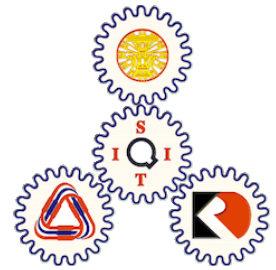




IGES 公益財団法人
地球環境戦略研究機関



11th International Research Network for Low Carbon Societies (LCS-RNet)

Thailand NDC Roadmap

**ENEA, Rome
October 17, 2019**

**Sirindhorn International Institute of Technology
Thammasat University
Thailand**

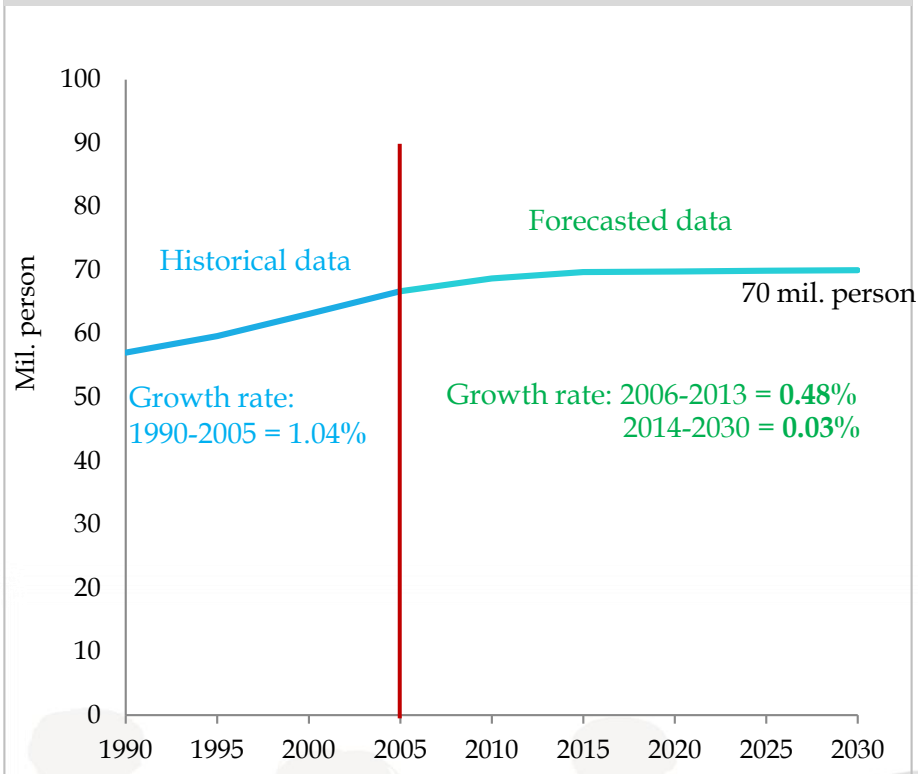


ESTIMATED SOCIO-ECONOMIC IN 2030

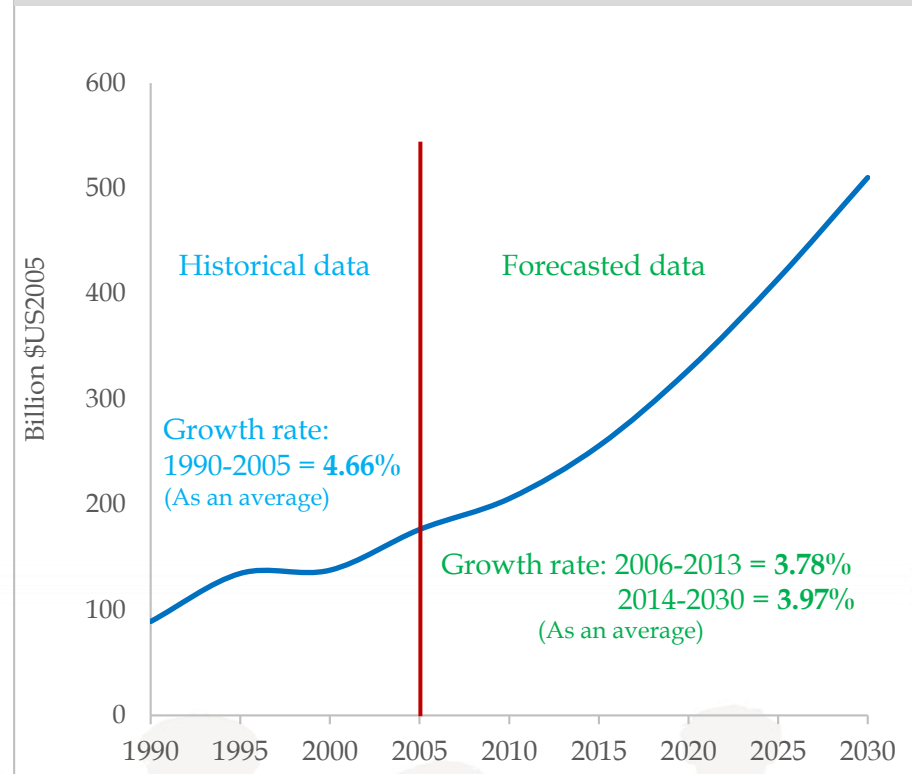
	2005	2030	2030/2005
Population (Mil. Person)	66,698	70,043	1.1
No. of Household	19,016,784	30,288,247	1.6
GDP (Bill. US2005)	176,402	510,404	2.9
Per capita GDP (US2005/Person)	2,645	7,287	2.8
Industry value added (Mil. USD)	169,834	573,759	3.4
Primary industry (Mil. USD)	18,090	57,361	3.2
Secondary industry (Mil. USD)	60,876	200,899	3.3
Tertiary industry (Mil. USD)	90,868	315,499	3.5

