

UPDATE on Thailand's Clean Energy Policy & Plan Toward Carbon Neutrality

"The Joint Meeting of Four Expert Groups on
the APEC Energy Working Group and
Associated Workshop"

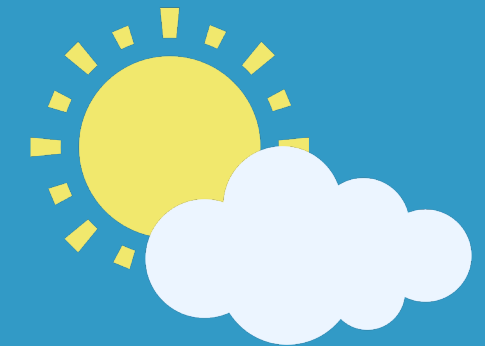
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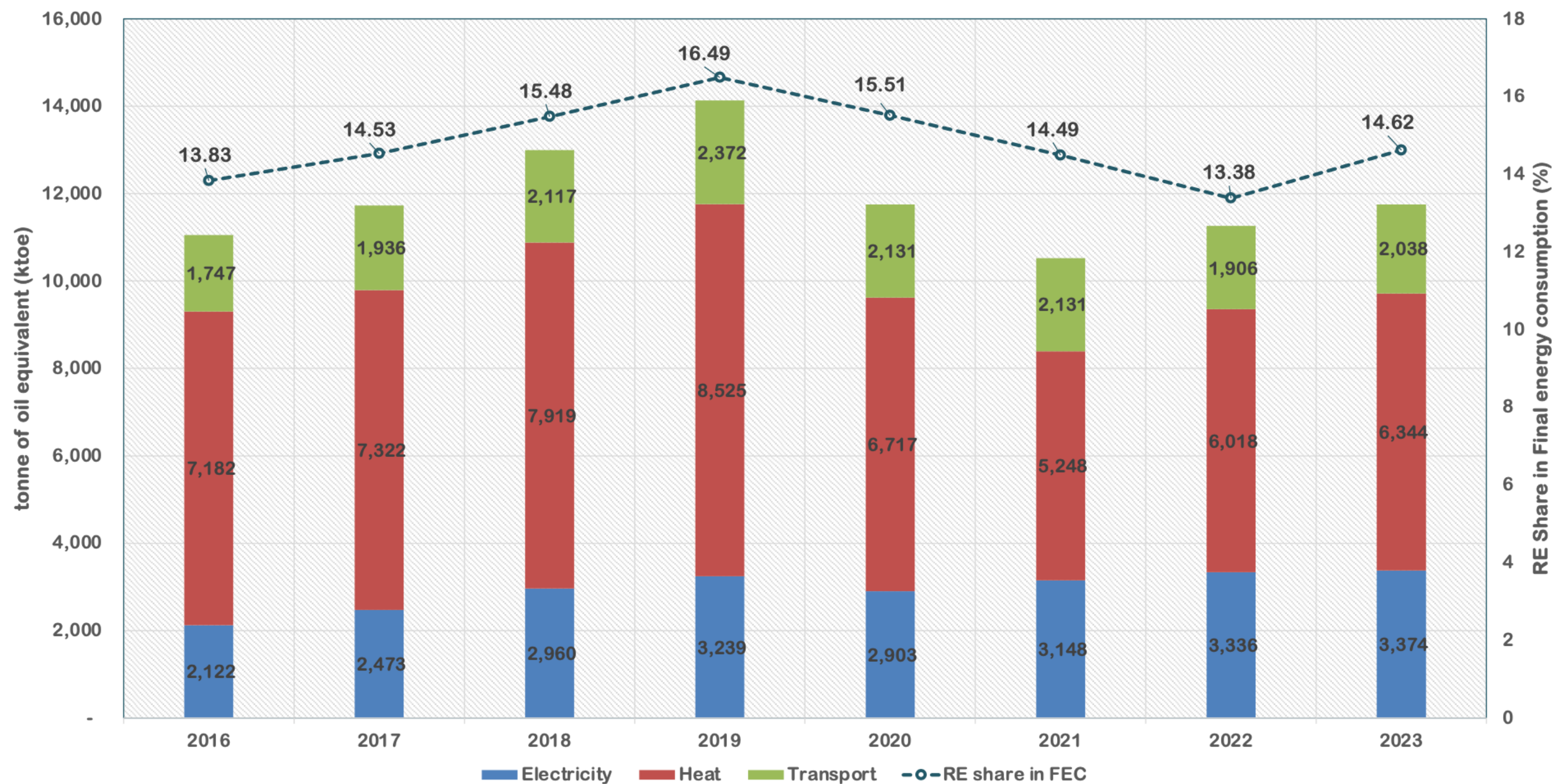




