



# **The 22<sup>nd</sup> AIM International Workshop**

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**NIES**

**Tsukuba, Japan**

**Roadmap toward Low Carbon Asia:  
Thailand's NDCs Roadmap**

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## Roadmap of Thailand's NDC to Peak GHG Emissions

- Thailand had ratified Paris Agreement in September 2016.
- Thailand's Intended Nationally Determined Contribution (INDC) stated that by 2030 GHG emissions will be reduced by 20-25% when compared to the business-as-usual (BAU) scenario.
- Roadmap of Thailand's NDC to achieve the reduction level of 20% in 2030 has been developed.
- Domestic resources of renewable energy and energy efficiency improvement are key factors to achieve CO<sub>2</sub> emission reduction target of 20% by 2030.
- However, more ambitious measures are required to meet the peak emission before 2050.



# Thailand's INDC Pledge

UN NY, 30 Sept 2015

PM applauds 2030 Agenda, pledges word towards a sustainable Thailand including INDC 2030



“... On Thailand's part, we reaffirm our Commitment under the **Intended Nationally Determined Contributions (INDCs)** to reduce our GHG emissions between 20 and 25% by 2030”...

## Submission by Thailand Intended Nationally Determined Contribution and Relevant Information

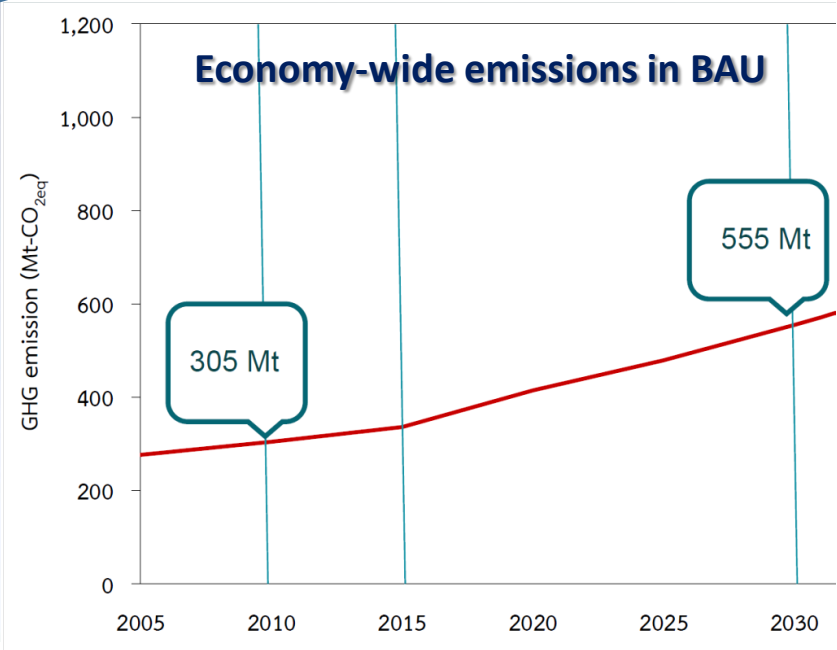
As a developing country highly vulnerable to the impacts of climate change, Thailand attaches great importance to the global efforts to address this common and pressing challenge. Pursuant to decisions 1/CP.19 and 1/CP.20, Thailand hereby communicates its intended nationally determined contribution (INDC) and the relevant information.

Thailand intends to reduce its greenhouse gas emissions by 20 percent from the projected business-as-usual (BAU) level by 2030. The level of contribution could increase up to 25 percent, subject to adequate and enhanced access to technology development and transfer, financial resources and capacity building support through a balanced and ambitious global agreement under the United Nations Framework Convention on Climate Change (UNFCCC).



# Thailand's PM Delivered National Climate Pledge at Paris Summit

“The 20% is a goal to be achieved by the country's resources alone while the additional 5% will require international support in terms of finance, knowhow and technology”





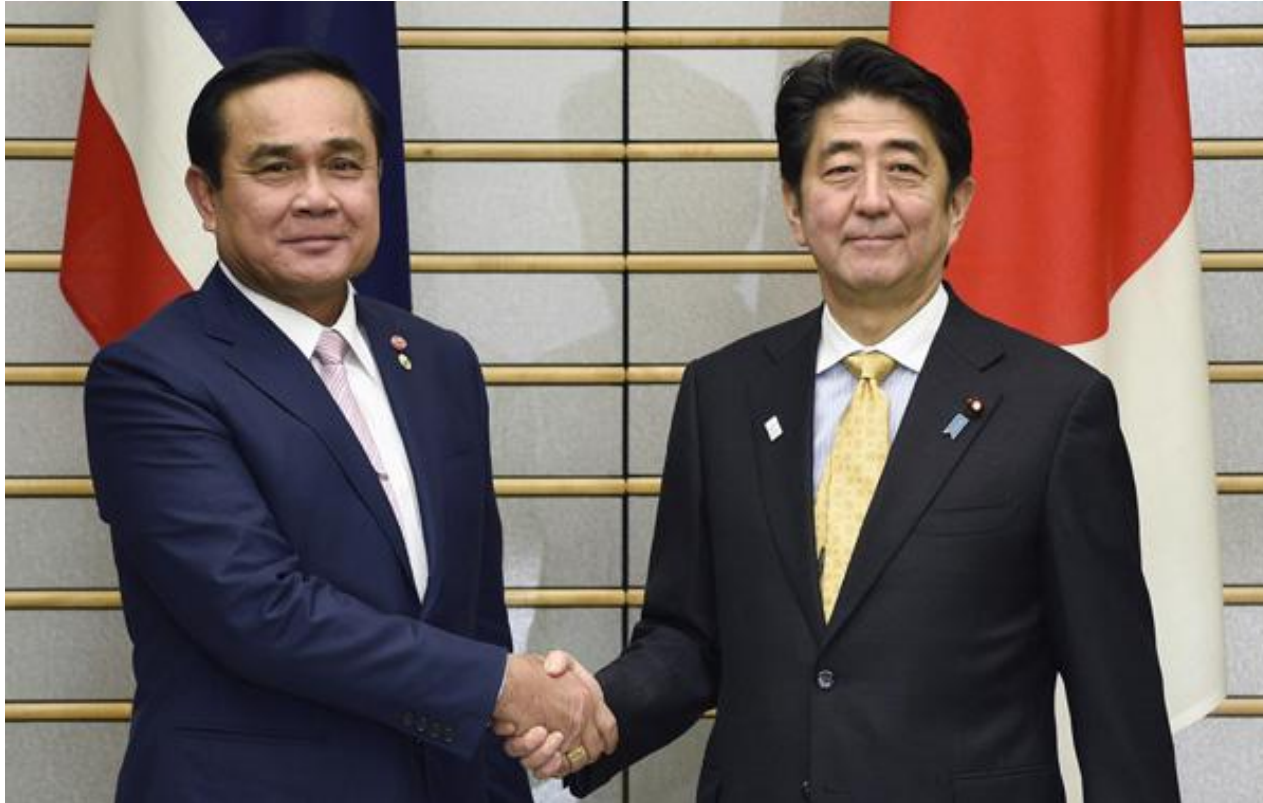
## Thailand's Ratified Paris Agreement on 21 September 2016