SOCIO-ECONOMIC ASSUMPTIONS

Population



GDP

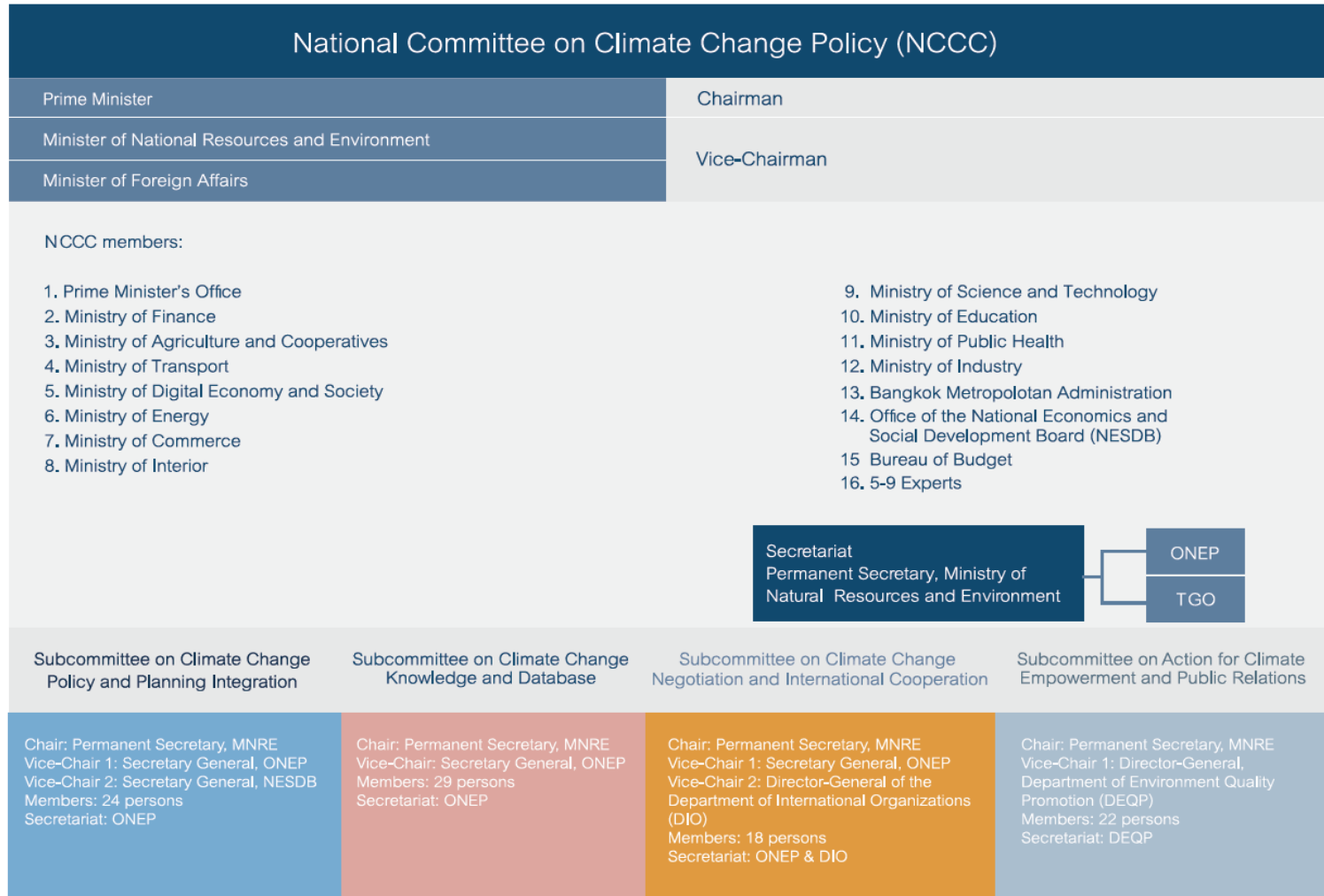


SUMMARY INFORMATION ON THAILAND'S NDC MITIGATION MEASURES

Sector	Measure	Description
Energy and transport		Thailand's NDC Roadmap on Mitigation 2021-2030 was formulated based on the following plans already approved or in the pipeline for approval by the Cabinet. The example are as follows: <ul style="list-style-type: none"> National Economic and Social Development Plans Climate Change Marder Plan B.E.2558-2593 (2015-2050) Power Development Plan B.E.2558-2579 (2015-2036) Thailand Smart Grid Development Master Plan B.E. 2558-2579 (2015-2036) Energy Efficiency Plan B.E.2558-2579 (2015-2036) Alternative Energy Development Plan B.E.2558-2579 (2015-2036) Master Plan for Sustainable Transport System and Mitigation of Climate Change Impacts National Industrial Development Master Plan B.E.2555-2574 (2012-2031) National Waste Management Master Plan B.E. 2559-2564 (2016-2021) Thailand Transport System Development Strategy 20 years B.E 2560-2579 (2017-2036) Environmental Quality Management Plan B.E. 2560-2564 (2017-2021)
• Power generation	<ul style="list-style-type: none"> Energy efficiency improvement Substitution of RE 	
• Manufacturing industry	<ul style="list-style-type: none"> Energy efficiency improvement Substitution of RE 	
• Transportation	<ul style="list-style-type: none"> Energy efficiency improvement Substitution of RE 	
• Buildings	<ul style="list-style-type: none"> Energy efficiency improvement 	
• Residential	<ul style="list-style-type: none"> Energy efficiency improvement Substitution of RE 	
IPPU		
• Cement industry	<ul style="list-style-type: none"> Substitution of clinker substance 	
• Consumption of Halocarbons and Sulphur Hexafluoride	<ul style="list-style-type: none"> Substitution of refrigerant substance 	
Waste		
• Waste	<ul style="list-style-type: none"> Waste management 	
• Wastewater	<ul style="list-style-type: none"> Methane recovery from industrial wastewater Clean technology Municipal wastewater management 	

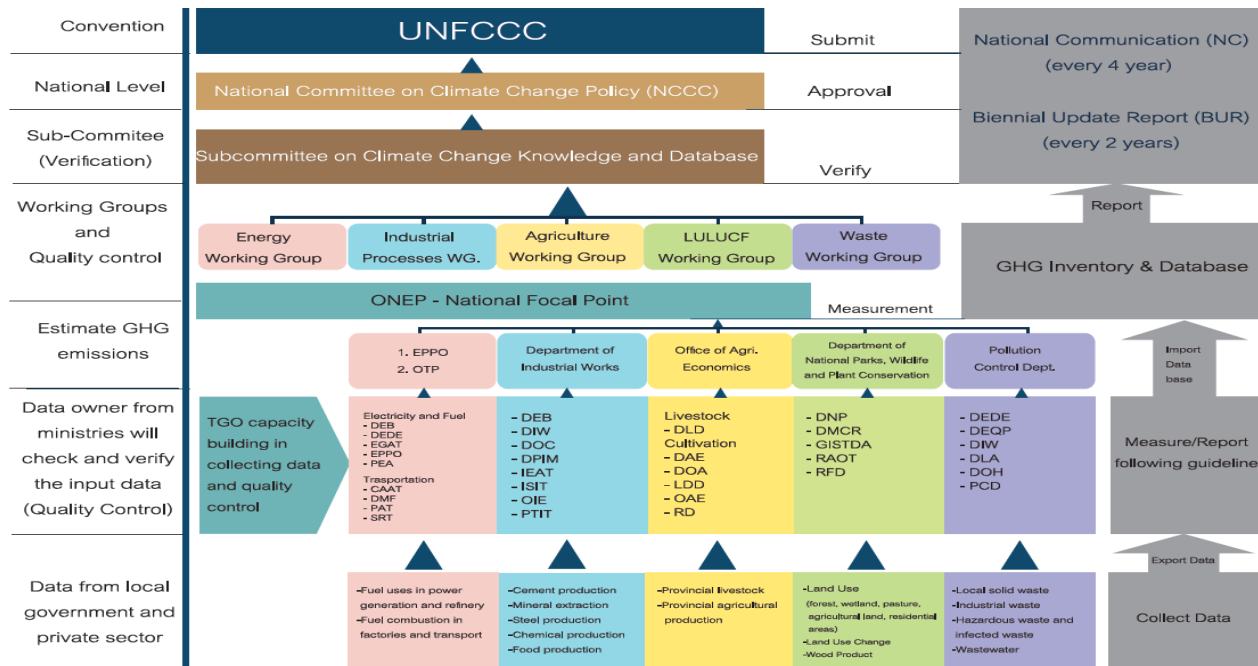
Source: Thailand's Nationally Determined Contribution Roadmap on Mitigation 2021-2030, 2017

