THAILAND'S

FOURTH BIENNIAL UPDATE REPORT

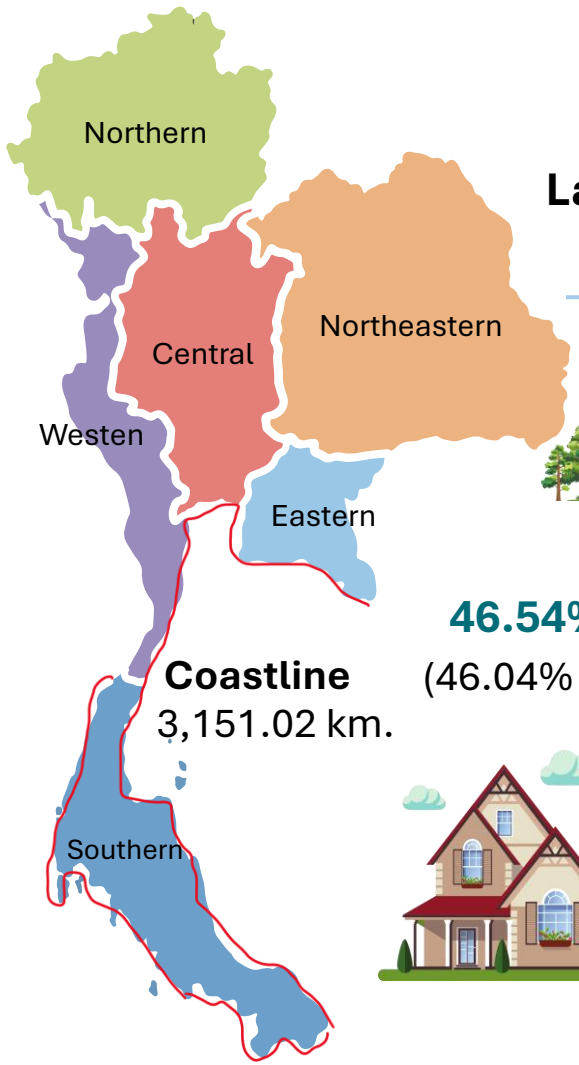
Facilitative Sharing of Views

June, 2025

OUTLINE

- National Context
- GHG Inventory
- Mitigation actions and effect
- Barriers and support needed and received
- ETF transition and implementation

National Context



Land area approximately
513,115 km^2

Land use in Thailand

31.95% Forest

46.54% Agricultural
(46.04% Rice Cultivation)

Coastline
3,151.02 km.

21.51%
Non-Agricultural

Population

66,171,439 (2021)

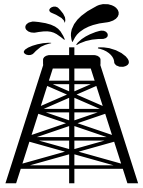
In 2021, the average annual population growth rate has been around 0.4%

Tourism

- 20 – 22% The economic growth.
- In 2019, the tourism sector in-creased by 1.10% (87,863 million USD) from the previous year.

Agricultural

In 2021, total agricultural production increased by 1.4%

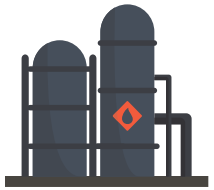


Energy Consumption

- In 2020, the final energy consumption decrease of 9.76%
- Commercial Energy consumption 86.40%
- Renewable Energy 8.69%

Energy Production

- In 2020, the energy production decrease of 11.76%
- Commercial Energy 63.61%
- Renewable Energy increase 24.34%