RE Ratio in Thailand



AEDP2018 (2018 – 2037) :Target: 30% RE share in final energy consumption





Current RE Status in Thailand



Statistic of Renewable energy use according to AEDP2018 (2018 – 2037)



Electricity

	Target 2037 (MW)	Status 2023 (MW)
Solar PV 	12,139	3,2449.32
Floating PV 	2,725	45.00
Biomass 	5,790	3,869.81
Wind 	2,989	1,543.56
Biogas 	1,565	559.04
Wastes 	975	411.24
Hydro 	3,228	3,132.09
Geothermal 	-	0.30



43.55%

29,411

12,810.37



Heat

Solar PV 

Biomass 

Biogas 

Wastes 

Biomethane 

Target 2037 (ktoe)

Status 2023 (ktoe)

100

8.97

23,000

5,457.00

1,283

678.00

495

200.00

2,023

-



23.58%

26,901

6,343.97



Transport

Ethanol 

Biodiesel 

Pyrolysis oil 

Target 2037 (ML/d)

Status 2023 (ML/d)

7.50

3.53

8.00

4.39

0.53

-



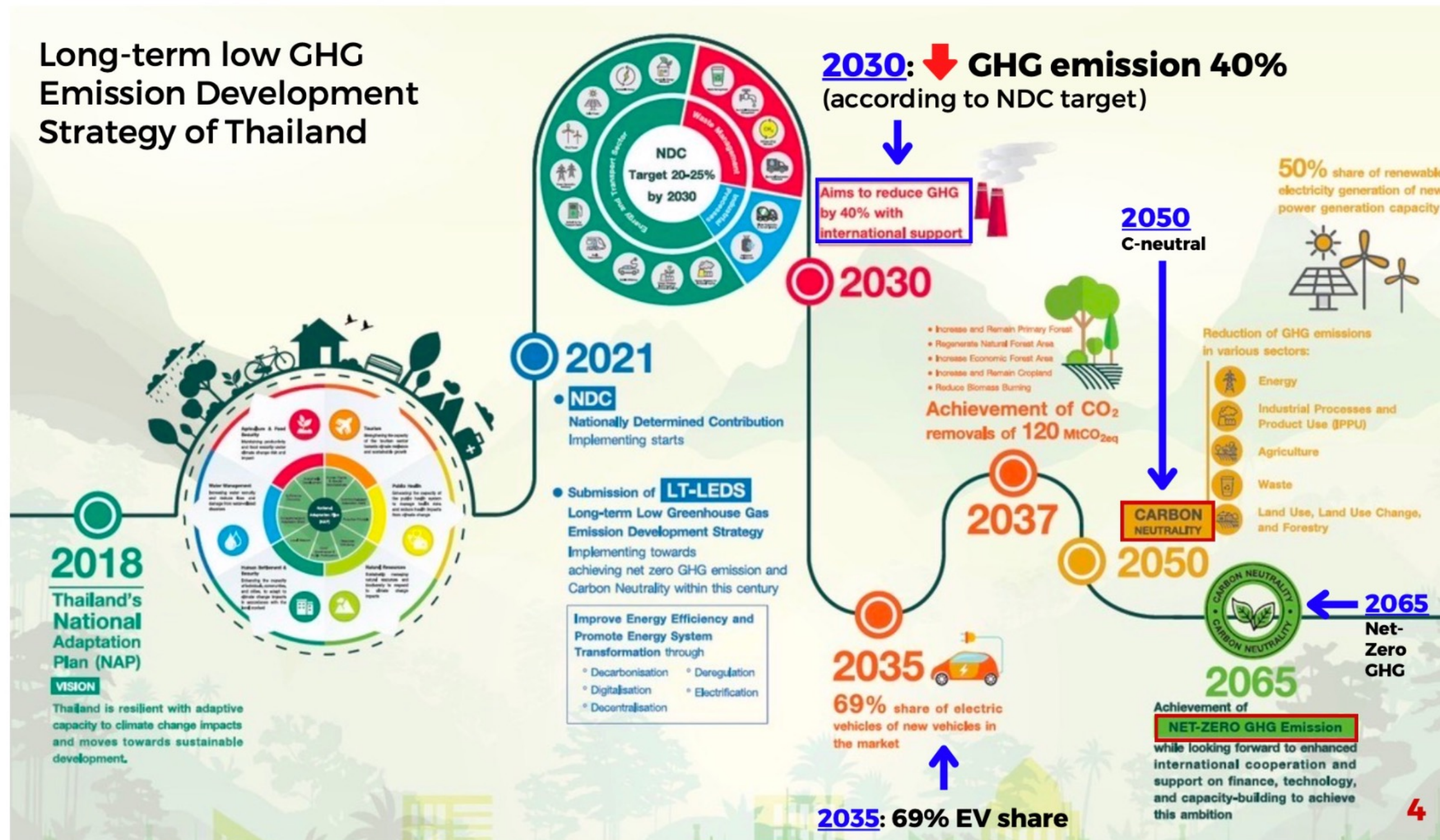
49.42%

16.03

7.92

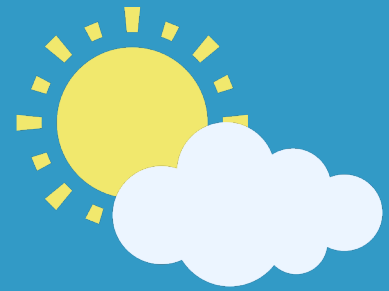


GHG Mitigation strategy

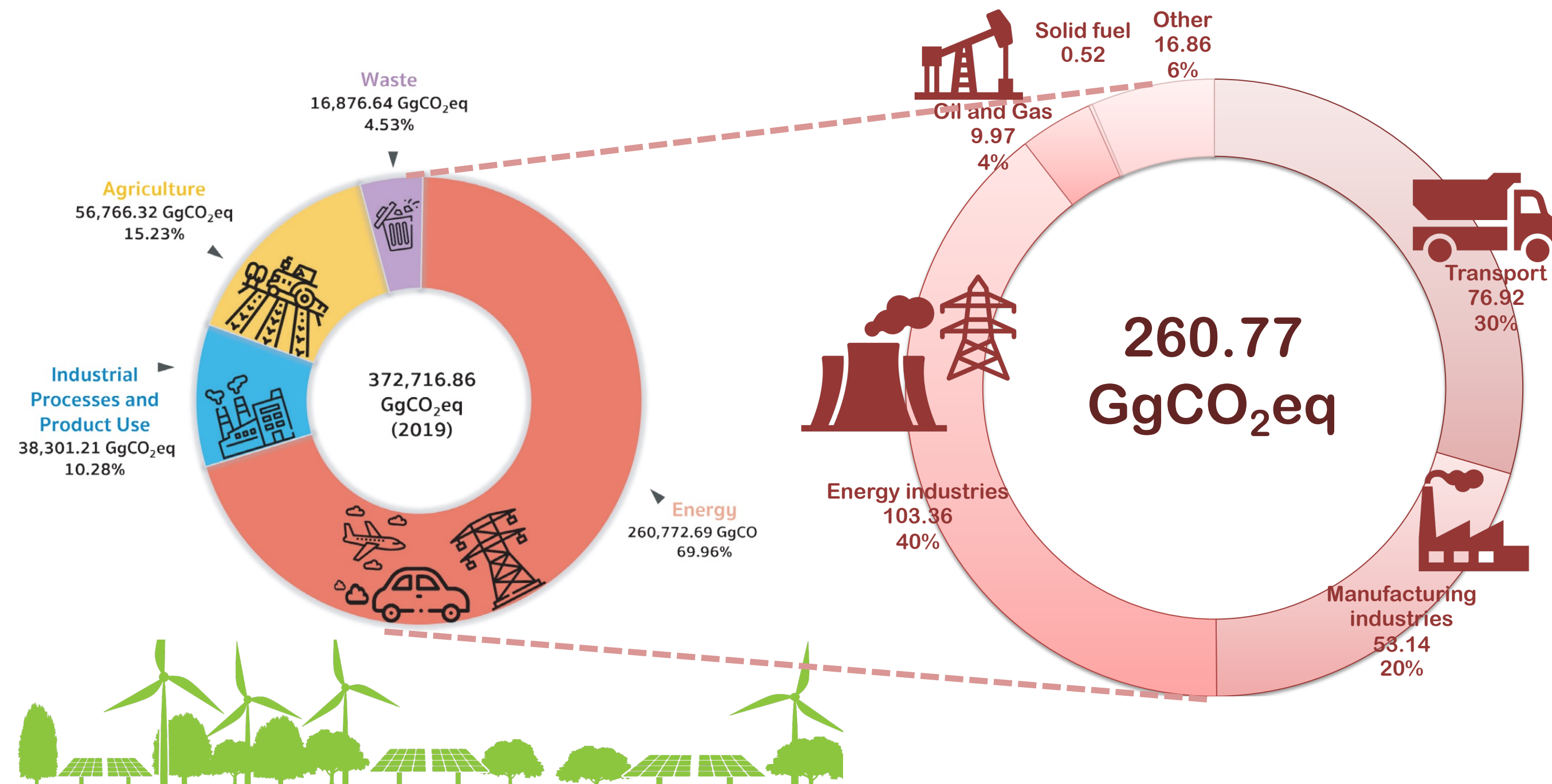


Thailand's Commitment for GHG mitigation

- 2030: reduce 30% GHG compared with BAU (40% with international support)**
- 2050: Carbon neutrality**
- 2065: Net-Zero GHG**