STRUCTURE OF THE NATIONAL COMMITTEE ON CLIMATE CHANGE POLICY



Sourec: Office of Natural Resources and Environmental Policy and Planning (ONEP)

SUMMARY INFORMATION ON THAILAND'S NDC MITIGATION MEASURES

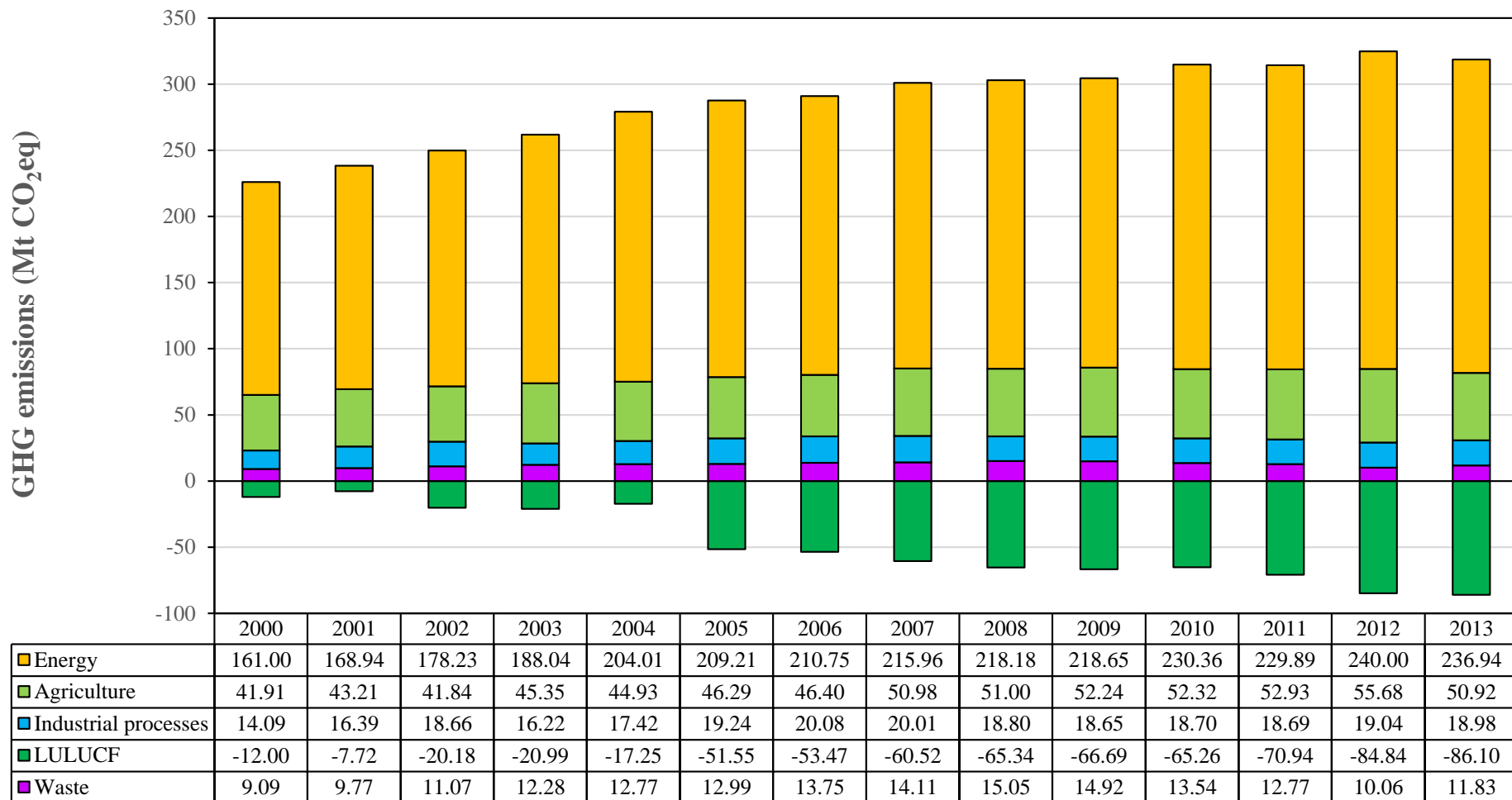


Source: Office of Natural Resources and Environmental Policy and Planning (ONEP)