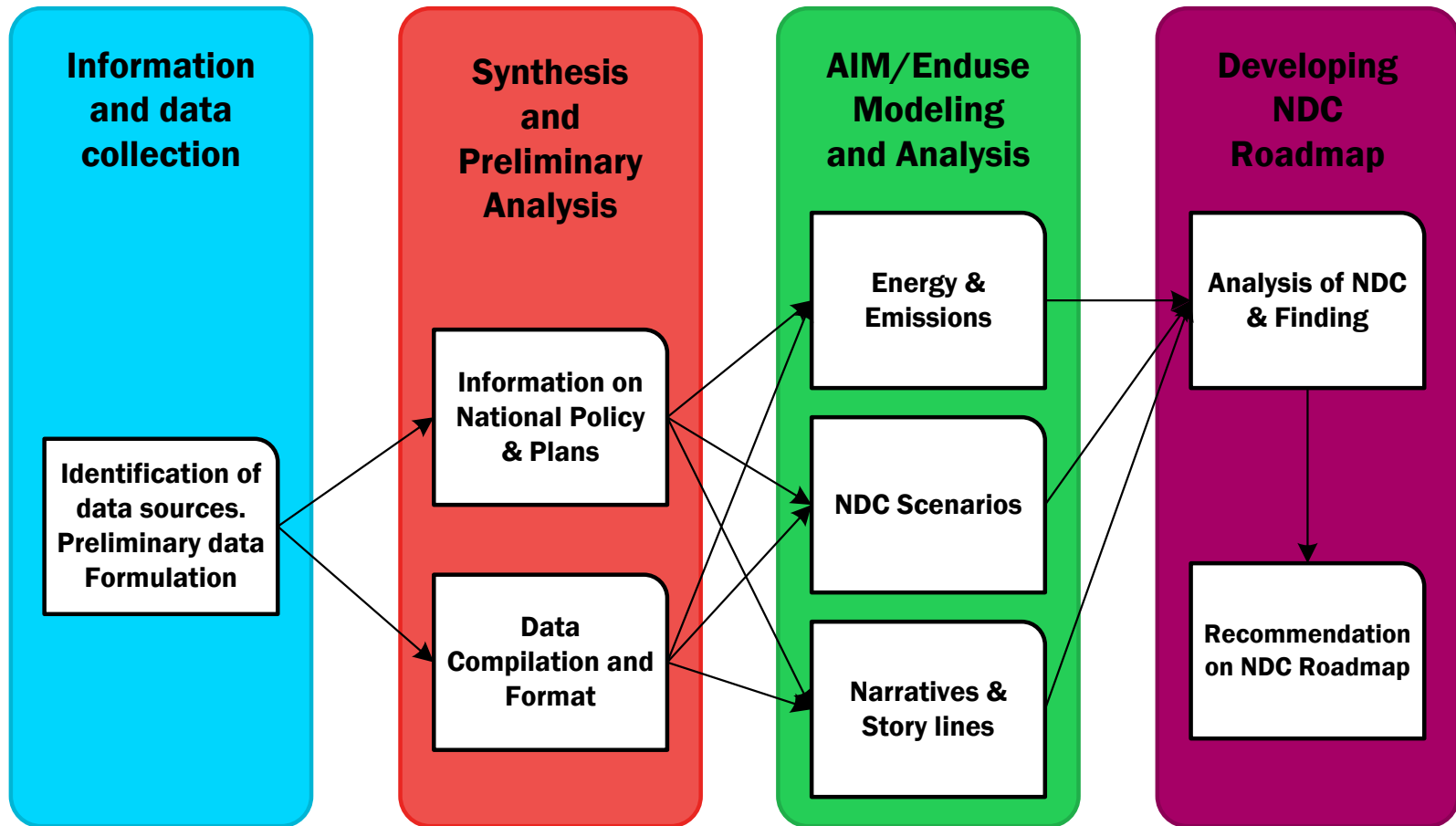
## Thailand, Japan signed emissions-offset agreement in Nov 2015



**Japan signed an agreement with Thailand as part of a programme to offset its emissions in exchange for clean-energy and energy-saving technologies.**

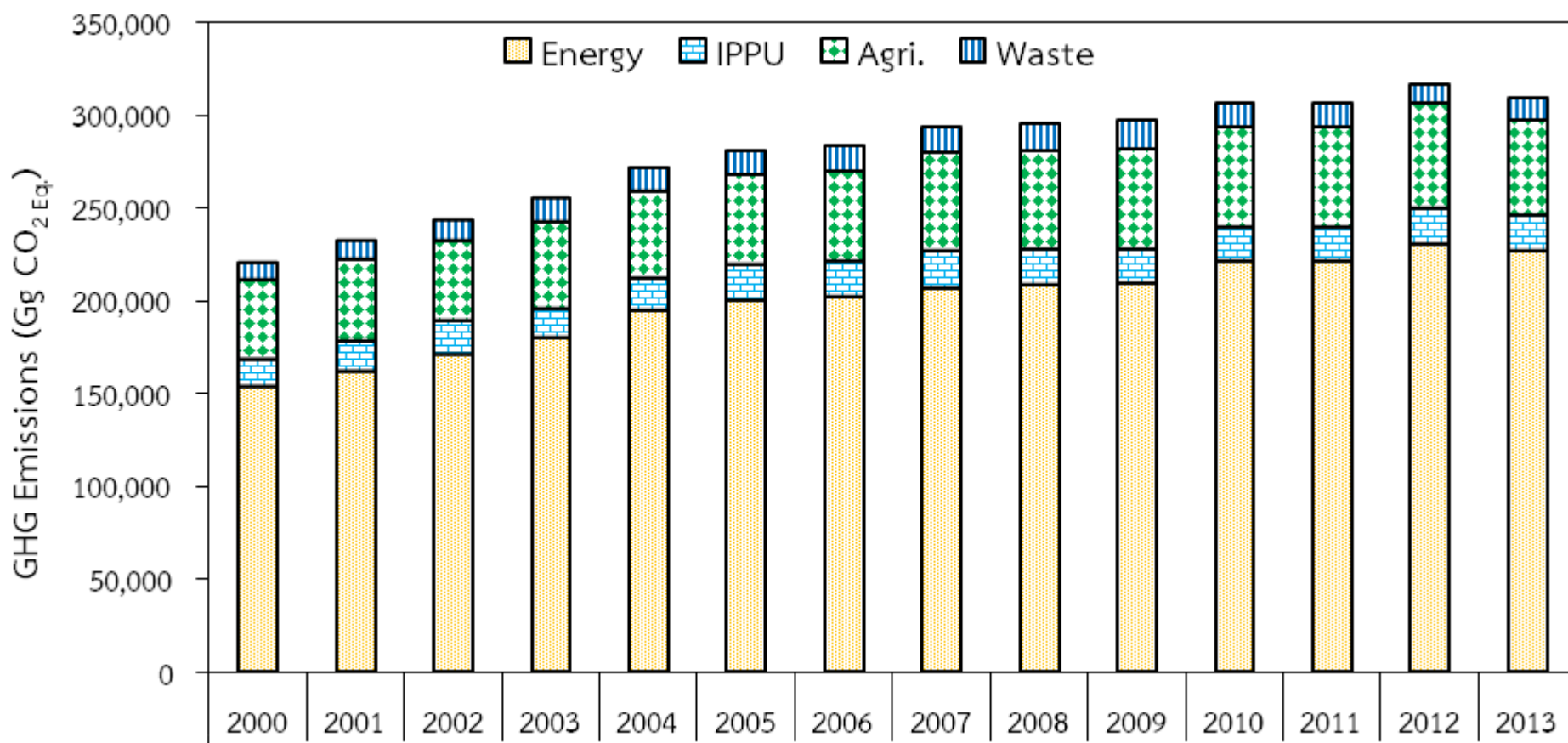
# Roadmap of Thailand's NDC to Peak GHG Emissions

