



**Asia-Pacific
Economic Cooperation**

2022/CTI/WKSP8/004

How the Carbon Market Could Contribute to the Growth and Success of the Bio-Circular-Green Economy Model

Submitted by: Thailand



**APEC Capacity Building Initiative on Carbon
Pricing and Carbon Markets Workshop
21 September 2022**



Driving Ambition for Carbon Neutrality



How the Carbon Market could contribute to the growth and success of the BCG economy model

Carbon Market and Innovation Promotion Office

Thailand Greenhouse Gas
Management Organization
(Public Organization)

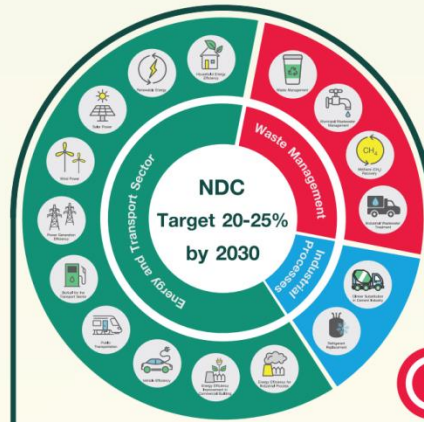
www.tgo.or.th

Thailand's Ambition

2050 : Carbon Neutrality

2065 : Net-Zero GHG Emissions

2030 : NDC 40%



2021

- NDC**
Nationally Determined Contribution Implementing starts

- Submission of LT-LEDS**
Long-term Low Greenhouse Gas Emission Development Strategy Implementing towards achieving net zero GHG emission and Carbon Neutrality within this century

Improve Energy Efficiency and Promote Energy System Transformation through

- Decarbonisation
- Deregulation
- Digitalisation
- Electrification
- Decentralisation

2030

Aims to reduce GHG by 40% with international support

- Increase and Remain Primary Forest
- Regenerate Natural Forest Area
- Increase Economic Forest Area
- Increase and Remain Cropland
- Reduce Biomass Burning

Achievement of CO₂ removals of 120 MtCO_{2eq}

50% share of renewable electricity generation of new power generation capacity

2035

69% share of electric vehicles of new vehicles in the market

2037

2050





CARBON NEUTRALITY

Reduction of GHG emissions in various sectors:

- Energy
- Industrial Processes and Product Use (IPPU)
- Agriculture
- Waste
- Land Use, Land Use Change, and Forestry



Achievement of NET-ZERO GHG Emission while looking forward to enhanced international cooperation and support on finance, technology, and capacity-building to achieve this ambition

Policy/Law	Stakeholder engagement	Technology/Innovation	Finance/Investment
<ul style="list-style-type: none"> ▪ Net Zero Commitments ▪ 20-Year National Strategy /National Reform Plan/ 13th National Economic & Social Development Plan ▪ Climate Change Act ▪ NDC Roadmap on Mitigation /NDC Sectoral Action Plans ▪ BCG Model ▪ Industrial/Agricultural/ Energy/transport Reform Natural Resources and Environmental Conservation 	<ul style="list-style-type: none"> ▪ Public-Private Partnership ▪ Carbon Trading/ Carbon Market Mechanism ▪ Climate Action Network: Awareness raising/Public participation ▪ Eco/sustainable consumption and production ▪ Action plan for GHG emission reduction (Provincial level) Regional/Global Cooperation 	<ul style="list-style-type: none"> ▪ Big Data: Carbon Emission Sources/Sink ▪ Geo-Engineering: Smart Farming, GHGs Removal Technology, Technology for Food Security ▪ Carbon Capture Utilization and Storage ▪ Clean/Green/Renewable Energy: Solar Farm ▪ Electric Vehicles (EV), Hydrogen Vehicles ▪ Smart & Low Carbon Cities 	<ul style="list-style-type: none"> ▪ Green Climate Fund ▪ Clean Technology Fund ▪ Global Environment Facility: GEF ▪ Banking (BOT/SCB): Loan/Green finance/CC finance ▪ Government budget: Green Infrastructure and Environment ▪ Private sector/ CSR ▪ Incentives (BOI) 

THAILAND'S BIO-CIRCULAR-GREEN ECONOMY (BGC) MODEL



Bioeconomy

Involves the production of renewable biological resources and the conversion of these resources into value added products