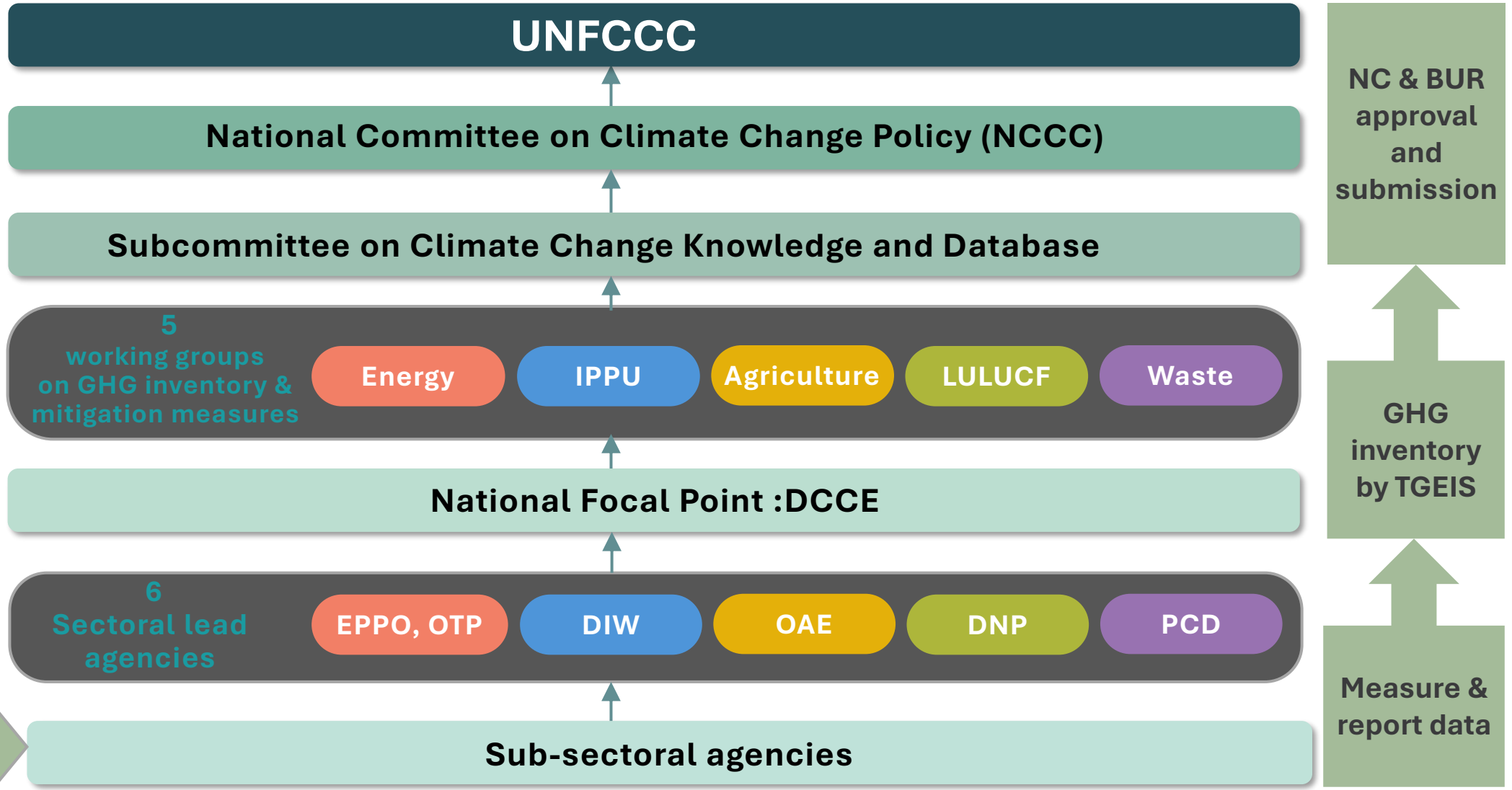


solar, wind, hydro geothermal, fuelwood, paddy husk, bagasse, agricultural waste, MSW, and biogas