## Methodology (NDC2030 Roadmap)



# Thailand Economy-wide GHG Emissions

## National emissions by sources

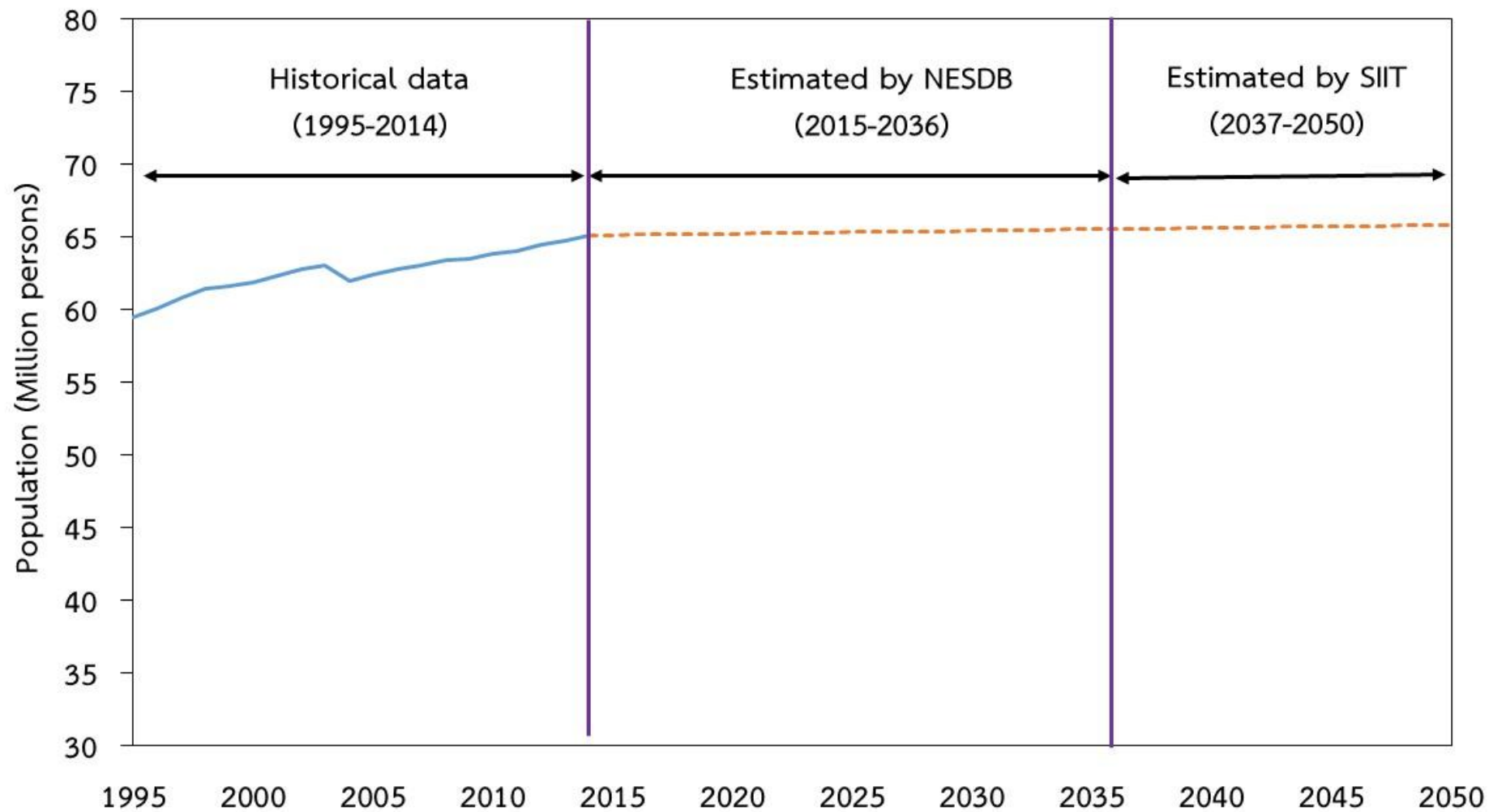


Source: Thailand BUR1 (2015) & ONEP(2016)