Thailand's GHG Emission



- The energy is the largest contributor to greenhouse gas emissions in Thailand, almost **70%** followed by Agriculture & Waste
- Significant sectors include **electricity production and transport**

AEDP2024 (Draft)



Electricity

73,286 MW

Solar PV

Floating PV

Biomass

Wind

Biogas

Wastes

Hydro

Geothermal

Hydrogen



Heat

17,3690 ktoe

Solar PV

Biomass

Biogas

Wastes

Geothermal

Pyrolysis oil

Hydrogen



\\ Increase renewable energy share to **37%** in total final energy consumption by 2037



Transport

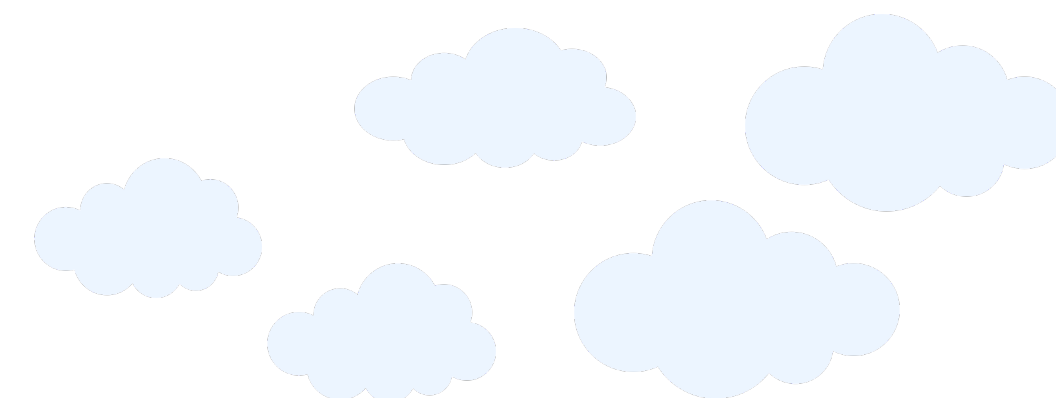
1,939 ktoe

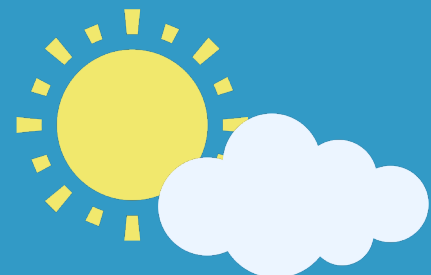
Ethanol

Biodiesel

Hydrogen

Sustainable Aviation Fuel (SAF)