Circular economy

Aims at reusing and recycling resources



Green economy



Determines to keep economy, society and the environment in balance, leading to sustainable development



FOOD AND AGRICULTURE



MEDICAL AND WELLNESS



ENERGY, MATERIAL AND BIOCHEMICAL



TOURISM AND CREATIVE ECONOMY

BIODIVERSITY



CULTURAL DIVERSITY

01
Policy and
Management

02
Science,
Technology and
Innovation

03
Participation
from ALL Sectors

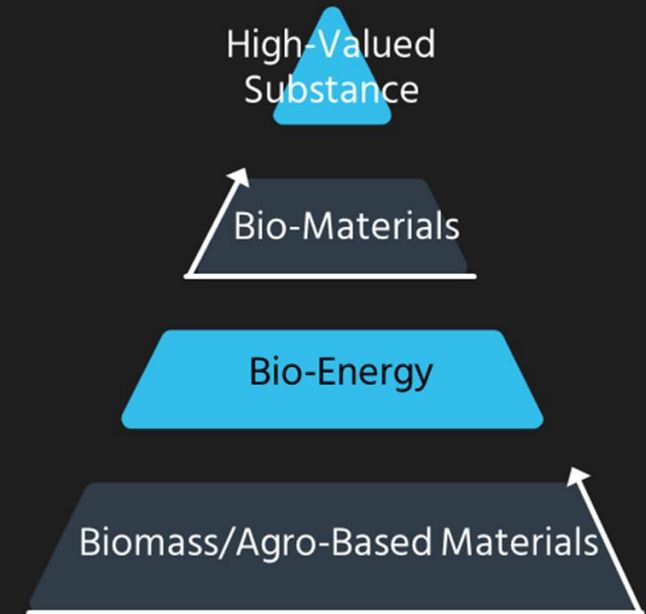
ENERGY, MATERIALS AND BIOCHEMICALS



GROWTH OPPORTUNITY

- Biomaterials and functional ingredients from biorefinery application
- High performance battery and energy storage
- Community-based power plant with advanced energy storage system and blockchain-based smart microgrid
- Renewable energy production: RDF (refuse-derived fuel) and biogas
- Petrochemical industry

VALUE CREATION



Ref: NSTDA

MATERIALS AND BIOCHEMICALS

- Worldwide market value expected to reach 487 billion USD by 2024
- Strategy to increase value of biomass and farm commodities by turning into functional ingredients, bioactive compounds and building blocks for chemicals and high value biochemicals
- 8.36 million tons of biomass or agro-waste from agriculture & food sector in Thailand could be turning into raw material of RDF