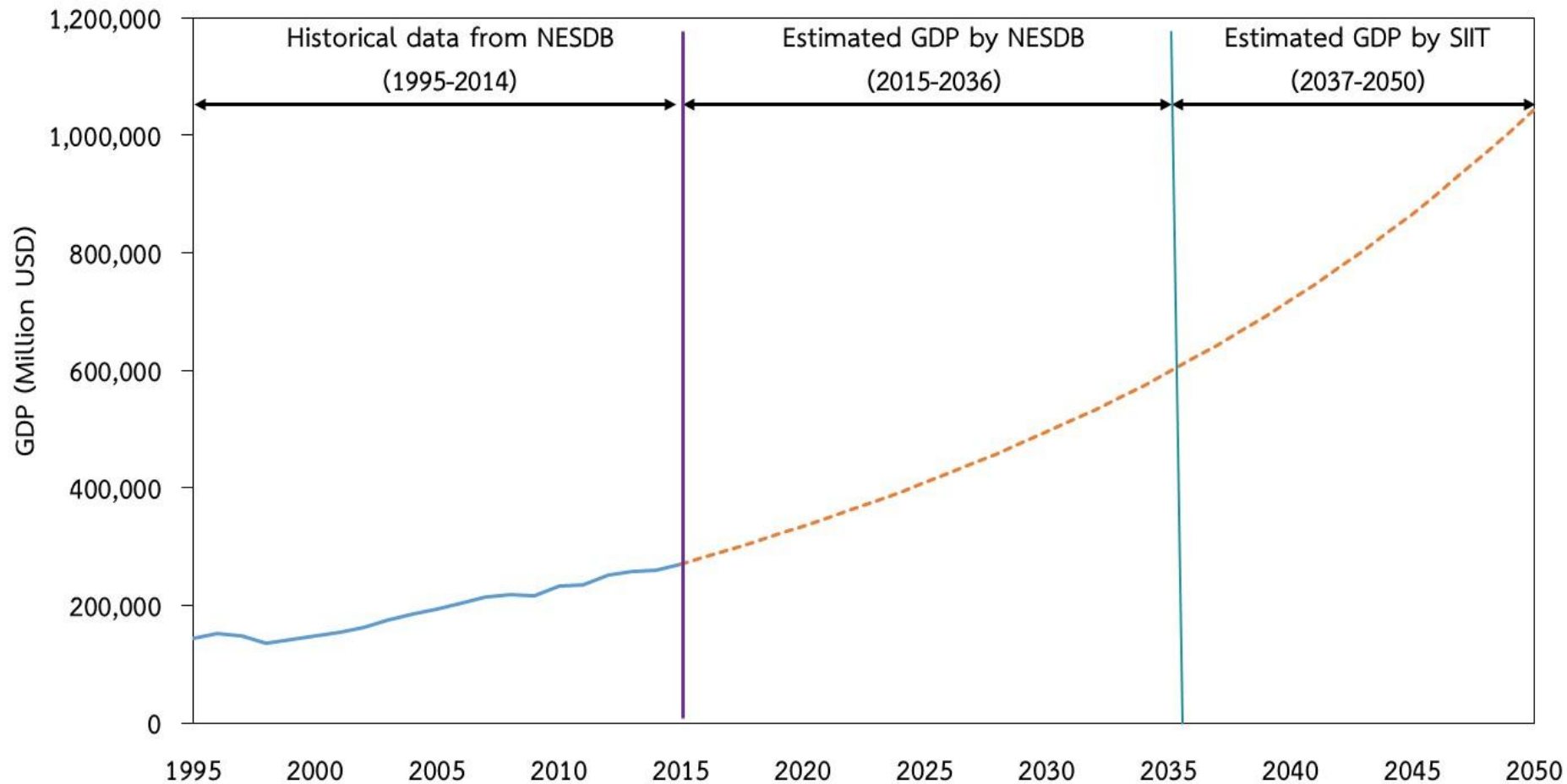
# Socio-economic assumption

## Population



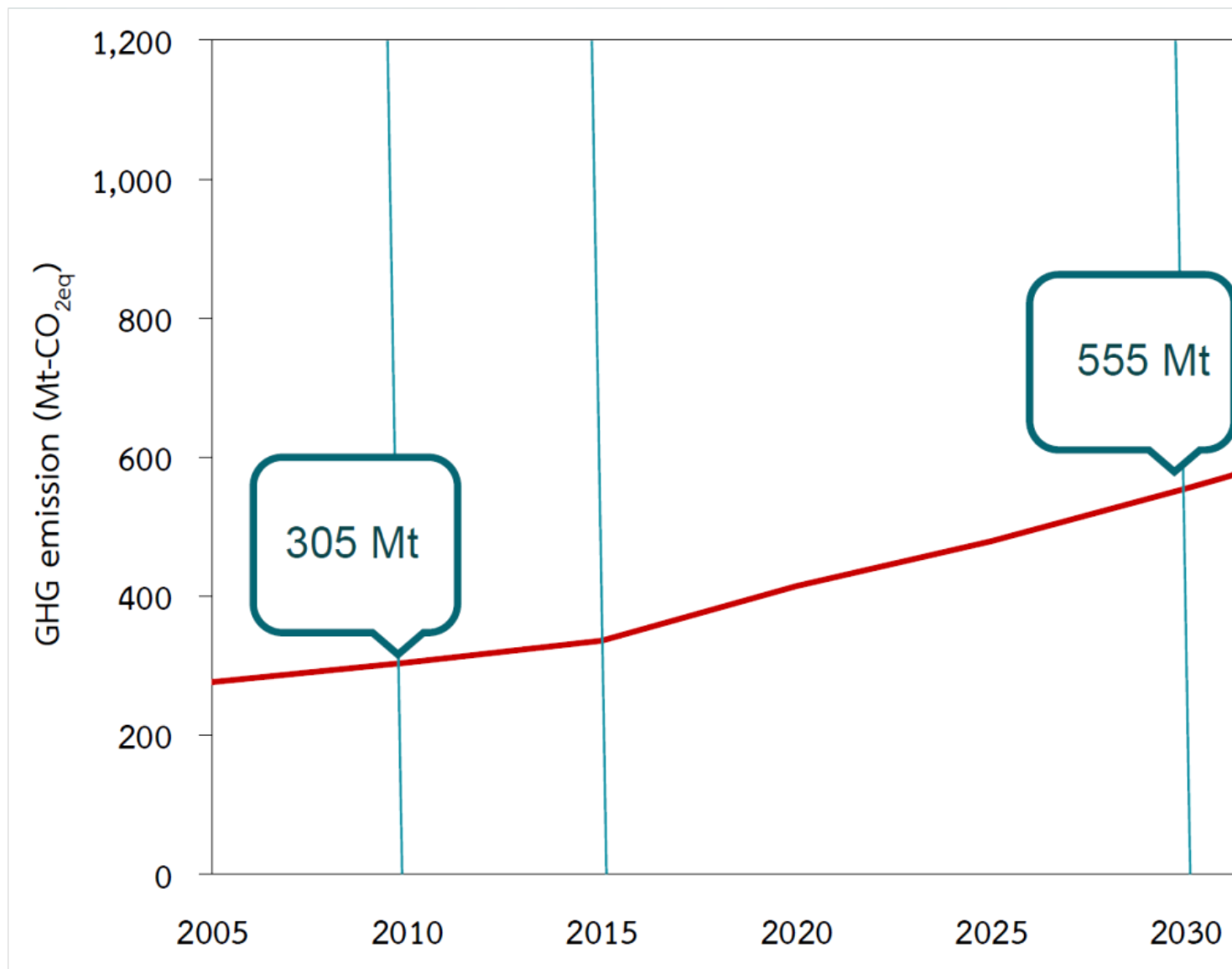
# Socio-economic assumption

## GDP



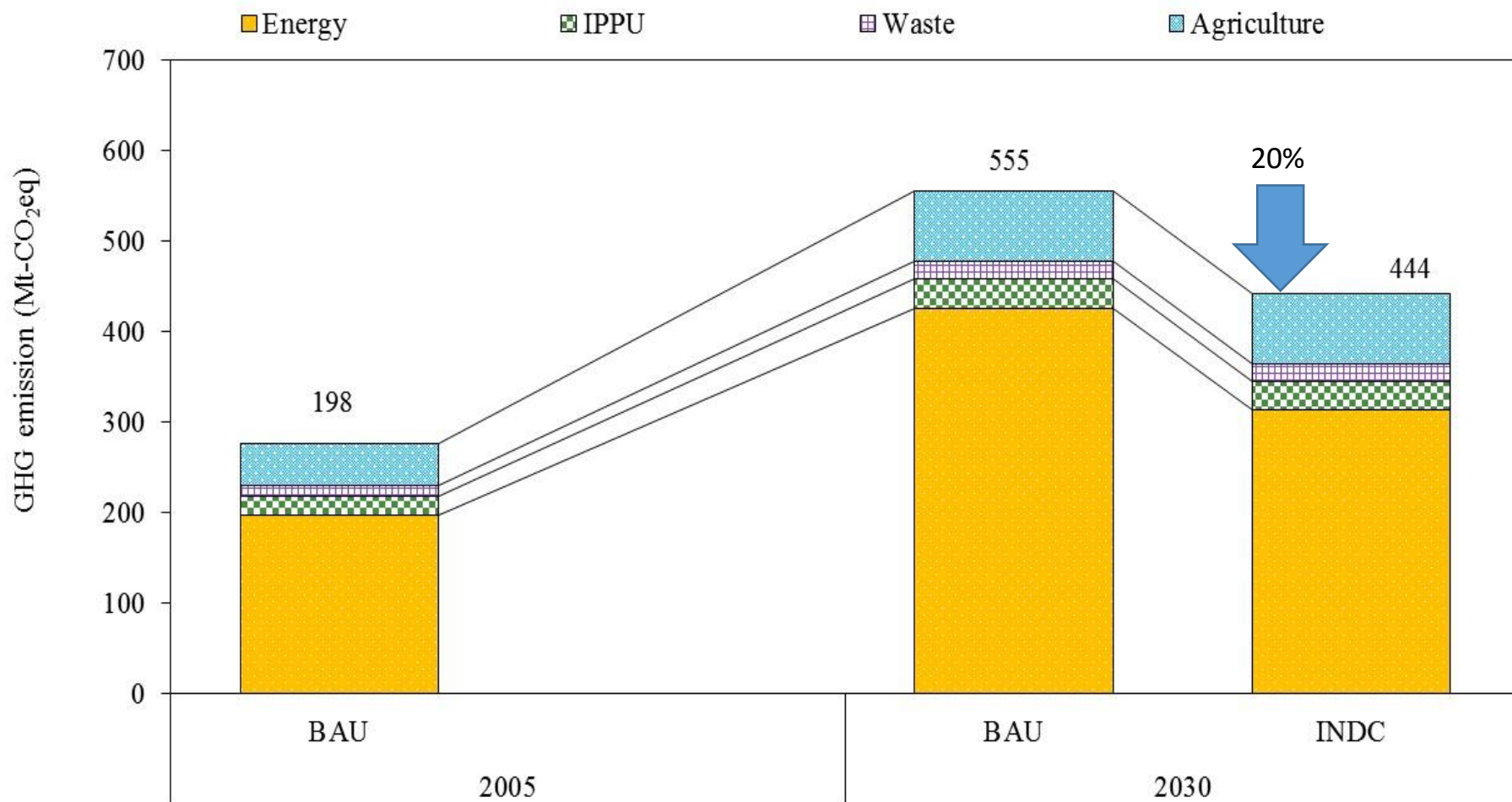