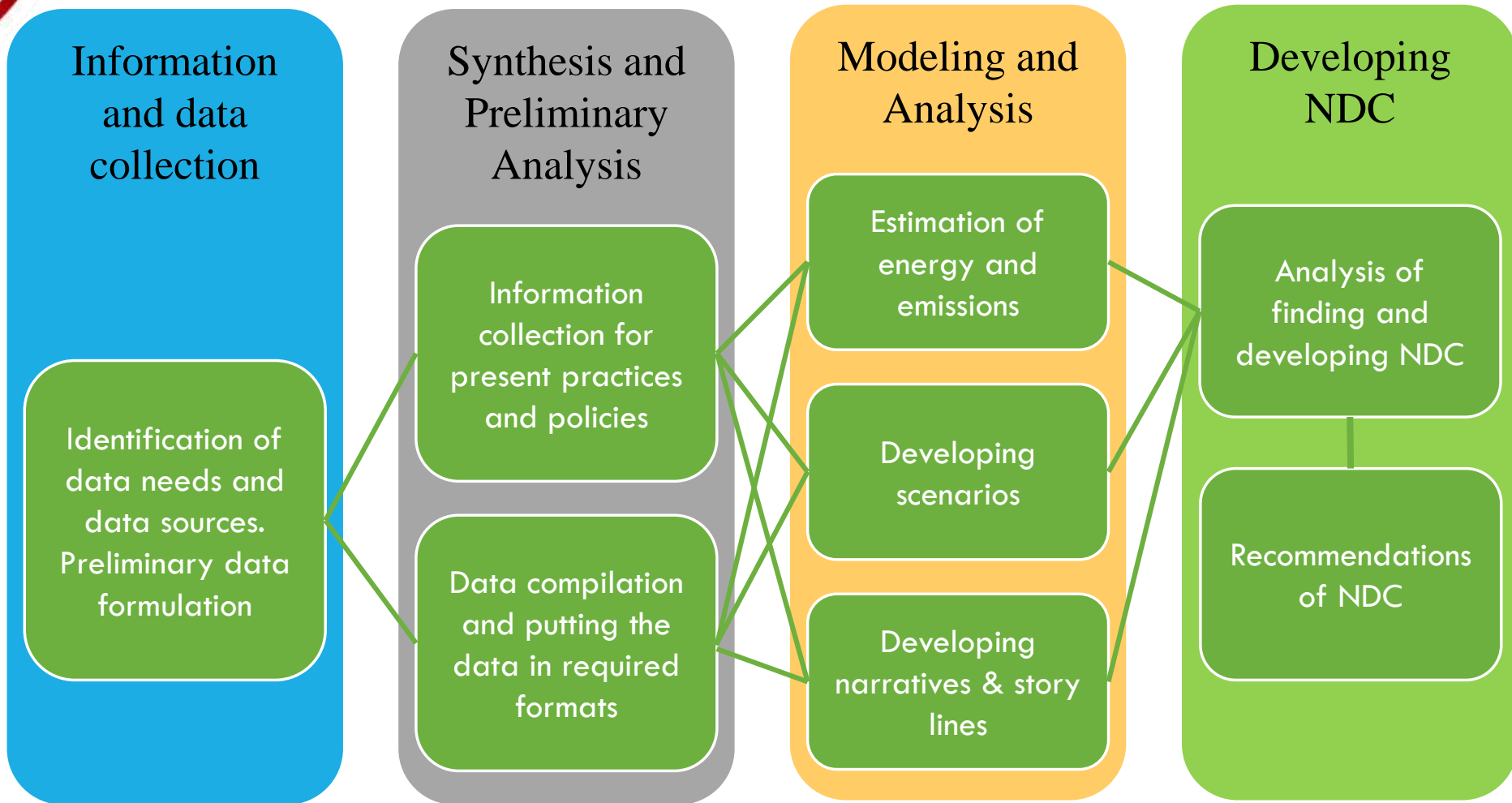
CAAT	= The Civil Aviation Authority of Thailand	IEAT	= Industrial Estate Authority of Thailand
DAE	= Department of Agricultural Extension	ISIT	= Iron and Steel Institute of Thailand
DEB	= Department of Energy Business	LDD	= Land Development Department
DEDE	= Department of Alternative Energy Development and Efficiency	OAE	= Office of Agricultural Economics
DEQP	= Department of Environmental Quality Promotion	OIE	= Office of Industrial Economics
DIW	= Department of Industrial Works	ONEP	= Office of Natural Resources and Environmental Policy and Planning
DLA	= Department of Local Administration	OTP	= Office of Transport and Traffic Policy and Planning
DLD	= Department of Livestock Development	PAT	= Port Authority of Thailand
DMCR	= Department of Marine and Coastal Resources	PCD	= Pollution Control Department
DMF	= Department of Mineral Fuels	PEA	= Provincial Electricity Authority
DNP	= Department of National Parks, Wildlife and Plant Conservation	PTIT	= Petroleum Institute of Thailand
DOA	= Department of Agriculture	RAOT	= Rubber Authority of Thailand
DOC	= Department of Customs	RD	= Rice Department
DOH	= Department of Health	RFD	= Royal Forest Department
DPIM	= Department of Primary Industries and Mines	RID	= Royal Irrigation Department
EGAT	= Electricity Generating Authority of Thailand	SRT	= State Railway Authority of Thailand
EPPO	= Energy Policy and Planning Office		
GISTDA	= Geo-Informatics and Space Technology Development Agency (Public Organization)		