National Circumstances

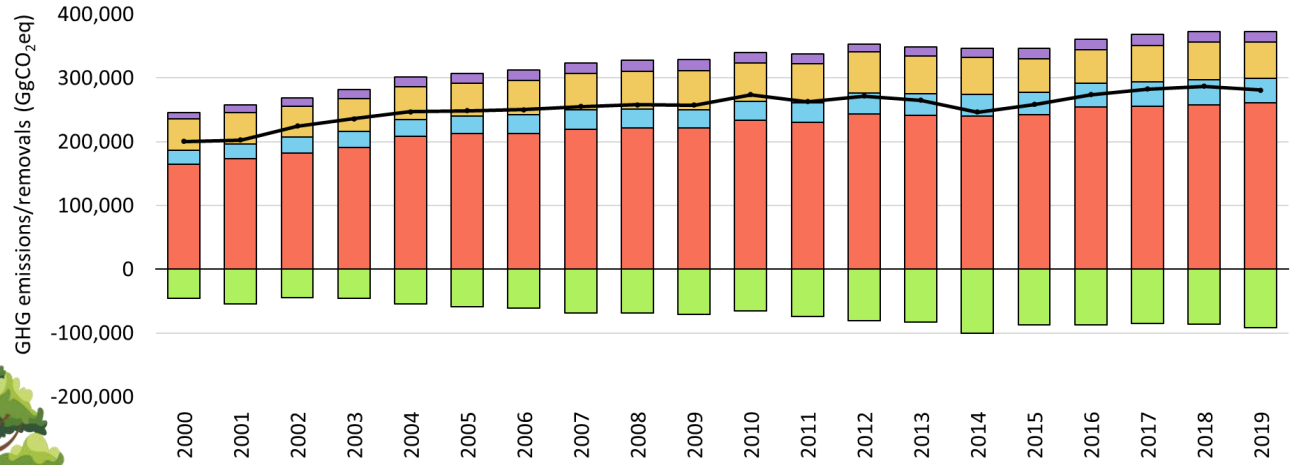
National Context

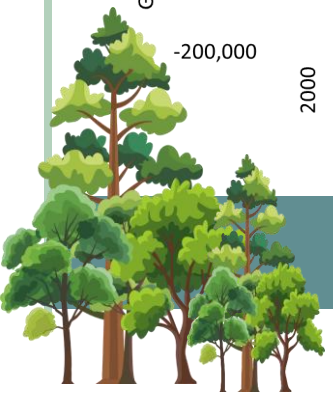
Structure of Thailand's Greenhouse Gas Inventory process



GHG Inventory

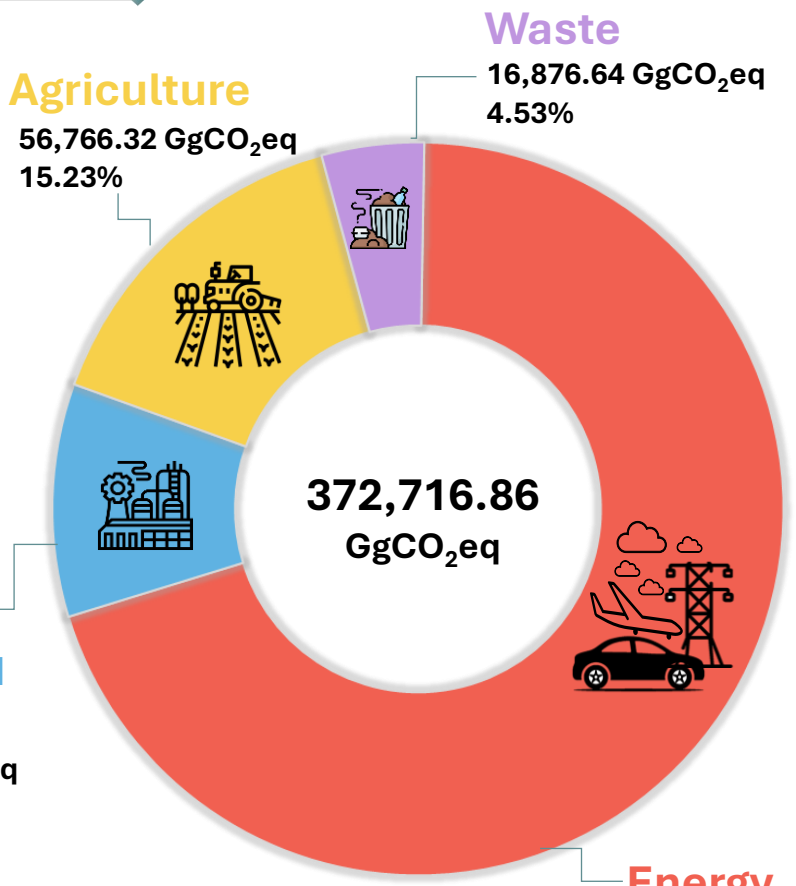
National GHG emissions/removals by sector : 2000 - 2019





Net emissions (including LULUCF)
280,728.34 $GtCO_2eq$

LULUCF -91,988.52 $MtCO_2eq$



Total GHG emission by sector (excluding LULUCF) 2019

Scope:

- IPCC 2006 Guidelines.
- Main GHGs (CO_2, CH_4, N_2O, HFCs, and SF_6)
- Used of GWP AR4
- Calculation by Tier1 and Tier2