ENERGY

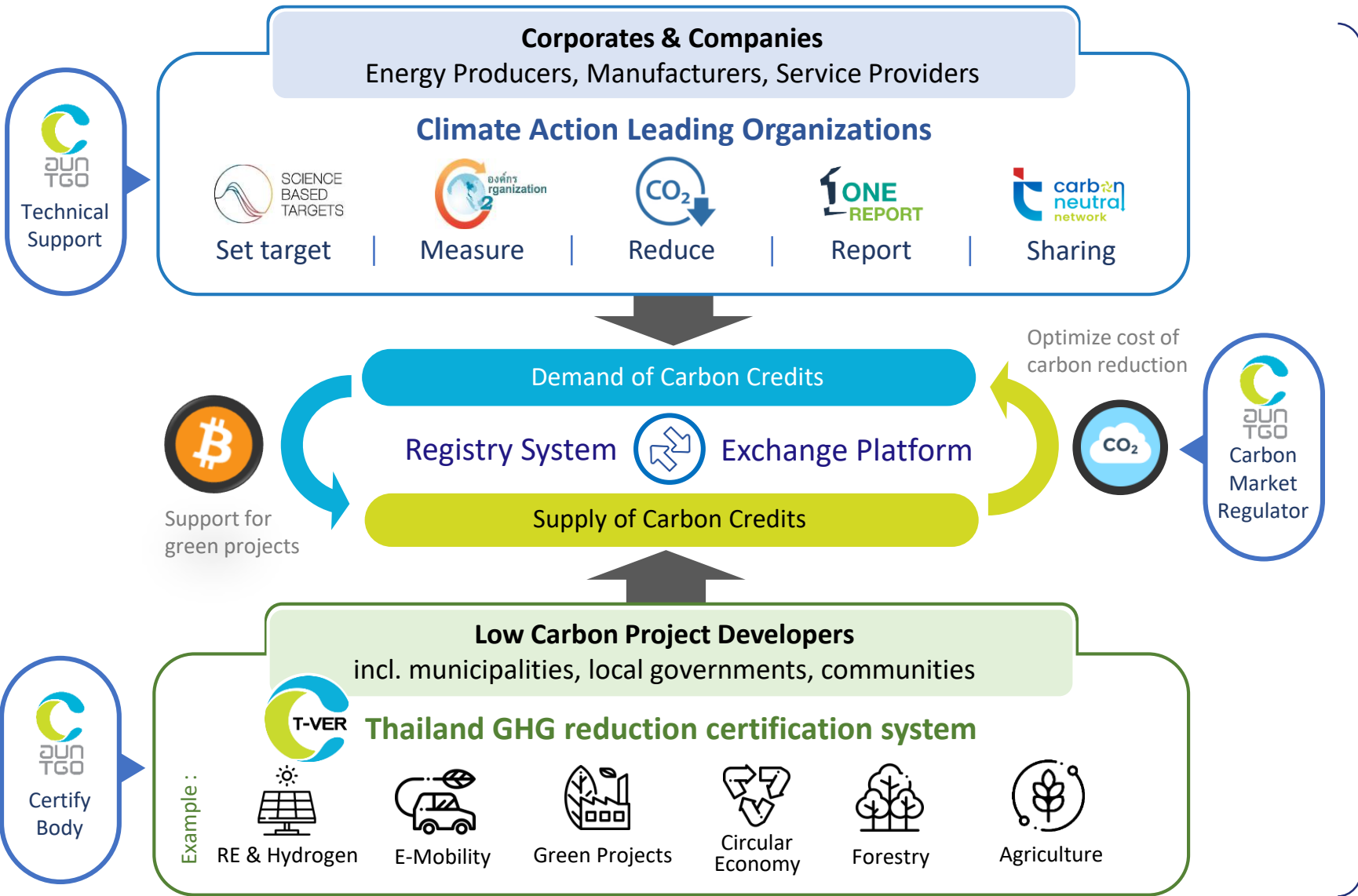
- 60% of total energy consumption are imported
- 16.5% of total energy consumption are from renewable source, 2030 target is 30%
- Enough biomass to meet 30% renewable energy target
- Increase the proportion of new electricity generation with renewable energy not less than 50%



271 members



NDC LT-LEDS



Incentives

Under consideration



Economic Incentives



Investment Promotion



Value-added from carbon trading



Climate awards

Driving Ambition for Carbon Neutrality

“ TGO Service Platforms ”

Climate Action Capacity Building & Communication

Climate Action Communication

- TGO Activity Promotion
- GHG Situation
- Climate Action Communication
- Climate Action Knowledge Hub

CAATGO Climate Action Academy

- Climate Action Leader Forum
- Training Programs
- Education Programs
- Conferences & Seminars