# Thailand Economy-wide GHG Emissions

## BAU of INDC



# Thailand Economy-wide GHG Emissions

## Emissions by Sources: BAU vs INDC20%



# Thailand Energy Sector GHG Emissions

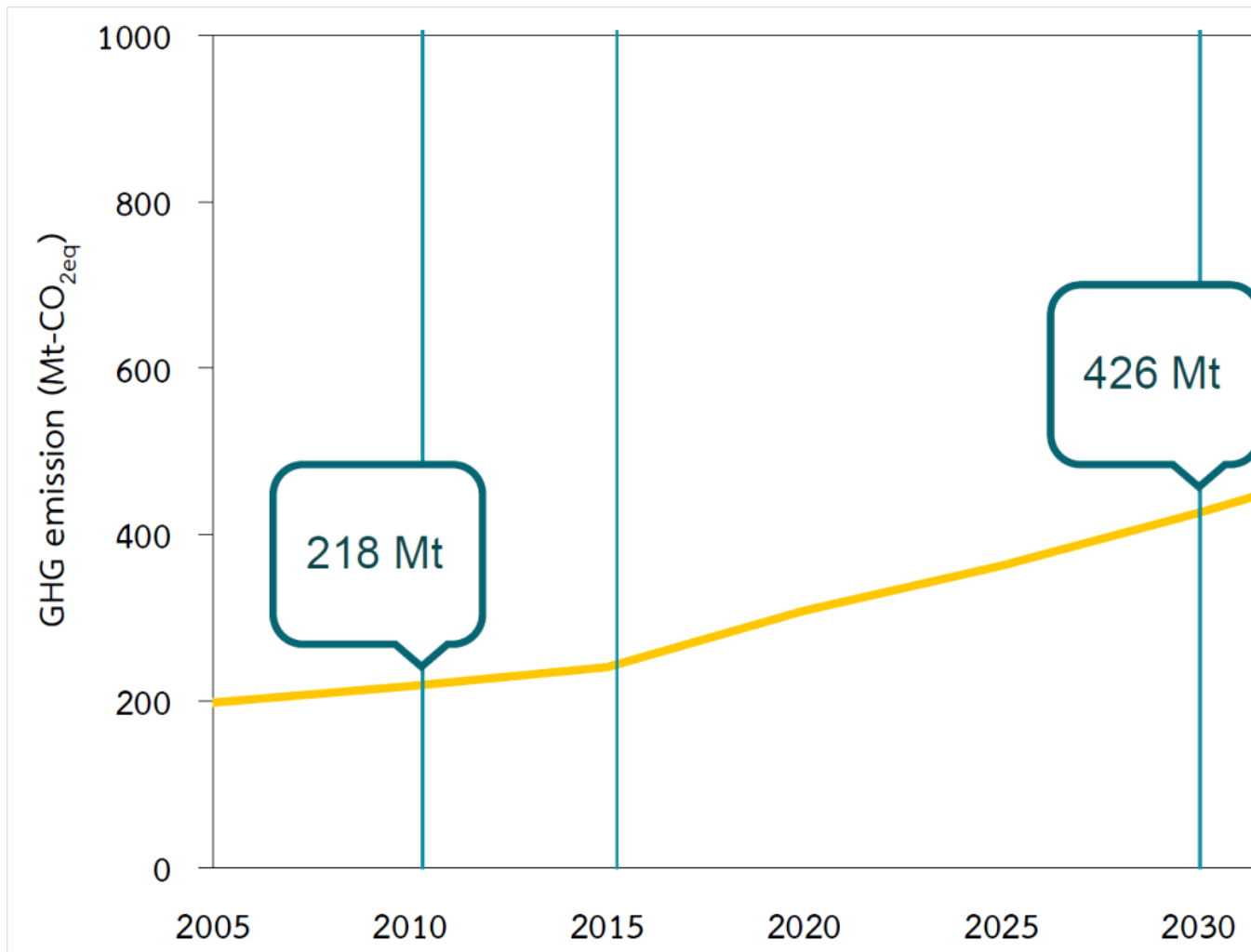
## INDC 20%+

Sector	2030 INDC
Energy	113.0
IPPU	0.6