Mitigation actions and effect

National level

NCCC

Approve GHG emission reduction results as Included in NC and BUR

Subcommittee on Climate Change Knowledge and Database

Verify GHG estimation methodology and amount of GHG emission reduction

Working Group on GHG Inventory and Mitigation Measures

Develop the GHG emission reduction report according to the mitigation measures

Determine evaluation criteria for GHG emission reduction including:

1. Selection of GHG emission reduction policies and measures to be monitored
2. MRV process and structure
3. Appropriate GHG reduction methodology
4. Emission factors

Approved

Rejected /Edited

Sectoral level

Sectoral level: Climate change coordination Working group at sectoral level

Sectoral level (measures/policies)

Verify GHG emission reduction results by considering of:

1. GHG emission reduction measures
2. Appropriate GHG reduction methodology
3. MRV process and activity data
4. GHG reduction by measures

The structure of domestic MRV system

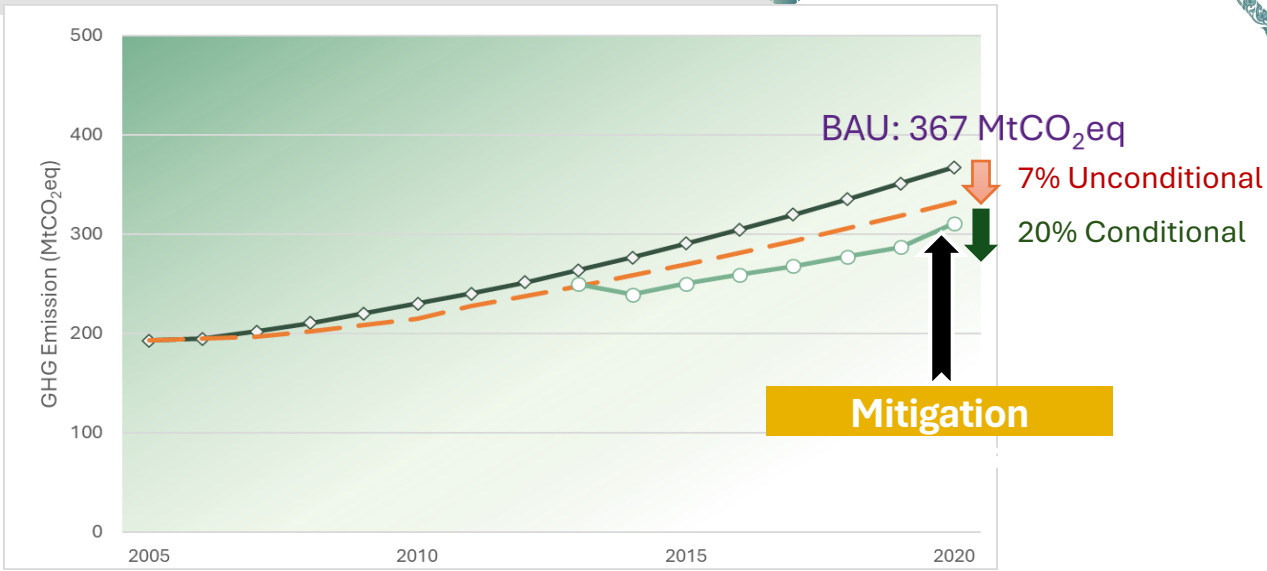
Mitigation actions and effect

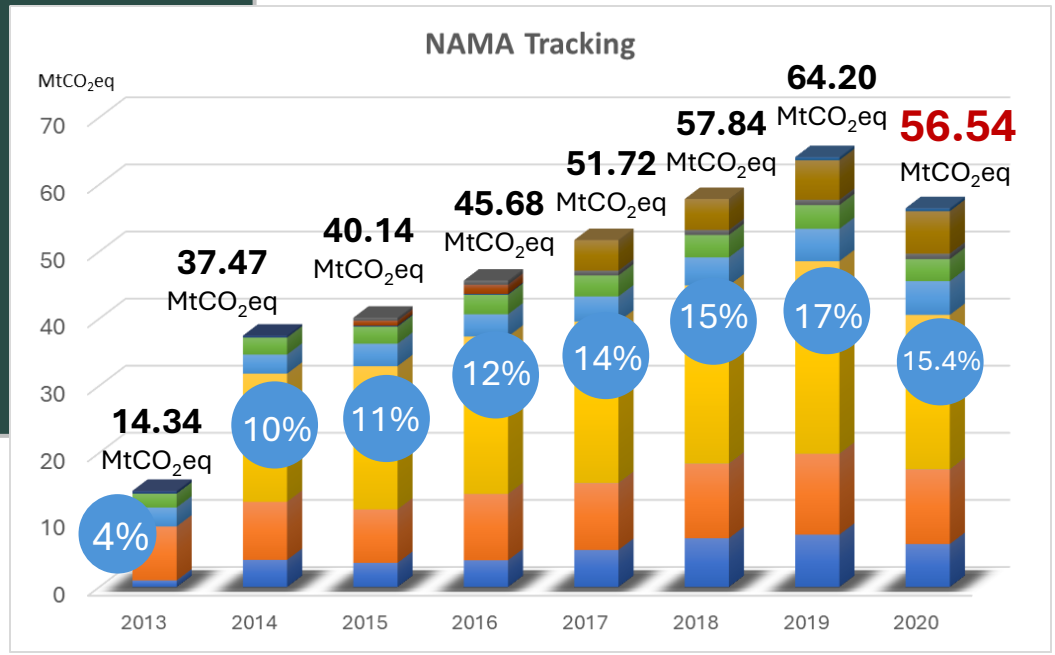
Nationally Appropriate Mitigation Action (NAMA) 2013 - 2020

Target
7-20% reduction from BAU by 2020
(energy & transport sectors)

Measures
- Renewable/alternative energy
- Energy efficiency improvement
- Substitution of bio-fuels for fossil fuels in the transportation sector
- Transport infrastructure development