Carbon Neutral Compliance Platform



Carbon Footprint Portfolio Reporting Standards

Area-Based, Organization, Product, Service, Event, Personal



T-VER Credit Certifier



International Crediting JCM Technical Body



GHG Reduction



Nature Based Solutions



Carbon Removal Technologies



Thailand Carbon Market Regulator



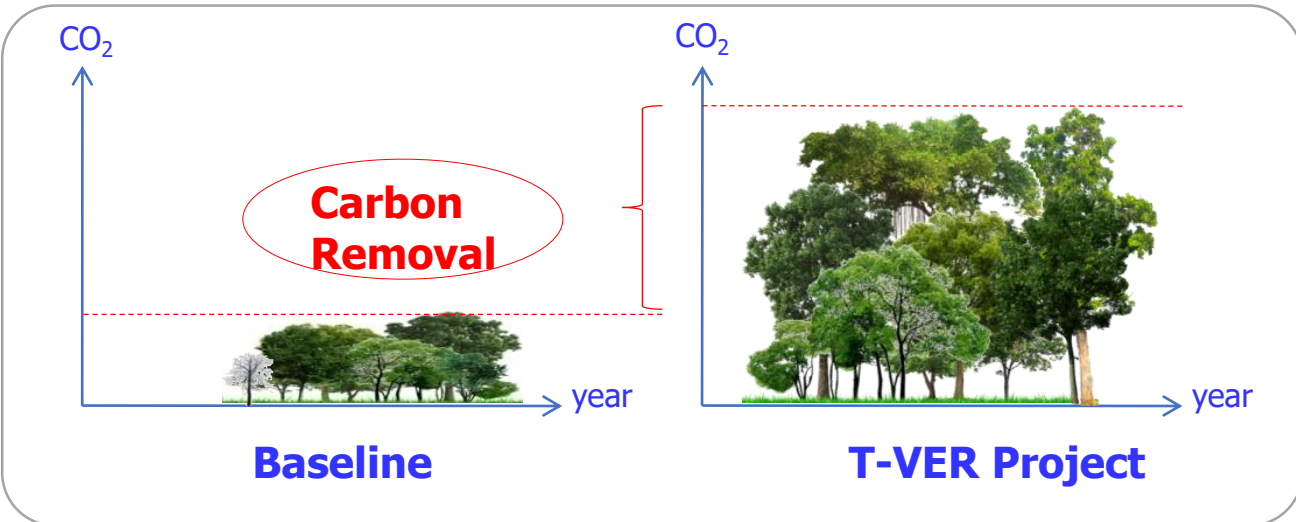
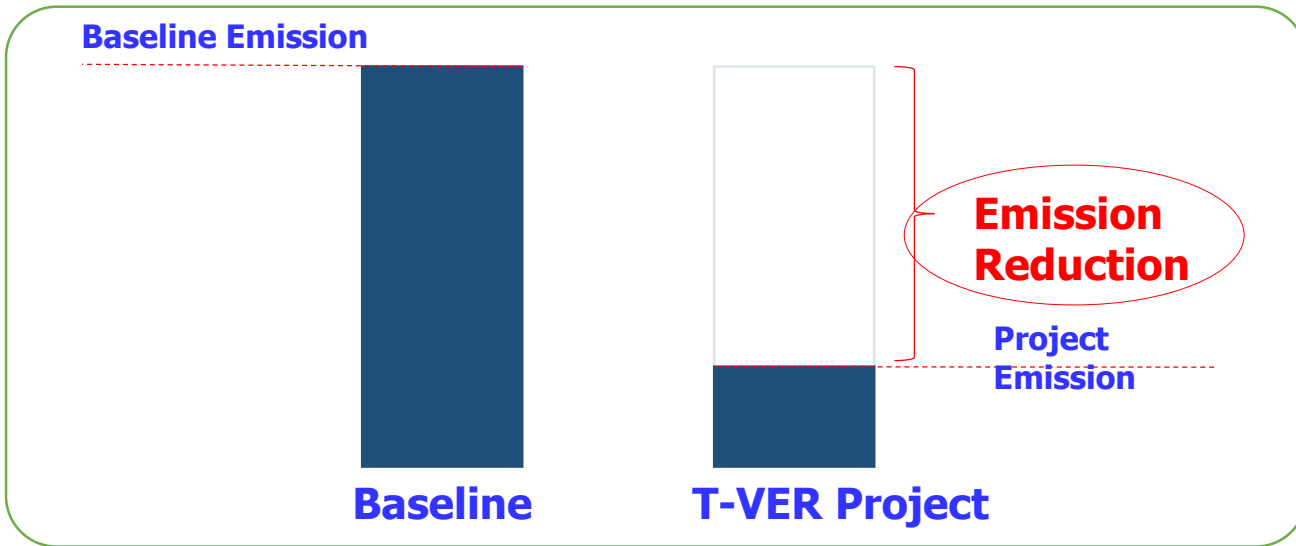
Public-Private Partnership Platform

Carbon Neutral Driving Policy & Technical Support

- NDC Achievement Tracking
- Promotion Policy Recommendations



Carbon Credits of T-VER



Emissions reduction/removal from **projects** situated in Thailand

- 1 **Expected GHG emission reduction/removal Upon registration with TGO**
- 2 **Thailand Verified Emission Reductions (TVERs) issued by TGO**

