and **24 Regulatory Orders** (or Administrative Rules)

Climate Legal Foundation

Revised and published in February 2023 and completed the Revisions Regulations

Enforcement Rules of the Climate Change Response Act

Governing the Collection of Carbon Fees etc. 12 Priority Sub-laws

Mature Green Energy

- The Electricity Act
- Energy Administration Act
- Standards for Installing Solar Photovoltaic Power Generation Equipment in Buildings

Forward-looking Green Energy

- Renewable Energy Development Act
- Regulations Governing the Management of Carbon Capture and Storage

Low-carbon Transformation

- Statute for Industrial Innovation
- Circular Economy Promotion Law
- Waste Disposal Act

Lifestyle Transformation

- Urban Planning Act
- Condominium Administration Act Building Administration Division
- Sewerage Act
- National Park Law
- Energy Conservation Standards for New Buildings

Green Finance

- Securities and Exchange Act
- Regulations Governing the Preparation of Financial Reports by Securities Firms/Futures Commission Merchants/Insurance Enterprises
- Regulations Governing Information to be Published in Annual Reports of Banks, Public Companies, Financial Holding Companies, and Bills Finance Companies

Green-collar Professionals

Create Green Job Opportunities

Assess Workforce Demand

- Estimating Green-collar Employment Trends
- Understanding Skill Requirements for Green-collar Talent

Facilitate Supply and Demand Matching

- Green-collar Professionals Information Platform
- Green-collar Job Matching

Assist Affected Groups in Employment

Expand Talent Development

- Public-Private Partnership on Professionals Development
- Professionals Development Incentive Subsidies

Vehicle Maintenance Personnel
Ministry of Transportation and Communications

Employed Workers
Ministry of Economic Affairs

School Students
Ministry of Education

Ecological Carbon Sequestration Personnel
Ministry of Agriculture

Financial Personnel
Financial Supervisory Commission

Employed Workers Unemployed Personnel
Ministry of Labor

Construction Management Personnel National Parks
Ministry of the Interior

Maritime Personnel
Ocean Affairs Council

Environmental Personnel
Inspection Personnel
Green-collar Youth
Ministry of Environment

Attract Global Talent, with an **Expected Cultivation of 80,000 Green-collar Professionals by 2030**

Community-driven Approaches

Energy Independence and System Resilience

Building Energy-resilient Communities

Community Energy Self-Sufficiency

Circular Economy and Local Revitalization

Local Materials High-value Recycling

Low-carbon Sustainable Circular Field

Localized Carbon Reduction and Sink Enhancement Benefits

Localized Carbon Reduction as a Nationwide Movement

Diverse Carbon Sink Initiatives Flourishing Everywhere

Sustainable Production and Marketing with Livelihood Support

Fair Distribution of Local Production and Sales

Sustainable Livelihood Support Cases

Talent Transformation and Community Networking

Social Co-creation and Resource Integration;

Green-collar Professionals Diverse Transformation

Just Transition

National Project of Hope

Ensure Opportunities for Individuals, Industries, and Communities

Transform Climate Change into Opportunities for Regional Development

Stakeholders and Key Issue In-depth Identification

Evidence-based Data Governance

Local Society Communication

- **Labor Market** (Change of Labor Structure)
- **Industrial Development** (Net-Zero Policy Adaptation)
- **Livelihood Care** (Energy Vulnerability Assessment)
- **Regional Equity** (Spatial Development Strategy)

Policy Support

Employment Guidance

- Framework Guidelines for Labor Issues
- Promotion of Various Vocational Training and Employment Guidance Measures by Ministries

Financial Support

- Green and Transitional Finance
- Green Growth Fund
- Greenhouse Gas Management Fund

Industry Assistance

- High-carbon Emission Industries and SMEs' Net-zero Transition
- Green Talent Supply and Demand Matching

Social Security

- Guidelines for Support Program Design for Disadvantaged Groups
- Ensuring Equal Development Opportunities for Indigenous People and Women