Waste	2.0
<b>total</b>	<b>115.6</b>



# Thailand Energy Sector GHG Emissions

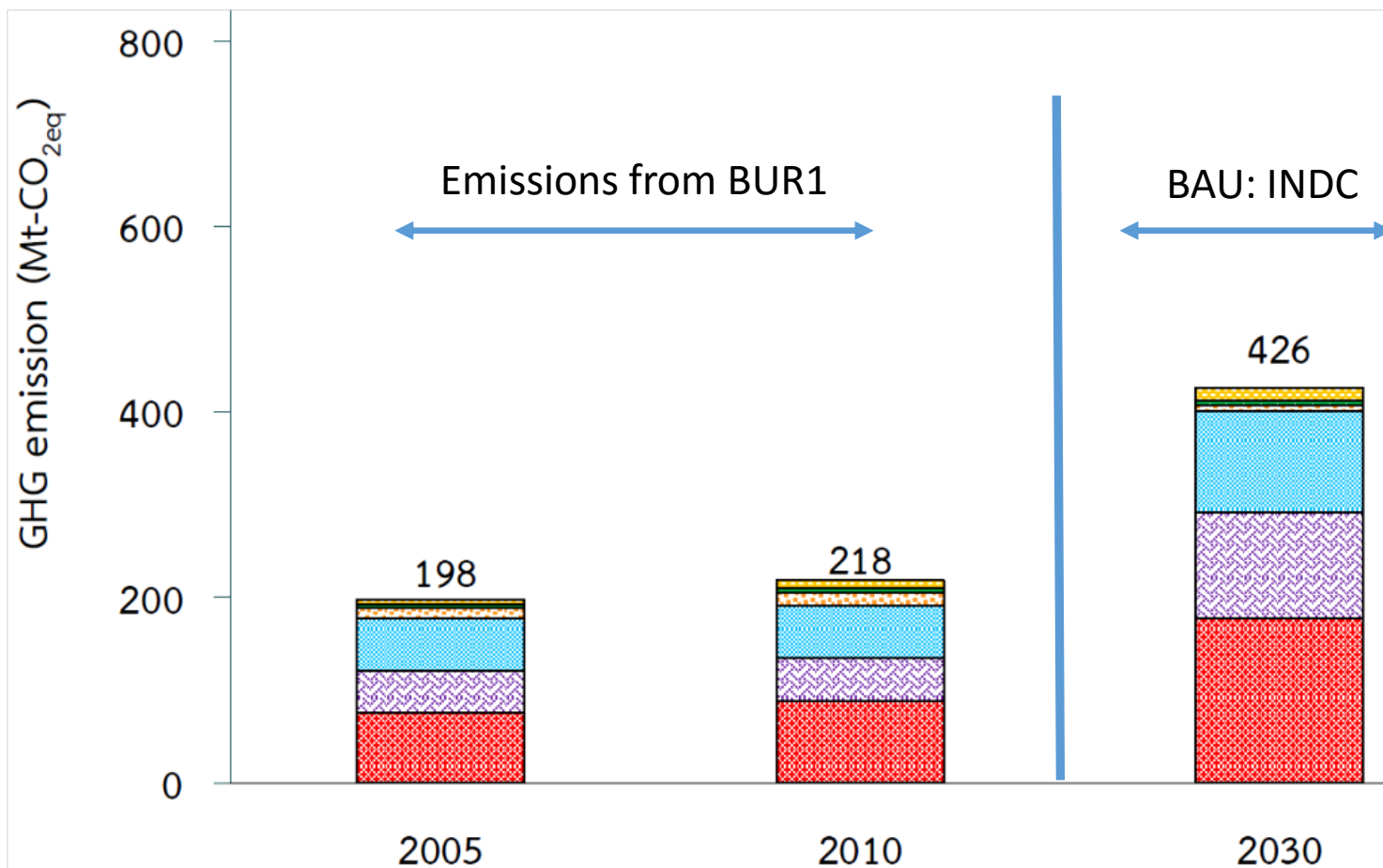
## BAU: INDC



# Thailand Energy Sector GHG Emissions

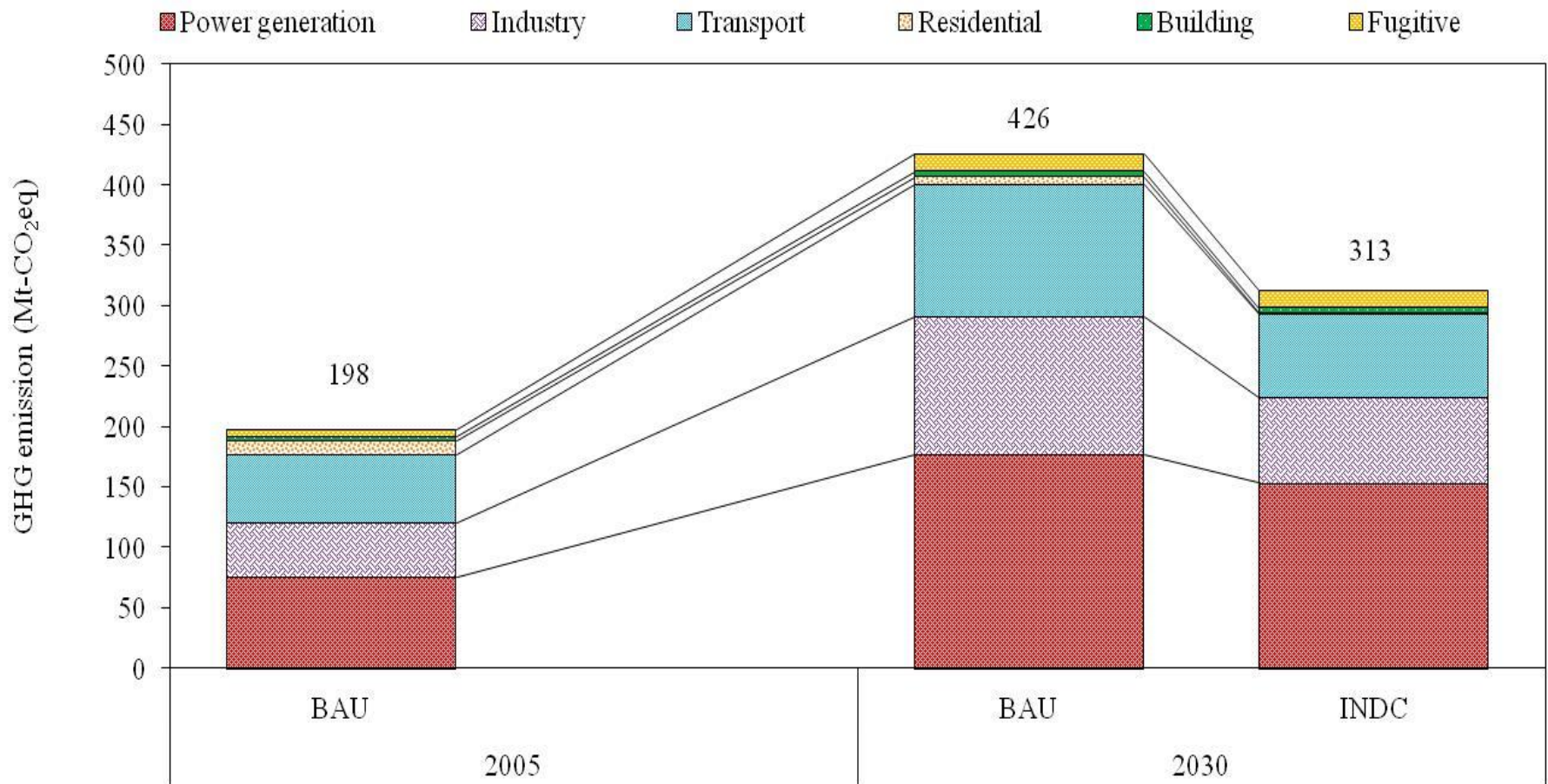