Result (2020)
56.54 $MtCO_2eq$
15% reduction from BAU





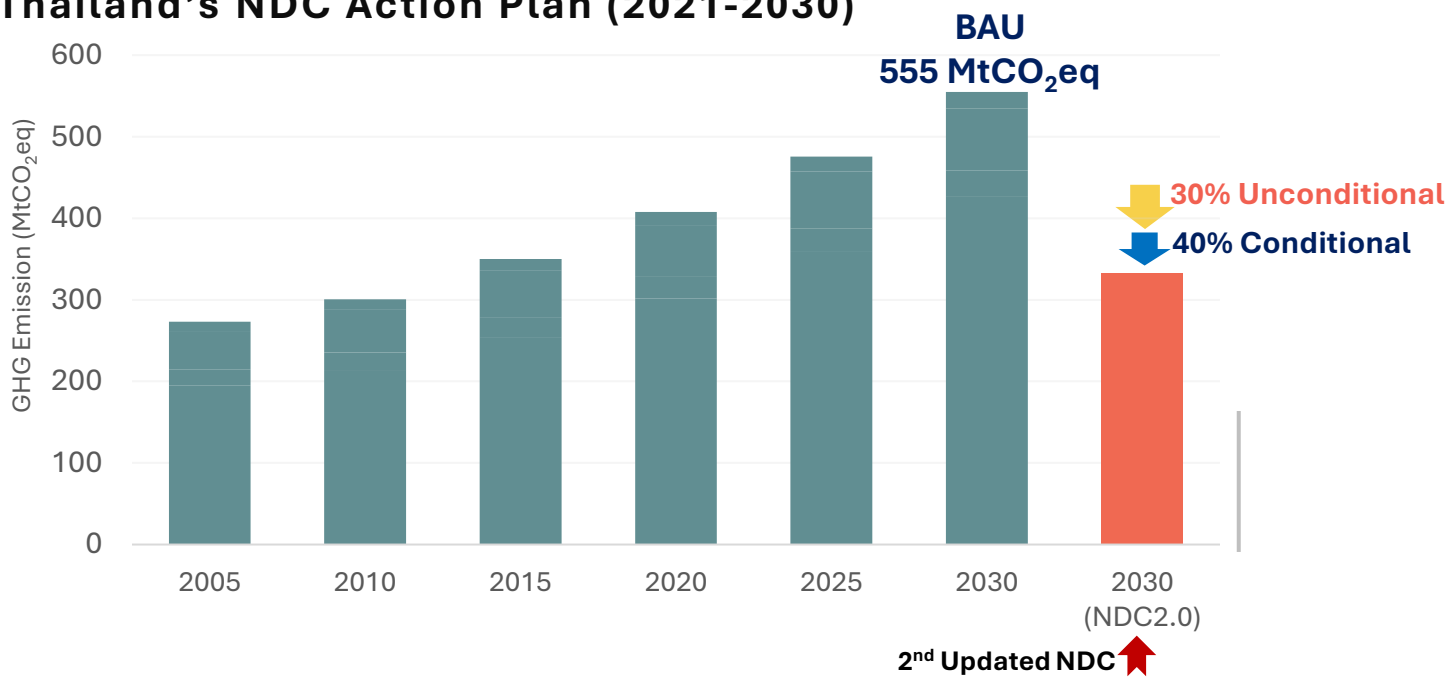
TARGET ACHIEVED

2020
56.54 $MtCO_2eq$
15.4%

Thailand's GHG Mitigation target

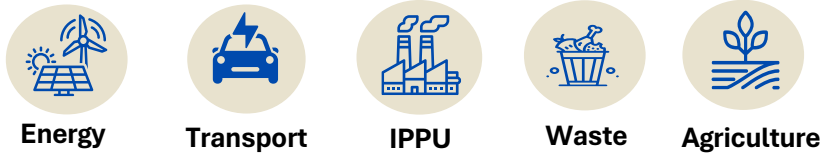
National Determined Contribution (NDC)

Thailand's NDC Action Plan (2021-2030)



To reduce GHG emission 30-40% In economy-wide from BAU by 2030

- The NDC Roadmap established a framework for mitigation measures **5 sectors.**



Submitted 2st NDC : 4 November 2022

The Updated LT-LEDS

- Sets the goals and measures aligned with an increase in global average 1.5-2.0 °C and moving toward carbon neutrality.
- Carbon Neutrality by 2050 and Net Zero Greenhouse Gas Emission by 2065
- Identifying key measures in the sectors of *energy, transport, IPPU, waste, agriculture, and LULUCF, which is the GHG removal sector the country*, for relevant agencies and sectors to use as operational guidelines.

Support Needed and Received

GHG inventory

- Developing and updating country-specific emission factors for some key categories (energy, waste, agriculture, etc.)
- Developing approaches to collect activity data for categories/gases not currently included in the inventory or for upper tiers (F-gases, land-use data, etc.)
- Improving QA/QC procedures
- Capacity building for the electronic reporting in the CRT and CTF

Mitigation

- The energy transition towards renewable sources focusing on renewable energy technologies (such as solar and wind).
- Advanced technology development and transfer (energy storage system (EES), EV, batteries, and infrastructure, smart grid, sensor technology and AI, CCUS, BECCS, etc.)
- Technical support and capacity building to support mitigation actions with advanced technologies
- International financial support mechanisms for purchasing intellectual property rights of clean energy technologies