5. Financial Planning

Financial Planning

Government Funding Input

Expanding the Net-zero Carbon Emissions Budget

Expanding Government Green Expenditures

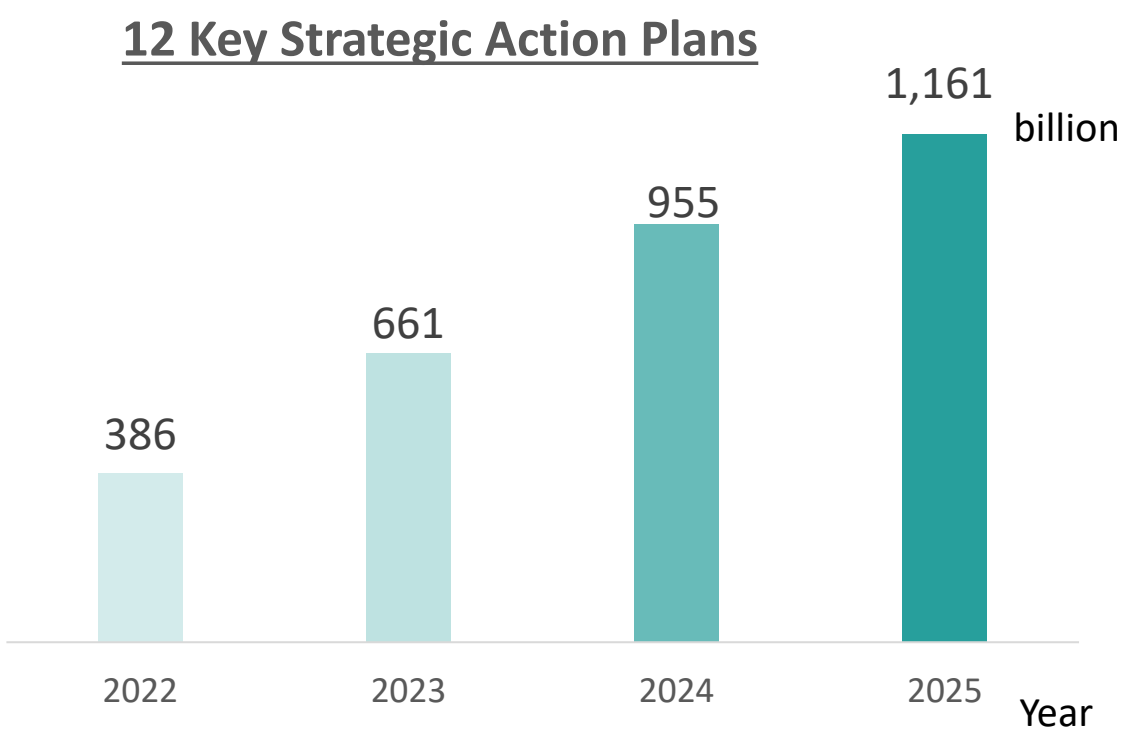
Driving Private Funding

Strengthening Government Incentive Measures

Promoting Green and Transitional Finance

Net-zero Carbon Emission Budget Planning

- **By 2030, Government Budget Investment to Exceed NT$1 trillion**
  - The budget for the **12 Key Strategies Action Plans** for net-zero transformation is increasing annually, reaching NT$116.1 billion in 2025
  - An additional NT$231.023 billion has been allocated for the **flagship carbon reduction plans** across six major departments



Energy	864.51 billion 2024~2030
Manufacturing	500.20 billion 2026~2030
Residence and Commerce	192.00 billion 2026~2030
Transportation	411.88 billion 2025~2030
Agriculture	77.85 billion 2026~2030
Environment	263.79 billion 2024~2030

Expanding Government Green Expenditures

Green Budget Expenditure

Formulate Net-zero Green Guiding Principles:
1. Public Infrastructure, 2. Social Development, 3. Technological Development, and 4. Non-Programmatic

Public Engineering

- By 2030, public infrastructure green funding will reach NT$160 billion
- The proportion of public infrastructure will reach 20%

Develop seven categories of "Engineering Carbon Reduction Operational Guidelines"
(architecture, water resources, soil and water conservation, national highways, provincial highways, railways, and sewers)

Governmental Procurement

- By 2030, the total public and private green procurement is expected to reach NT$165 billion
- The annual increase rate of the proportion of government operational expenses and private-sector funding reaches 10%

Note: Green expenditure refers to costs related to green construction methods, green materials, green energy, and green environments

Green Growth Fund + Carbon Fees

Green Growth Fund

- **Total budget: NT$10 billion**, strengthening investment in net-zero sustainable emerging industries, and guiding private capital investment

The maximum investment amount for a single enterprise is NT$150 million

Domestic enterprises + foreign enterprises operating in our country

Greenhouse Gas Management and Control Fund

- Carbon fee revenues are incorporated into the Greenhouse Gas Management Fund, with priority given to greenhouse gas reduction efforts, subsidies, and incentives for businesses to invest in greenhouse gas reduction technologies, as well as the promotion of climate change adaptation measures

Guide Private Capital Investment

Strengthen Government Incentive Measures

Trillion-NT dollar-investment National Development Plan

- Establish a public-private partnership platform to guide **private sector participation** in green energy and other public infrastructure projects

National Financing Guarantee Mechanism

- Increase the guarantee ratio to 80%, provide **a guarantee limit of NT$90 billion**, and promote major infrastructure projects such as green energy

ESCO Performance Credit Guarantee

- Increase the guarantee ratio to 95%, provide **a guarantee limit of NT$10 billion**, and enhance the capacity for deep energy-saving measures

Tax Incentives: Amend Article 10-1 of the Industrial Innovation Act

- Increase the investment expenditure limit to NT$2 billion, with energy-saving and carbon-reduction projects included in the applicable scope

Green and Transition Financial Action Plan

Domestic Banks' Loans to the Green Industry

Loan Balance is **NT$3 trillion**
(as of the end of November 2024)

Issuance of Sustainable Development Bonds

A cumulative issuance of **NT$688.5 billion**
(as of January 20, 2025)

Insurance Industry's New Investments in the Green Energy Sector Investment Amount:

NT$160.5 billion
(as of the end of November 2024)

Green Investment and Finance to Exceed NT$5 trillion by 2030

6. Anticipated Benefits

Anticipated Benefits

Advancing Four Key Transitions

- Fostering a More Diversified Energy Transition
- Driving a More Innovative Industrial Transition
- Adopting a More Low-carbon Lifestyle
- Fostering a More Resilient Society

Driving Green Growth

2030

Delivering Low-carbon Energy Solutions

Electricity emission factor decreased from 0.490 $kgCO_2e/kWh$ in 2023 to **0.319** $kgCO_2e/kWh$ in 2030.

Air pollution volume reduced by **40%** compared to 2019

Enhancing Energy Independence

Dependence on imported energy reduced from 96.2% in 2023 to **90%** in 2030.

Creating Green Economies

The government has allocated over **NT$1 trillion** to the budget, which has attracted domestic sectors to invest **NT$5 trillion**. Additionally, **80,000** green talents have been nurtured.

The End

Your advice is welcomed!