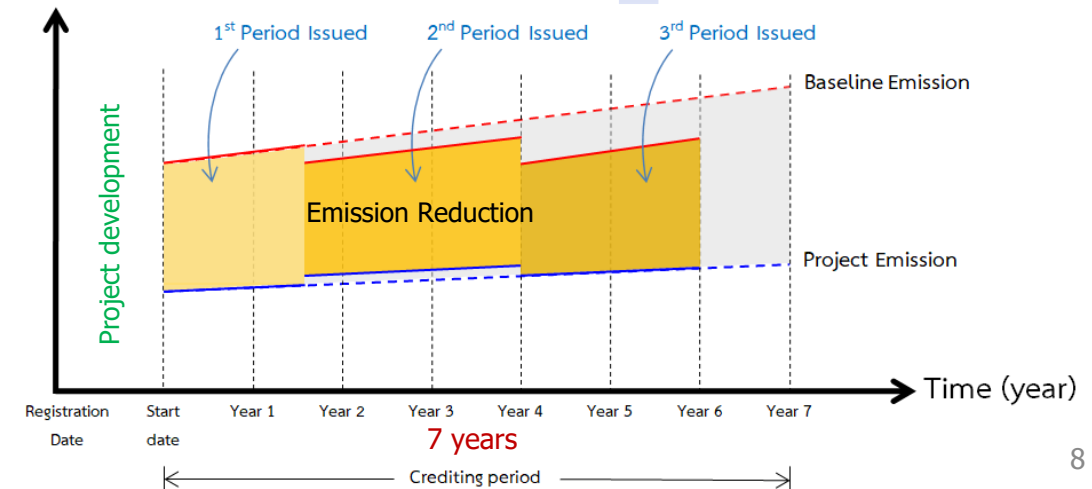


... tCO₂eq/year
7-10 year Period

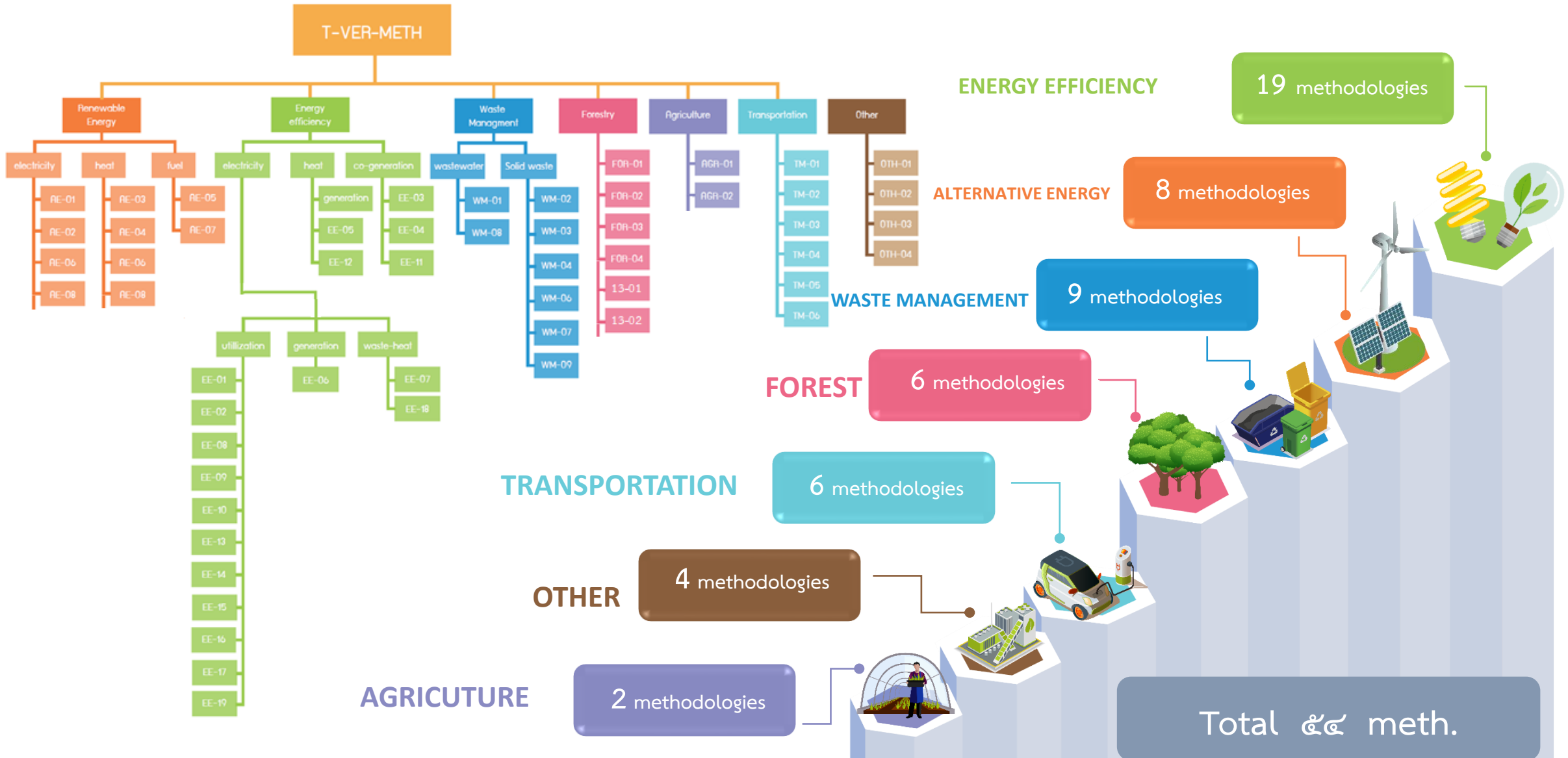