## Emissions by Sources: BAU

Power generation Industry Transport Residential Building Fugitive

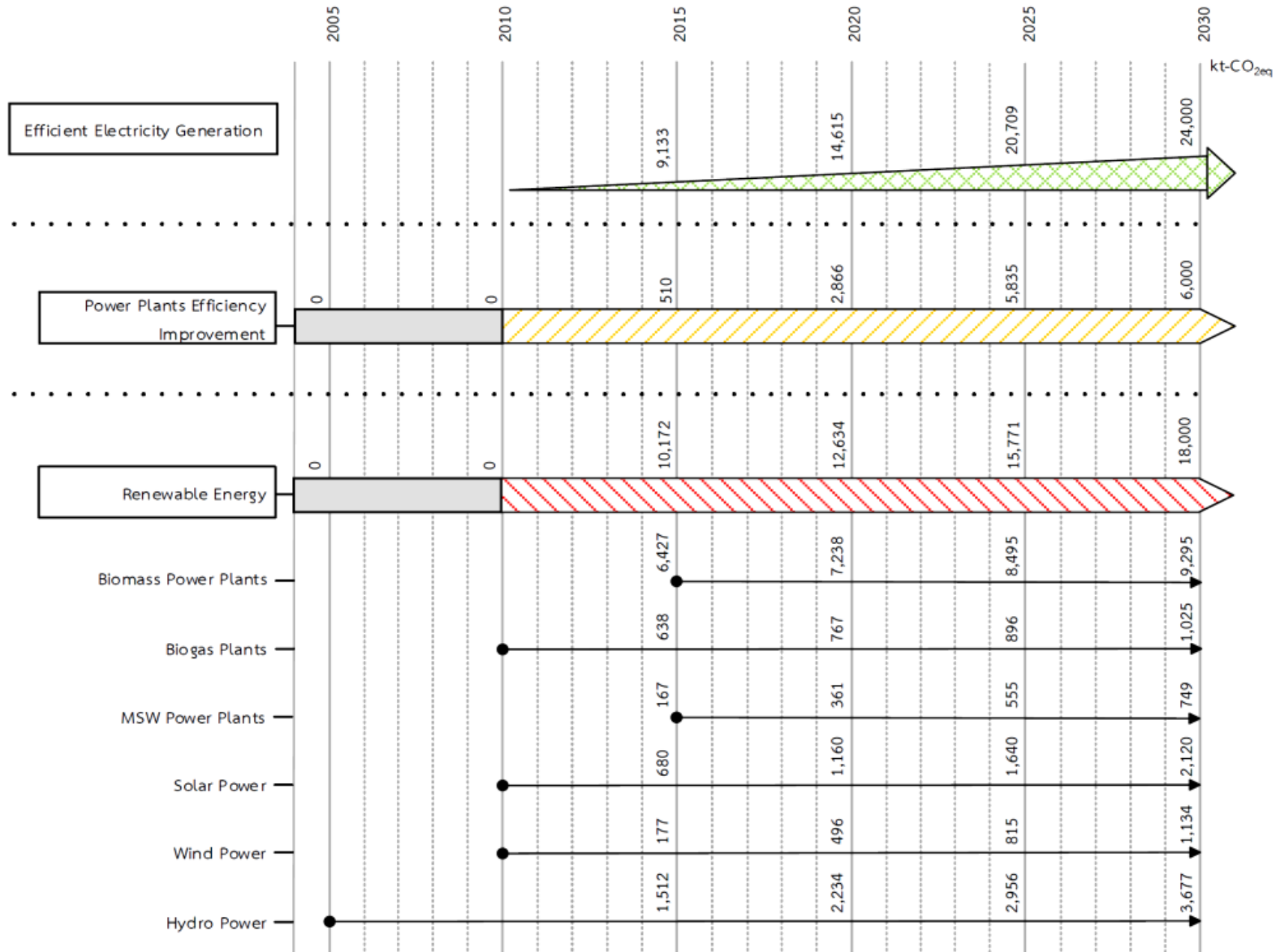


# Thailand Energy Sector GHG Emissions

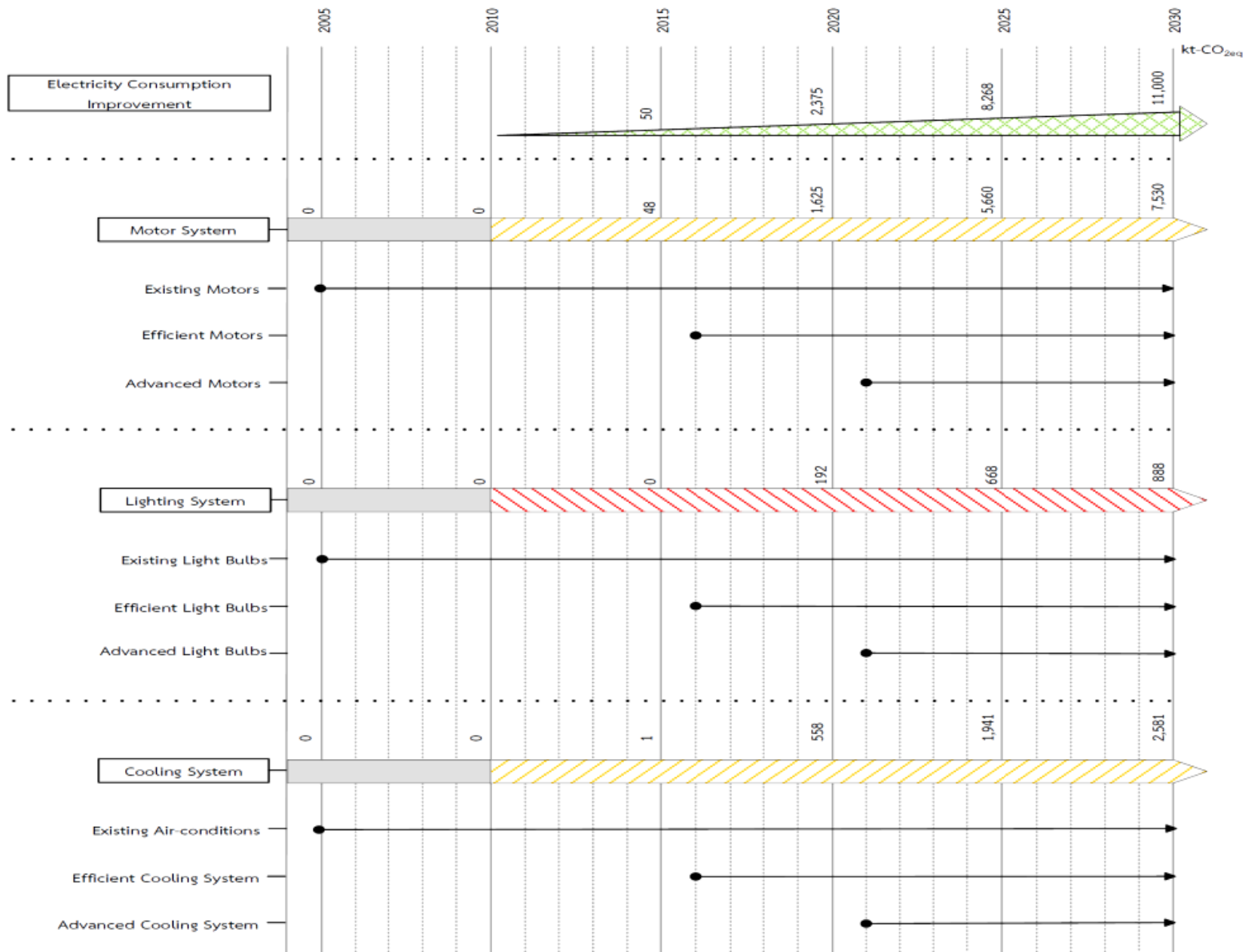
## Emissions by end-use sector: Energy Sector