Support Needed

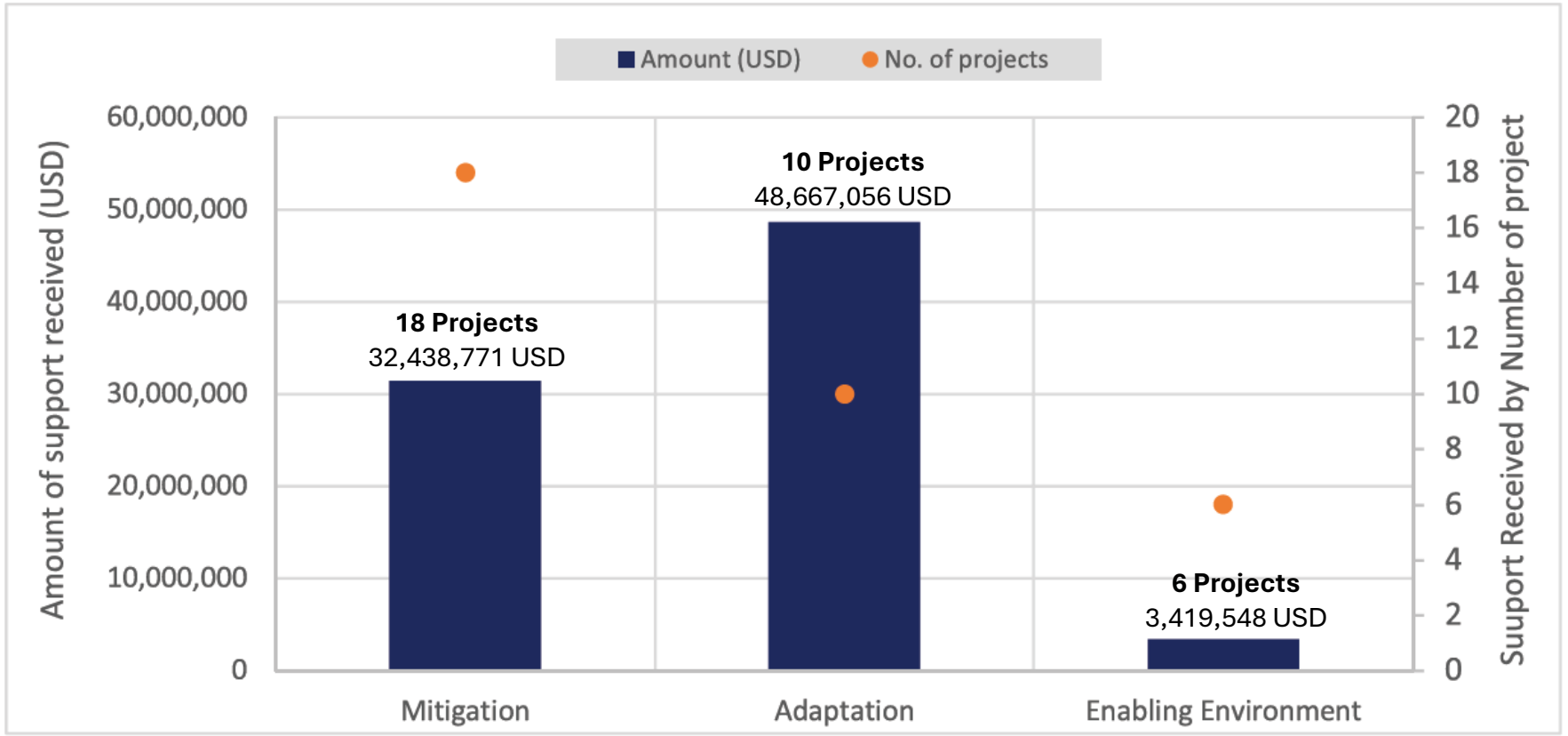
Adaptation

- Database development for forecasting climate change impacts on the ecosystem and natural resources
- Developing a data map showing areas at risk of climate change impacts.
- Capacity building of relevant stakeholders on the National Adaptation Plan's M&E system
- Capacity building of sectoral and subnational agencies to integrate adaptation measures into their plans

Enabling environment

- Research and development in data and technology for climate
- Development of legislation, economic instruments, financial mechanisms, and technical tools to support climate actions.
- Capacity building for relevant stakeholders and raising climate ethic and awareness for all
- Development of Measurement, Reporting and Verification (MRV) and Monitoring and Evaluation (M&E) systems to enhance the transparency of climate action implementation in all levels.

Support Received



Support Needed and Received

Ongoing work and preparations to facilitate the transition to the ETF

- **Inventories for previous submission – 1994**
  - Thailand has limitations in data collection, due to lack of experts and financial support to check historical data for 1990-2000 including 1994
- **Updated Country-specific sources and emission factors**
  - In the agriculture sector, both Tier 1 and Tier 2 methodologies are adopted for estimating GHG emissions. For the Tier 2 approach, Tier 2 activity data and emission factors (EFs), are included in Thailand's BTR1 report
  - In the Waste Sector, Thailand has declared itself in CH4 estimation from Solid Waste Disposal Sites as Tier 2 method in Thailand's BTR1 report. CS-EF for other sectors are under development for reporting in BTR2
- **Values and sources of AD for Inventory**
  - Activity data and emission factor for Energy IPPU Waste Agriculture and LULUCF sectors are reported in the BTR1
- **Developing MRV system for NDC tracking progress** for reporting following CTF template under ETF framework
- **Enhancing QA/QC procedures to improve national GHG inventory and improving activity data collection process using digital platform**
- **Updating Thailand's Greenhouse Gas Emission Inventory (TGEIS)**, an IT tool, to support Common reporting tables (CRT) and Common Tabular Format (CTF) for the electronic reporting

Transition to ETF

THANK YOU