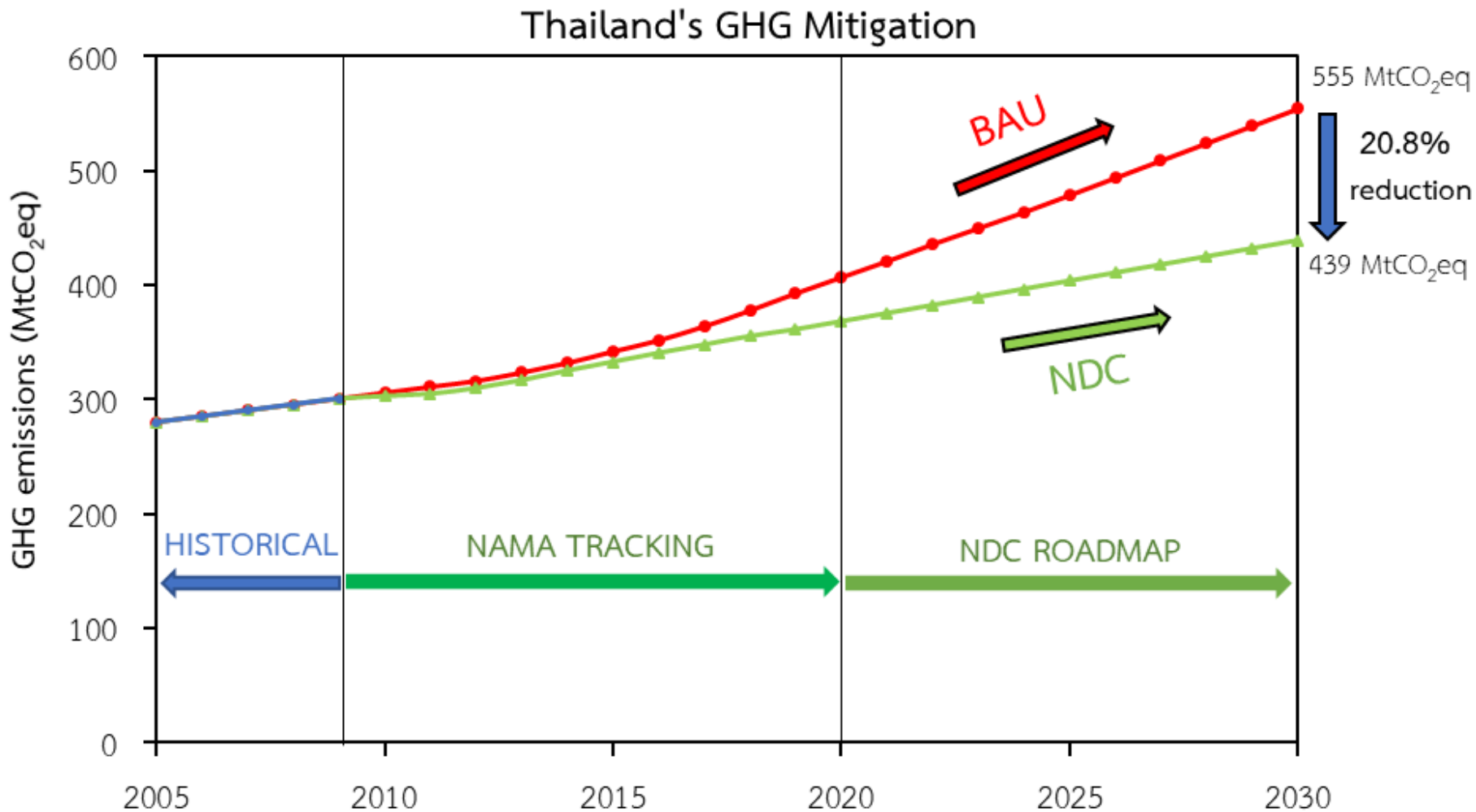
THAILAND INVENTORY



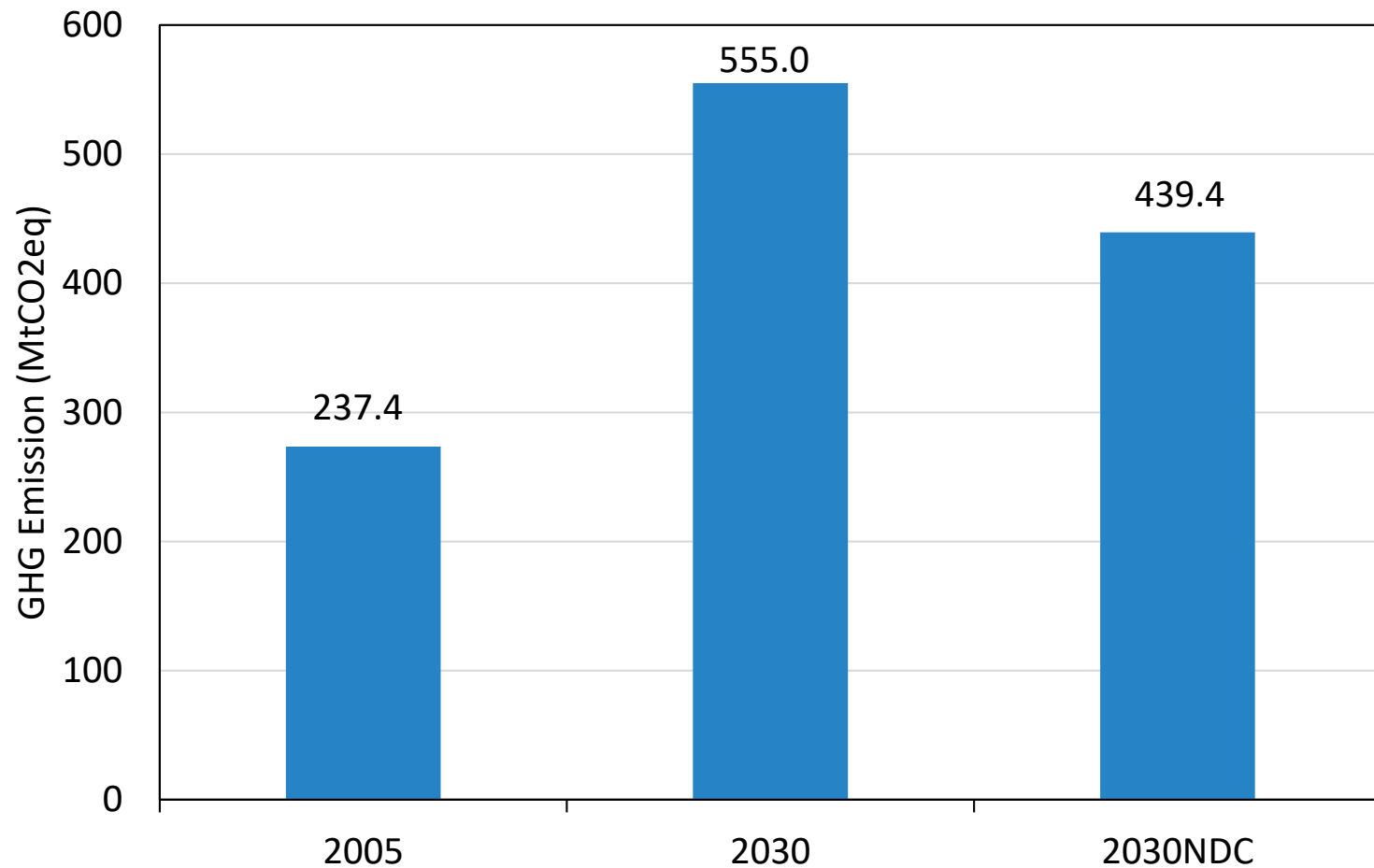
THAILAND'S NDC ROADMAP



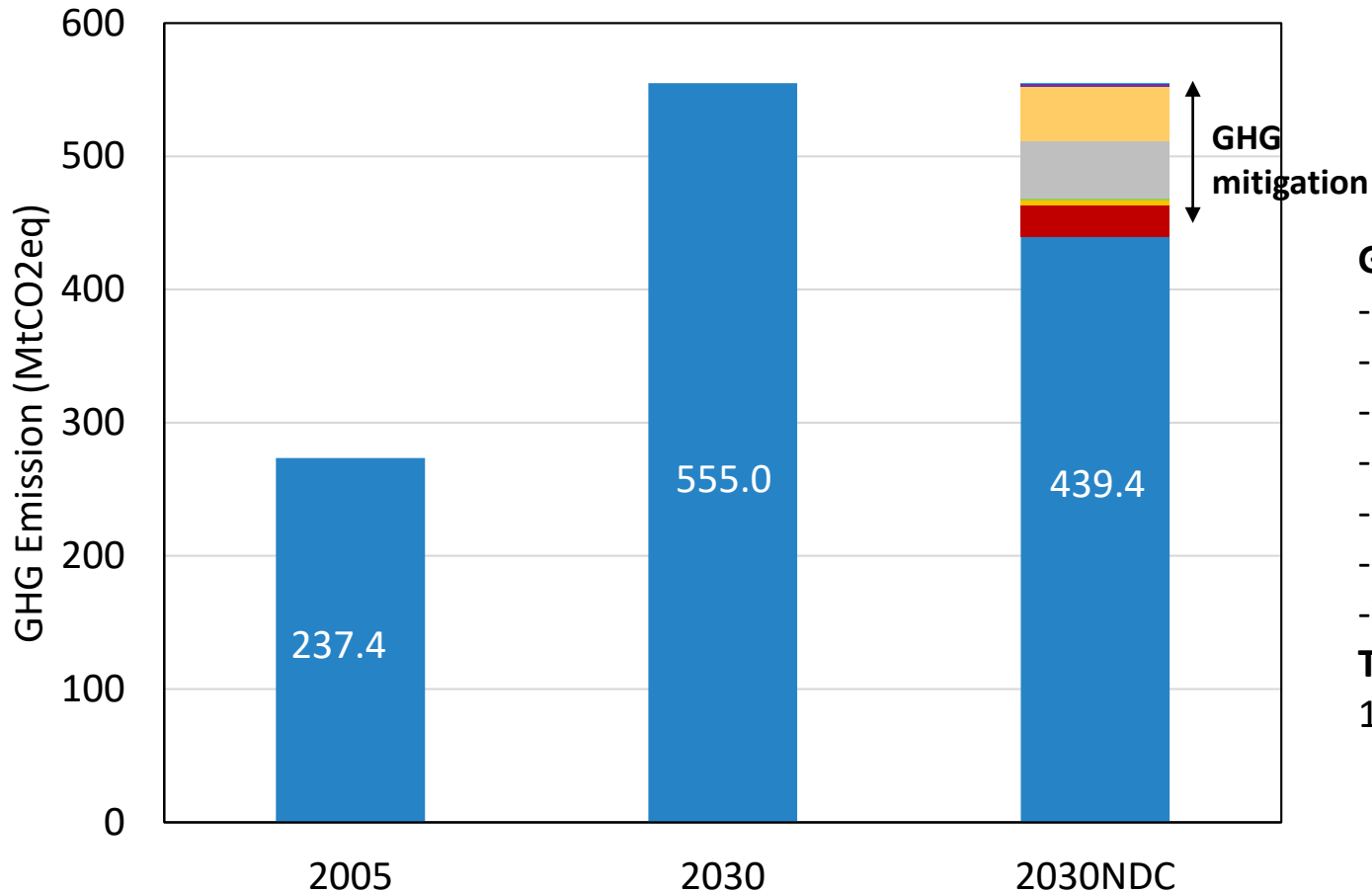
THAILAND'S GHG MITIGATION: NAMA 2020 AND NDC 2030