... tCO₂eq

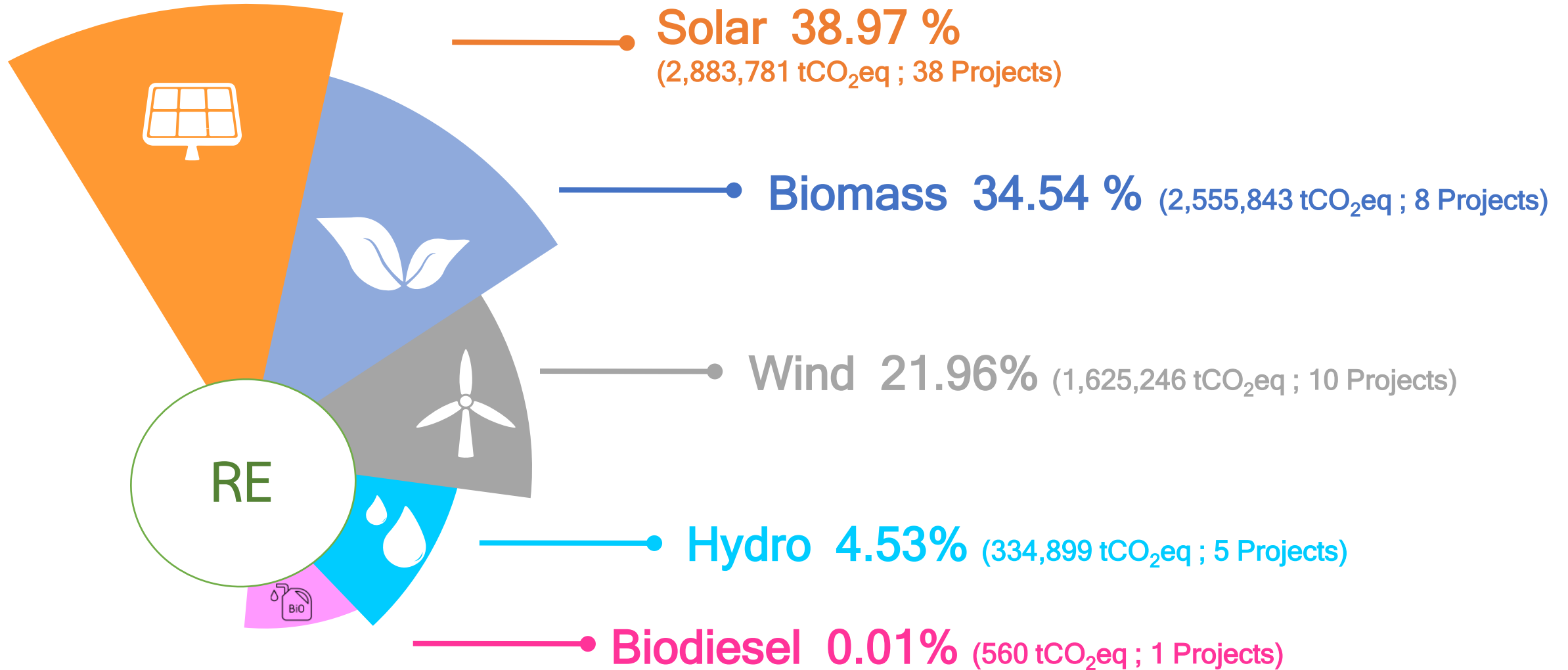
GHG Emission (tCO₂eq)