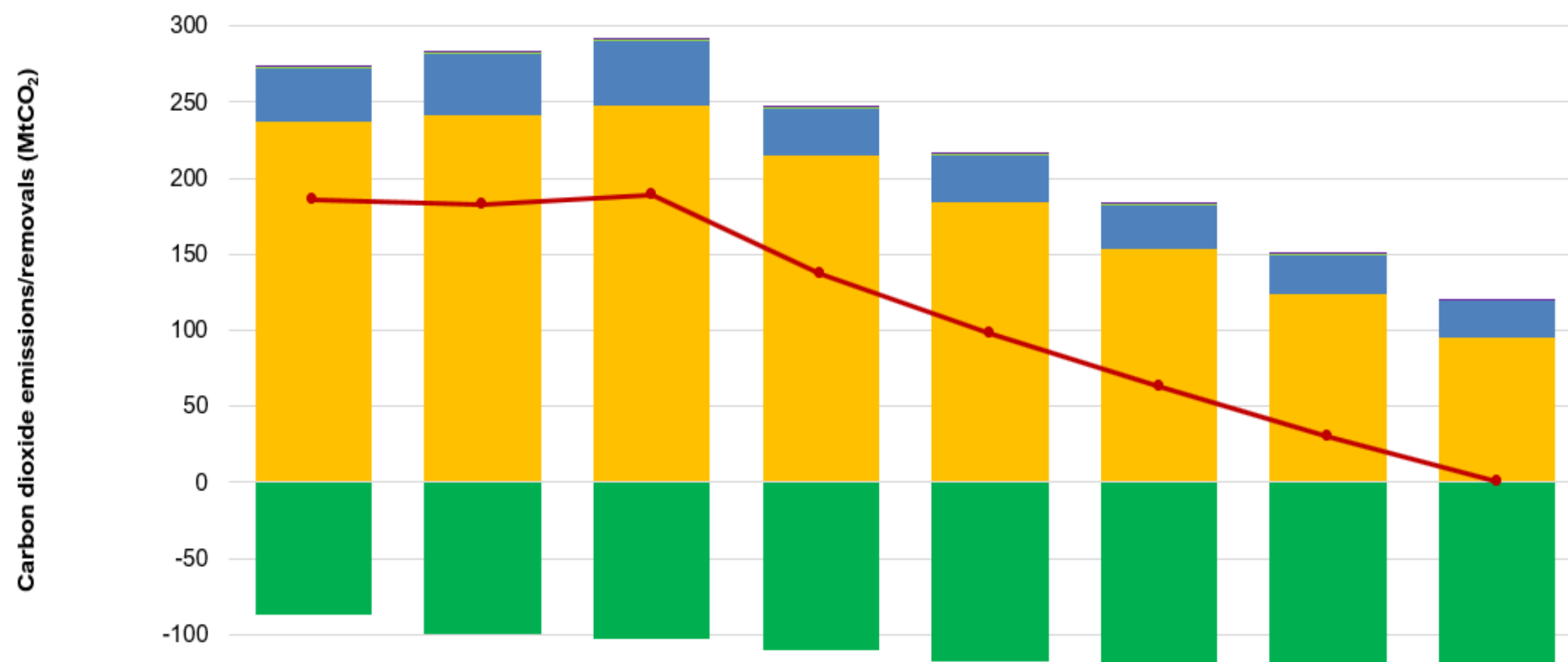




GHG Emission scenario



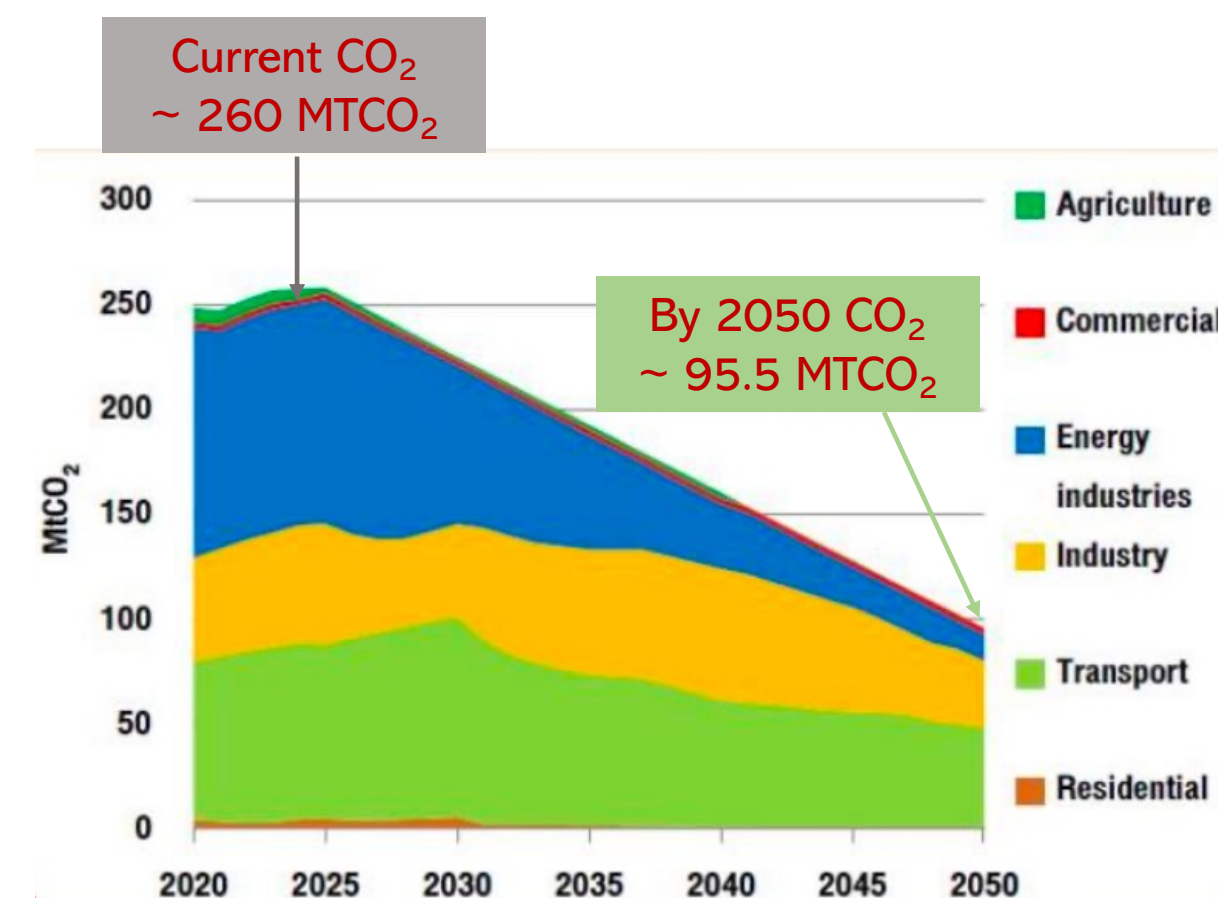
To response to Carbon Neutrality by 2050