THAILAND'S GHG EMISSION AND MITIGATION: NDC 2030



THAILAND'S GHG EMISSION AND MITIGATION: NDC 2030



GHG mitigation

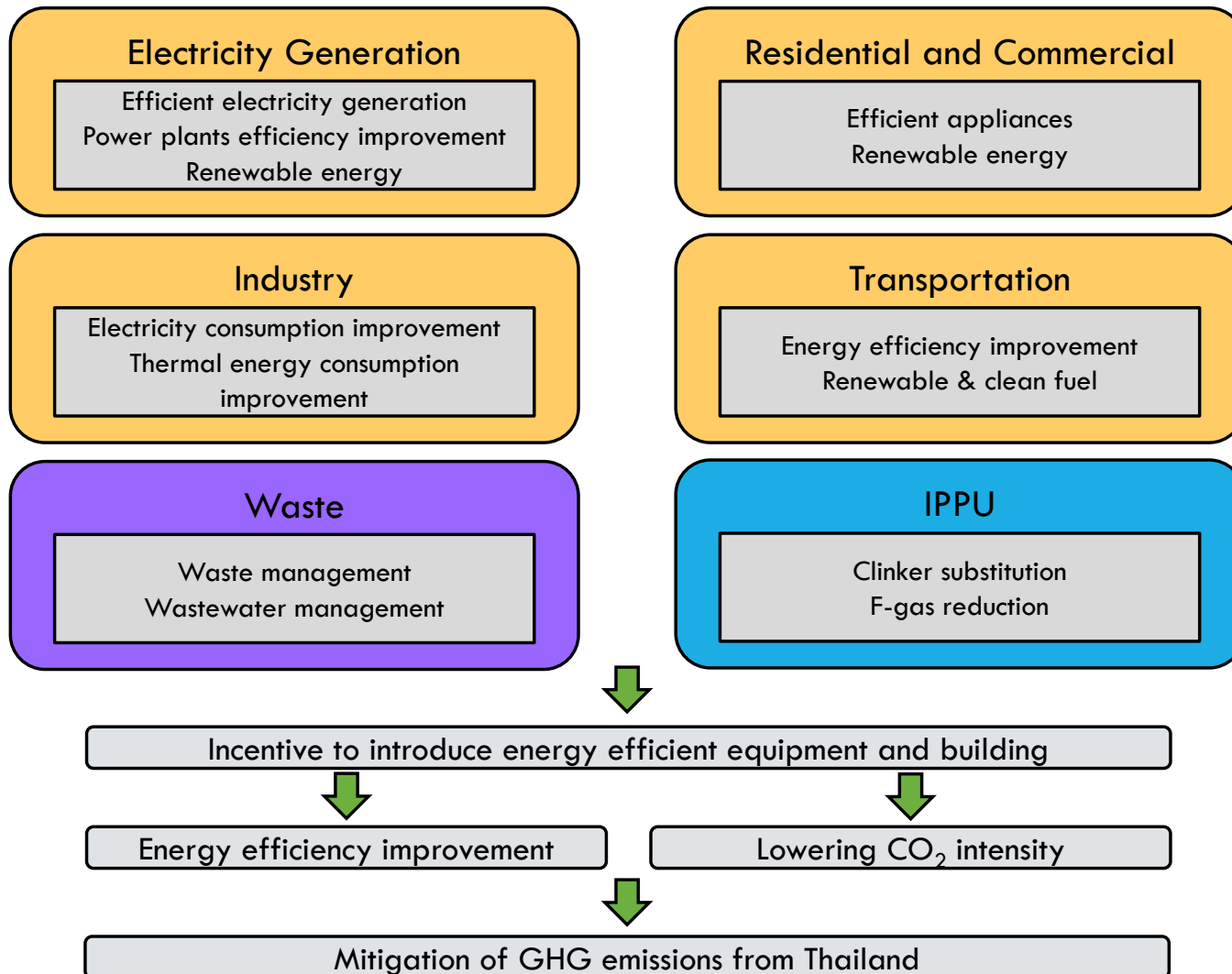
- Power 24 MtCO_{2eq}
- Industry 43 MtCO_{2eq}
- Transport 41 MtCO_{2eq}
- Residential 4 MtCO_{2eq}
- Commercial 1 MtCO_{2eq}
- IPPU 0.6 MtCO_{2eq}
- Waste 2 MtCO_{2eq}