T-VER Methodology



Issued T-VER projects (RE = 62 projects, 7,400,329 tCO₂eq)



01

Transferring between Credit holders



03

Achievement of environmental criteria and reporting organization information



02

Carbon Offset / Carbon Neutral in Thailand



04

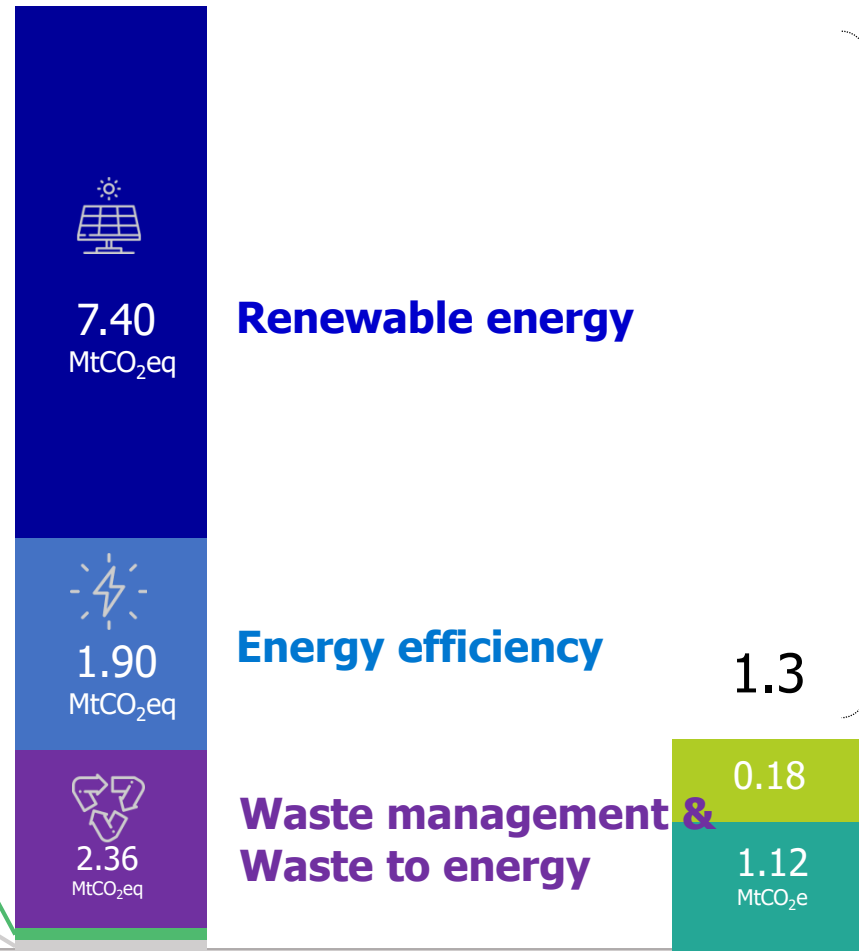
Creation of a good image for the organization

T-VER credits and trading

Investment
128+ Billion Baht



11.74 MtCO₂eq



Forestry
 2,241 tCO₂eq

Others
 81,598 tCO₂eq

Issued credits

MtCO₂eq



Volume of trading

MtCO₂eq

10.44+ MtCO₂e



Future of the Carbon Market Foundation



Organizations that comm to be carbon neutral

Exchange Platform



Other incentives ?



Carbon Offset & Neutral

EXPECTED OUTCOME OF BCG MODEL IN 2027

Sustainability of resources and the environment



- 1/4 reduction in natural resource consumption
- 20% reduction of greenhouse gas emissions
- add at least 0.5 million ha of forest area

Socioeconomic prosperity



- improve income inequality of 10 million people
- reduce the proportion of undernourished population to 5%
- increase health inequality of at least 300,000 people
- increase the number of energy self-sufficient communities by 20%.

Sustainable economic growth



- economic value of the BCG industries up by 1 trillion THB
- 20% increase in the proportion of high-value products and services
- at least 50% more income to the grassroots

Self-reliance



- at least 1 million workers are retrained
- 1,000 new startups and IDEs
- improve negative technology balance of payment by at least 20%
- 20% reduction in medical and health supplies import



Thank you for your attention



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SCAN ME