	2015	2020	2025	2030	2035	2040	2045	2050
Waste	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
LULUCF	-87.3	-100.0	-103.0	-110.0	-118.0	-120.0	-120.0	-120.0
Agriculture	1.4	1.5	1.6	1.4	1.3	1.0	0.8	0.5
IPPU	34.8	40.0	41.5	31.2	30.3	28.2	26.0	23.8
Energy	236.9	241.4	248.2	214.5	184.6	153.7	123.6	95.5
Net emission	186.0	183.1	188.5	137.3	98.4	63.1	30.6	0.0

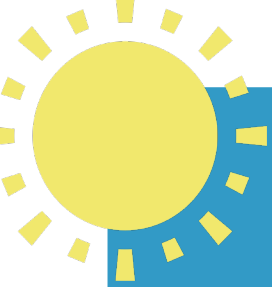
Source: ONEP Thailand.

CO₂ emission in energy sector by subsector under C-neutrality 2050

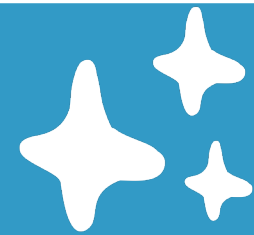


**Total CO₂ emission target
in Energy sector in 2050**

95.5 MtCO₂



THE FUTURE OF RENEWABLE ENERGY



Target :

2050: Carbon neutrality
2065: Net zero GHG emissions

NDC

- RE 50@50
- EV 30@30
- EE>30%
- 4D1E

energy
self - reliance

AEDP
2024

Technology
disruptive, Oil
price

Driving factors

- Thailand must urgently find clean, reliable energy. Let's help reduce GHG emissions while maintaining our ability to meet energy needs.
- **Hydrogen: Clean energy has been discussed both on the global stage and in the framework of the national energy plan.**
- **Driving the use of hydrogen in the energy sector It is therefore consistent with the global direction and helps achieve climate goals. along with creating energy security**



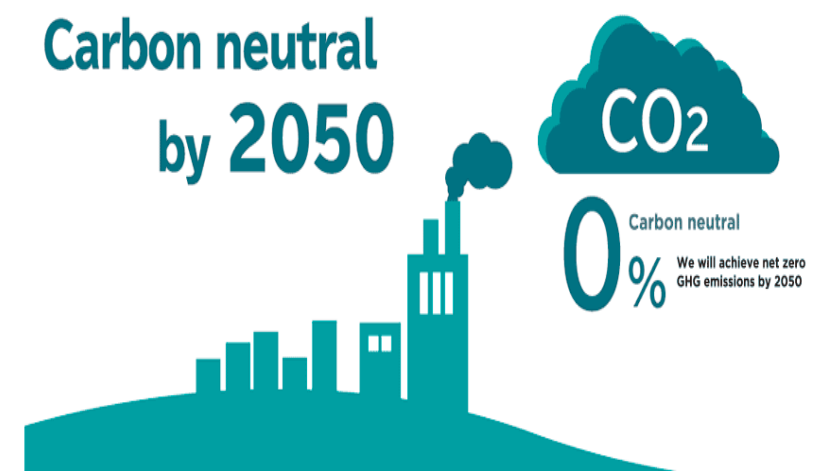
Current Hydrogen Projects in Thailand



1. Electric Power Sector : Hydrogen power plant (EGAT) 300 kW (Saraburi Province) – Clean electricity produced from wind turbines then used in an electrolyzer to split water into hydrogen and oxygen. Next, fuel cell is used to convert hydrogen and oxygen into electricity.

2. Heat Sector : -

3. Transportation Sector : Toyota Mirai car, FCEV type, to serve as a shuttle for tourists at U - Tapao Airport or provide services to tourists and those interested in the Pattaya - Chonburi area.





Thailand's Strategies and Promotion guidelines (Draft)



Vision and targets in the short and medium term

Thailand is ready. Commercial use of hydrogen in the energy sector could start from 2030 and grow sustainably to become one of the key options towards achieving carbon neutrality in 2050.



Promotion guidelines

Strategic 1
Develop markets and create incentives to the user

Financial and investment support measures for user groups

Develop a pricing mechanism that considers GHG emissions criteria.

Develop the pilot projects

Strategic 2
Promote research and industry in the country

Financial and investment support measures for entrepreneurs

Develop markets and carbon trading mechanisms

Promote research and development of new business models

Strategic 3
infrastructure development

Develop a pipeline network for mixed fuels.