Total GHG mitigation

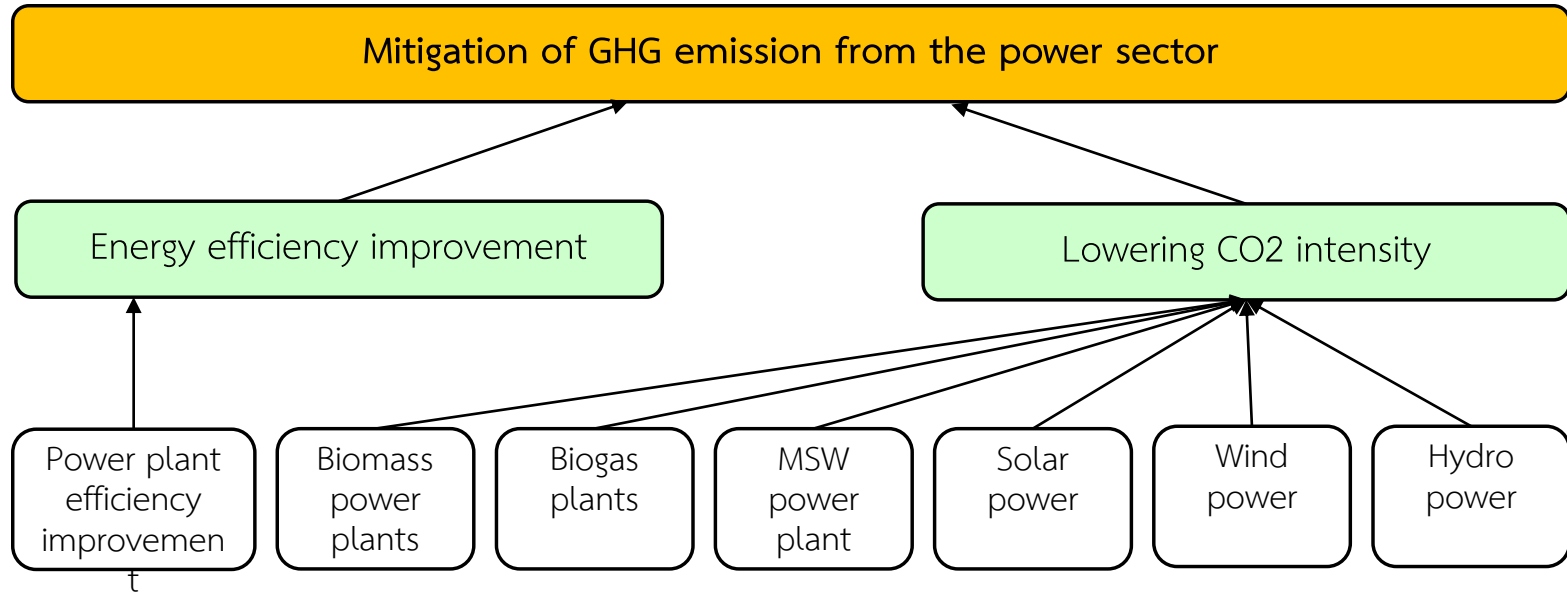
115.6 MtCO_{2eq}



POLICY PACKAGE FOR THAI NDC VISION 2030



MITIGATION MEASURES AND POLICIES FOR POWER SECTOR



MITIGATION MEASURES AND POLICIES FOR BUILDING SECTOR

Mitigation of GHG emission from the building sector

Energy efficiency improvement

Lighting system
(T5, LED, etc.)

Cooling system
(Efficient Refrigerator)

Air conditioning system
(COP5, COP8)

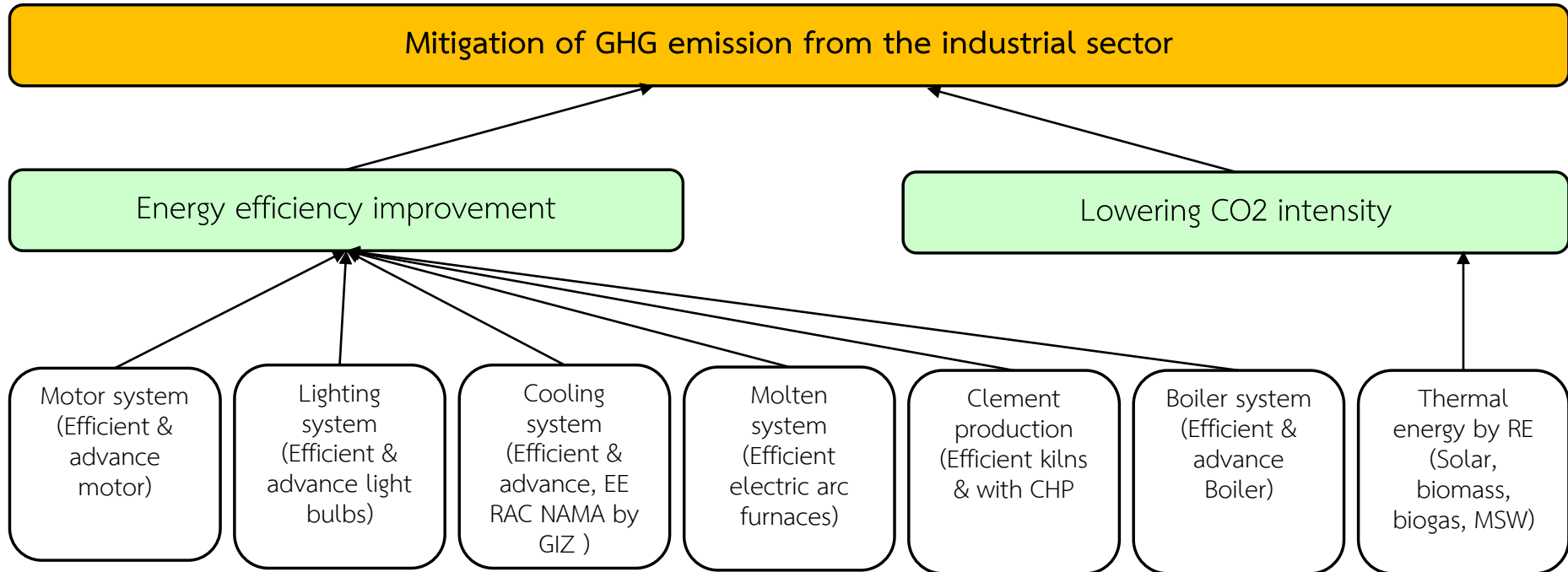
Cooking system
(Efficient electric stove)

Other appliances
(TVs, Laptops, etc.)