Develop storage, transportation and hydrogen filling stations.

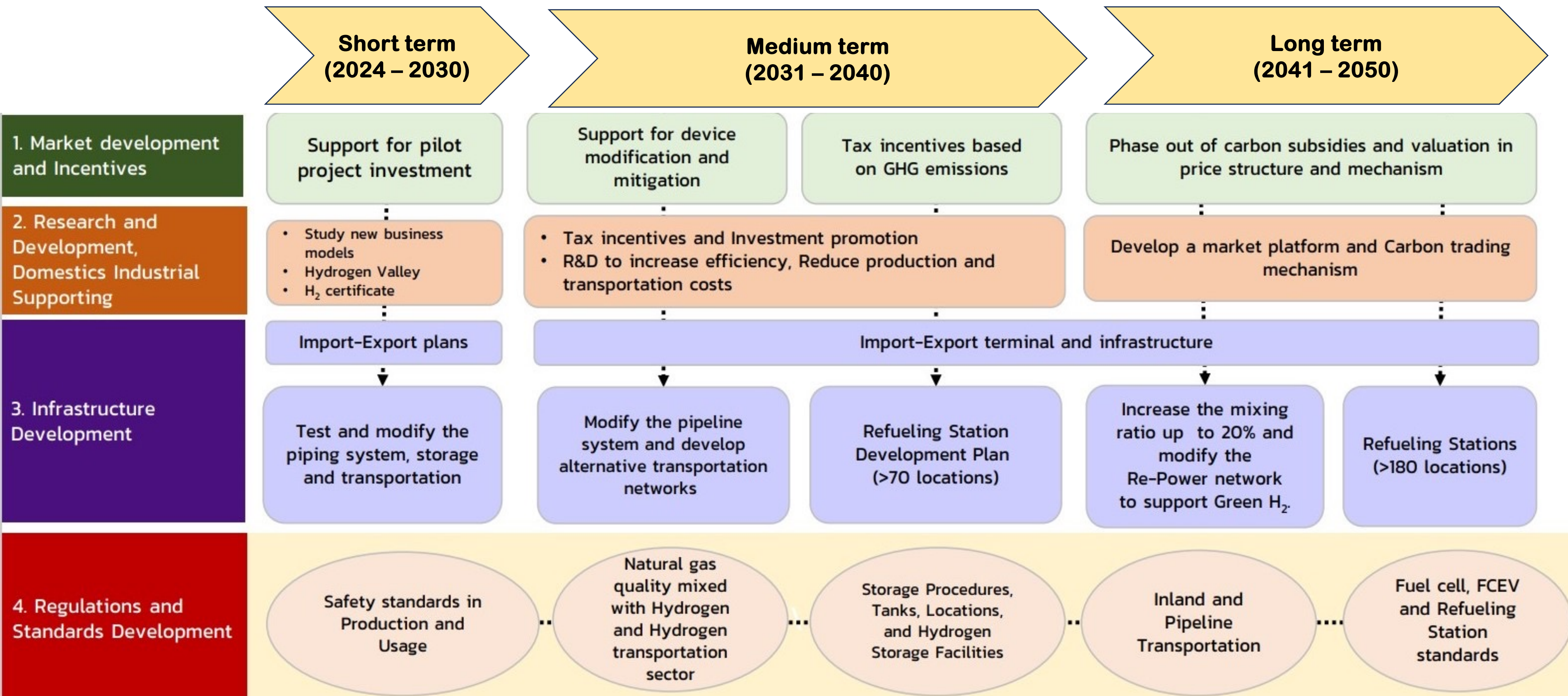
Develop Hydrogen and ammonia technology infrastructure

Strategic 4
Improve regulations and standards

Improve regulations and standards Concerning use, production, safety, transportation, storage and distribution. for the energy sector