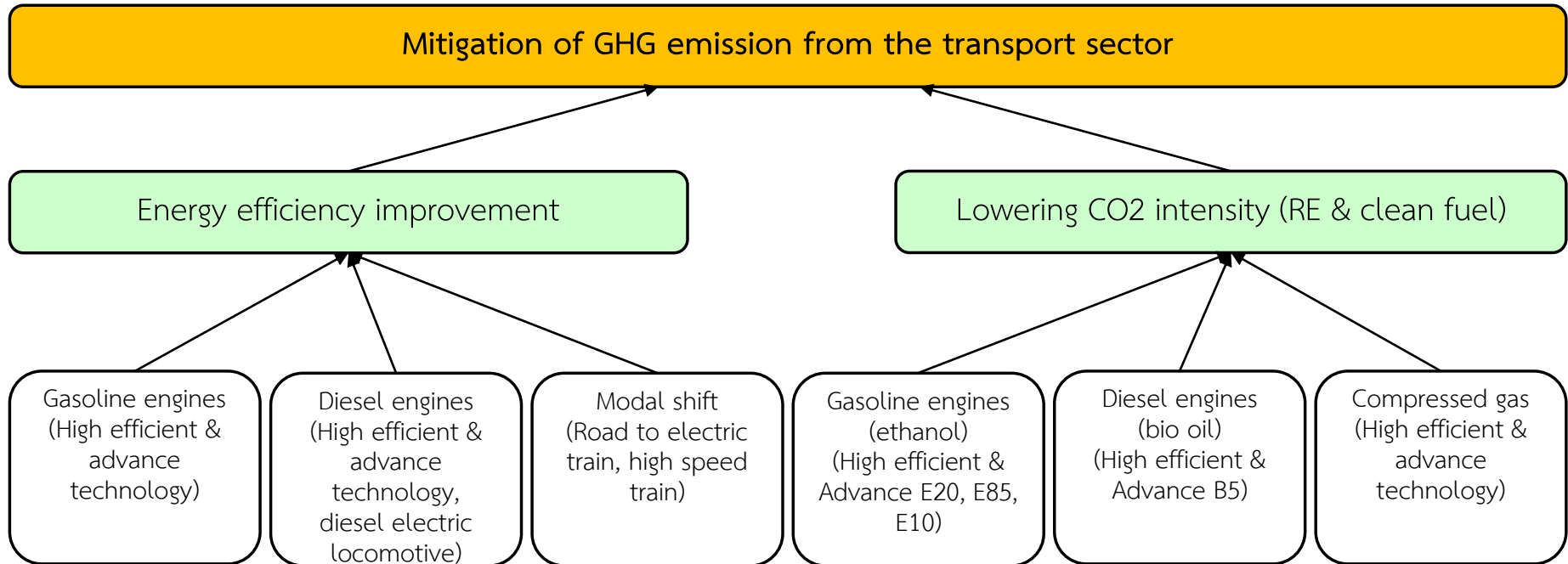
Office equipment
(Efficient office equipment)

Heating appliances
(Efficient heater)

MITIGATION MEASURES AND POLICIES FOR INDUSTRIAL SECTOR



MITIGATION MEASURES AND POLICIES FOR TRANSPORT SECTOR



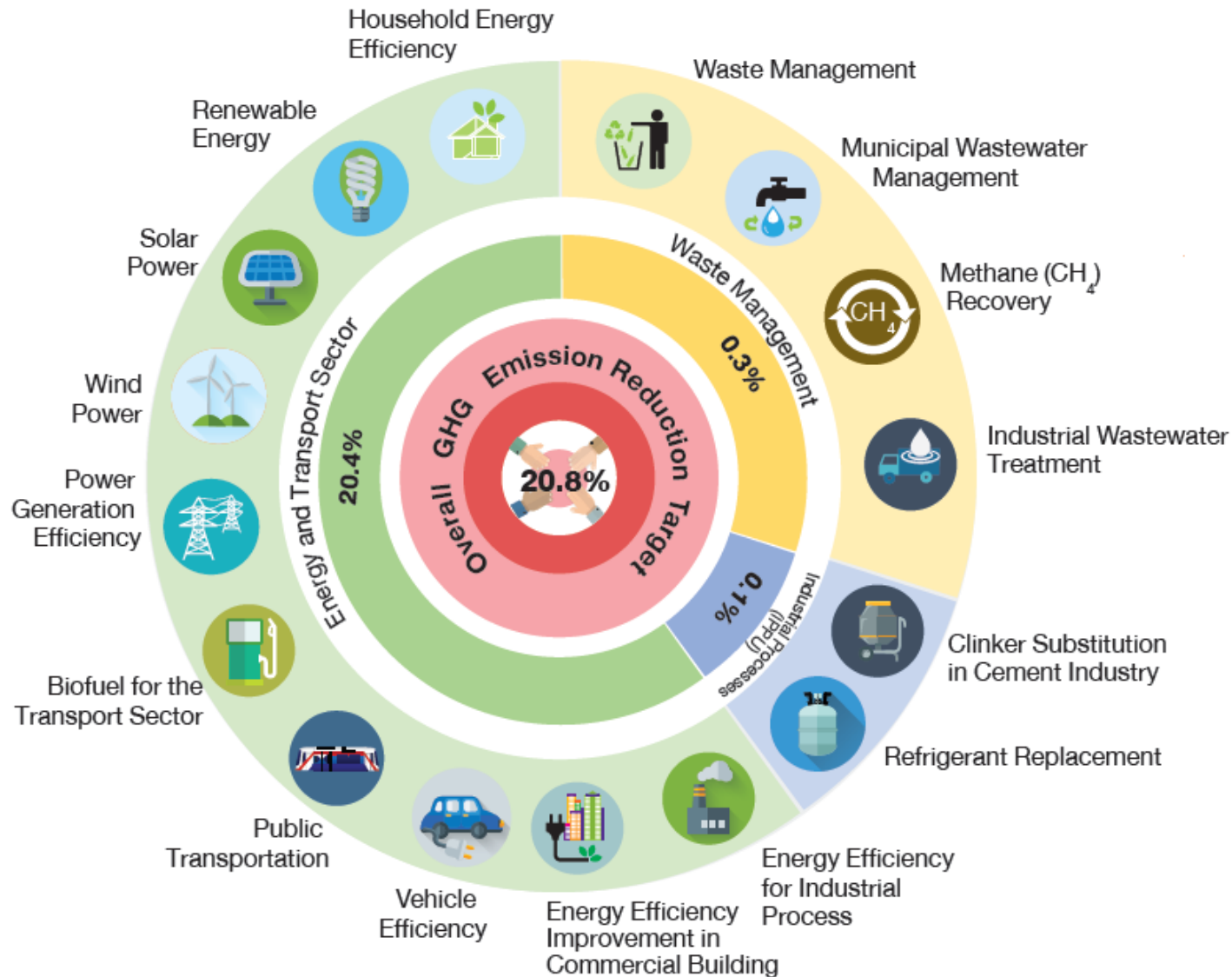
NDC MEASURES/POLICIES

	2030
Energy sector	113.00
Power sector	24.00
1 Efficient electricity generation	6.00
2 Renewable energy	18.00
Residential sector	4.00
3 Efficient appliances	2.79
4 Renewable energy	1.21
Commercial sector	1.00
5 Efficient appliances	1.00
Industrial sector	43.00
6 Energy consumption improvement	11.00
7 Renewable energy	72.00
Transport sector	41.00
8 Energy efficiency improvement	31.00
9 Renewable & clean fuel	10.00

	2030
Waste sector	2.00
Waste management	1.30
10 Waste reduction	
Wastewater management	0.70
11 Biogas from industrial wastewater	
12 Other industrial wastewater management	
13 Domestic wastewater management	

	2030
IPPU sector	0.60
14 Clinker substitution	0.30
15 F-gas reduction	0.30

THAILAND NDC ROADMAP



THAILAND NDC ROADMAP