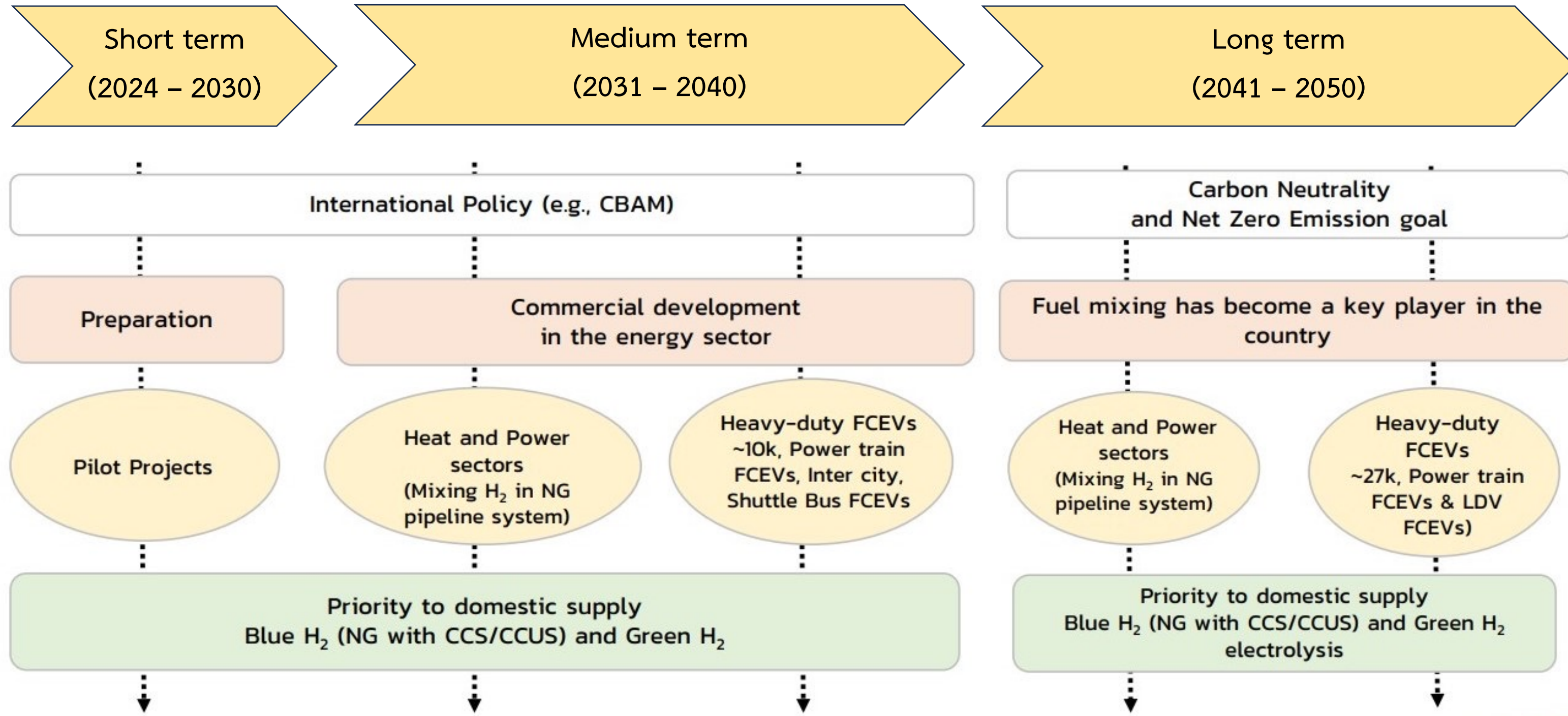


Thailand's Strategies and Promotion guidelines (Draft)



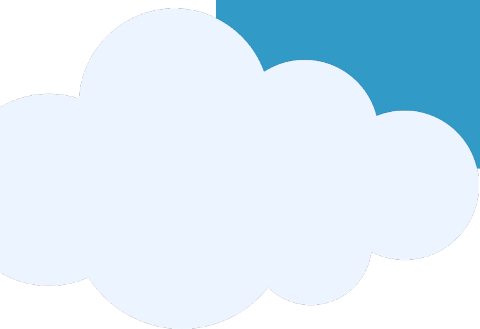


Thailand's Strategies and Promotion guidelines (Draft)





THANK YOU



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Target of (draft) AEDP 2024



Types of Energy	Unit	Year 2037
Electricity	ktoe MW	15,332 73,286
1. Solar	MW	38,974
2. Floating Solar	MW	2,789
3. Wind	MW	9,379
4. Biomass	MW	5,490
5. Biogas (Wastewater/Waste)	MW	925
6. Biogas (Energy Crops)	MW	757
7. Municipal Solid Waste (MSW)	MW	1,142
8. Industrial Waste	MW	249
9. Small Hydropower	MW	347
10. Large Hydropower	MW	2,918
11. Imported Hydropower	MW	10,295
12. Others (e.g. Geothermal, Hydrogen)	MW	21
Heat	ktoe	17,360
1. Solar	ktoe	200
2. Biomass	ktoe	15,550
3. Biogas/Biomethane	ktoe	1,000
4. Waste	ktoe	600
5. Others (e.g. Pyrolysis Oil, Hydrogen, Geothermal)	ktoe	10
Bio-fuel/Alternative fuel	ktoe	1,939
1. Ethanol	ktoe	605
2. Biodiesel	ktoe	775
3. Sustainable Aviation Fuel (SAF)	ktoe	555
4. Hydrogen	ktoe	4
Renewable Energy Consumption (ktoe)		34,631
Final Energy Consumption (ktoe)		93,017
Proportion of Renewable Energy Consumption to Final Energy Consumption (%)		37