# POWER SECTOR

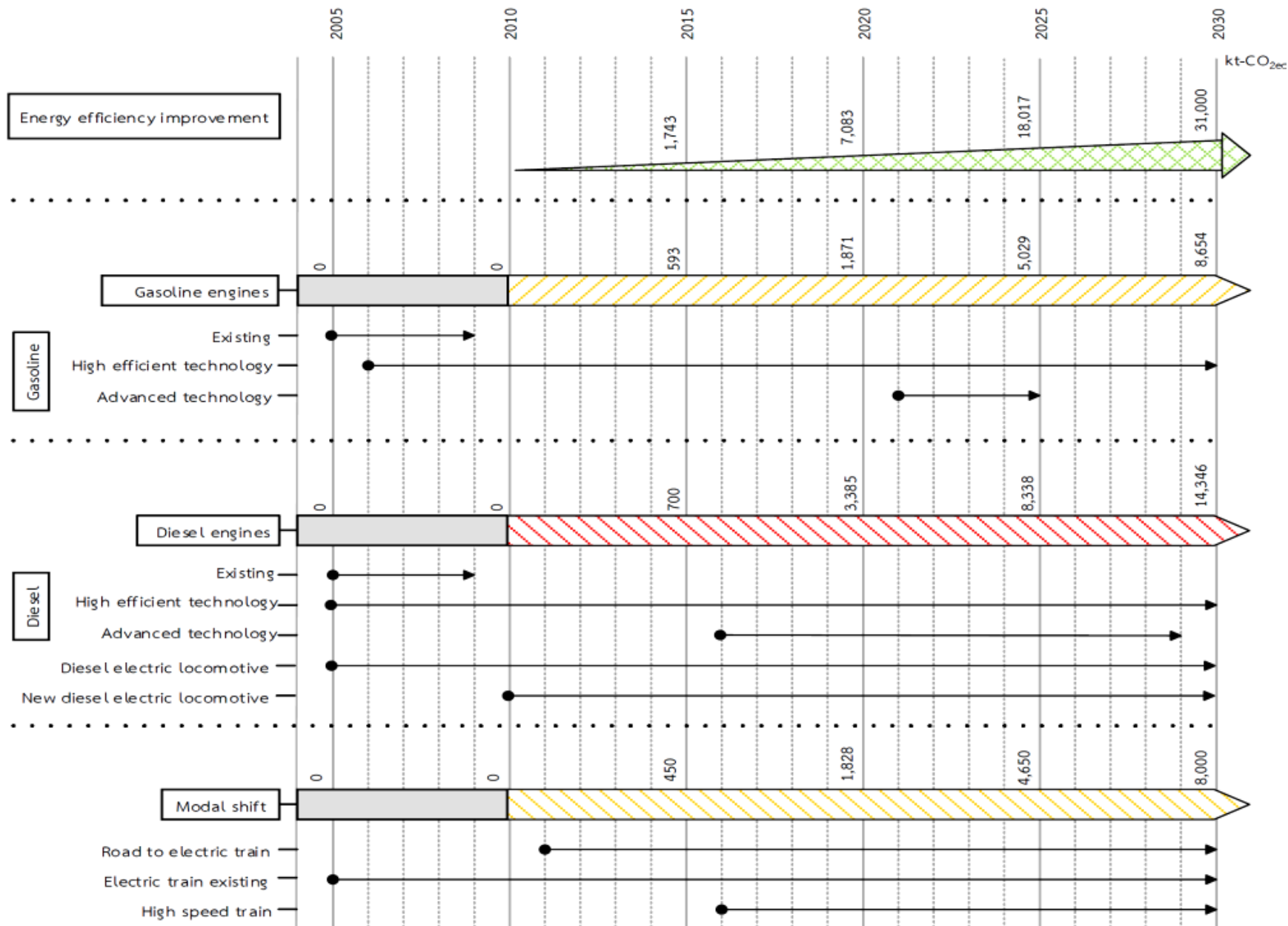


# INDUSTRIAL SECTOR

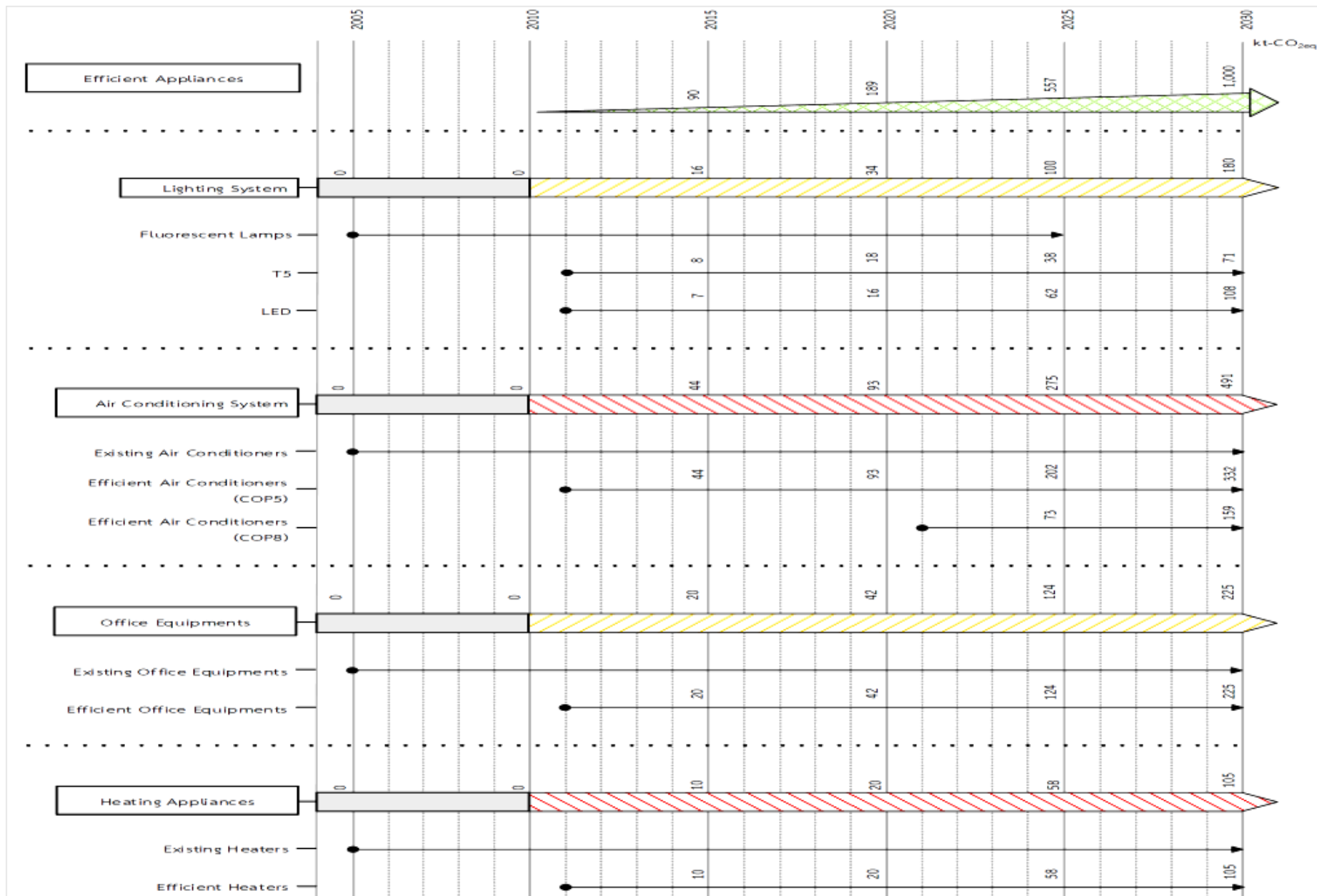




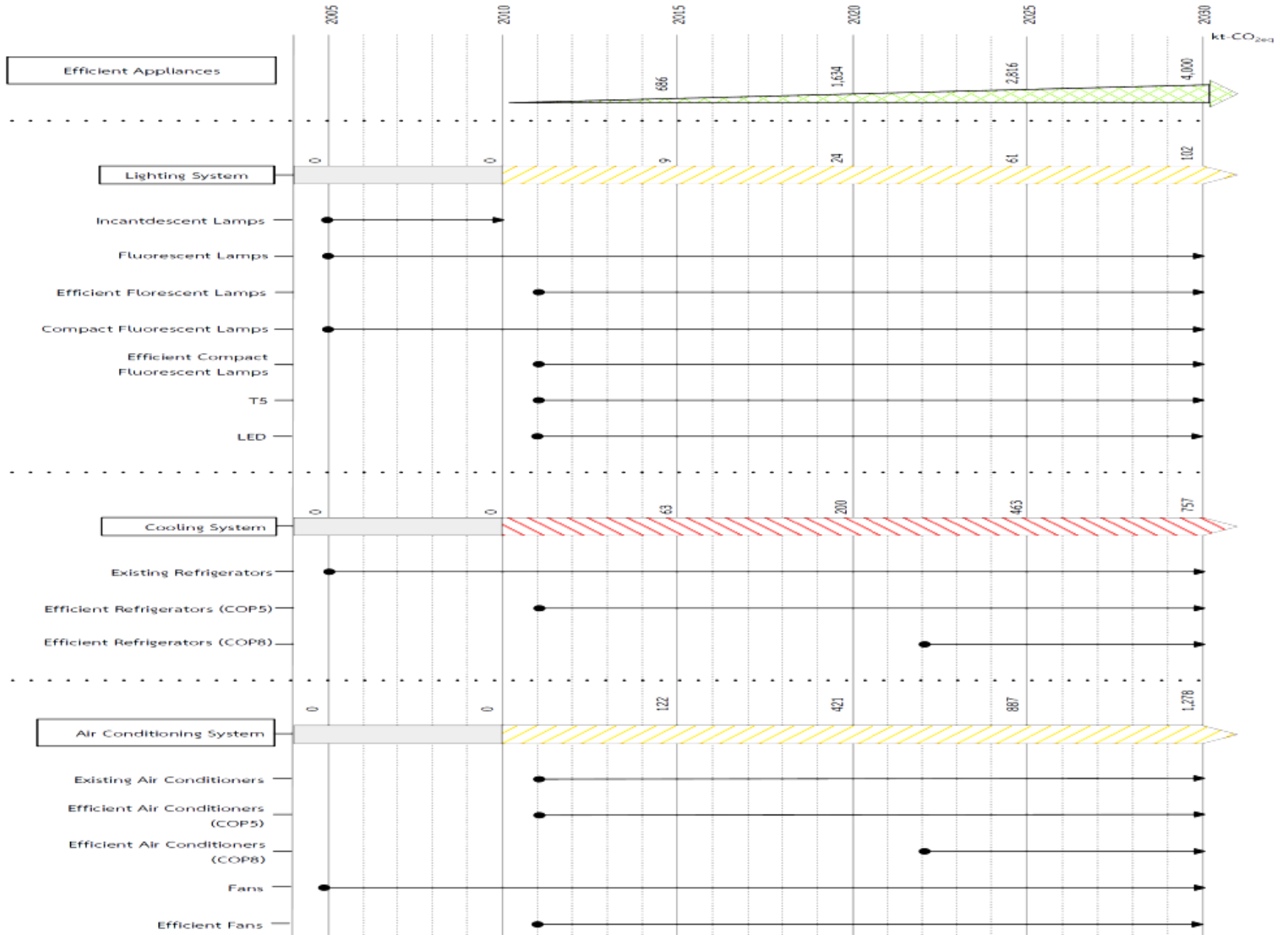
# TRANSPORT SECTOR



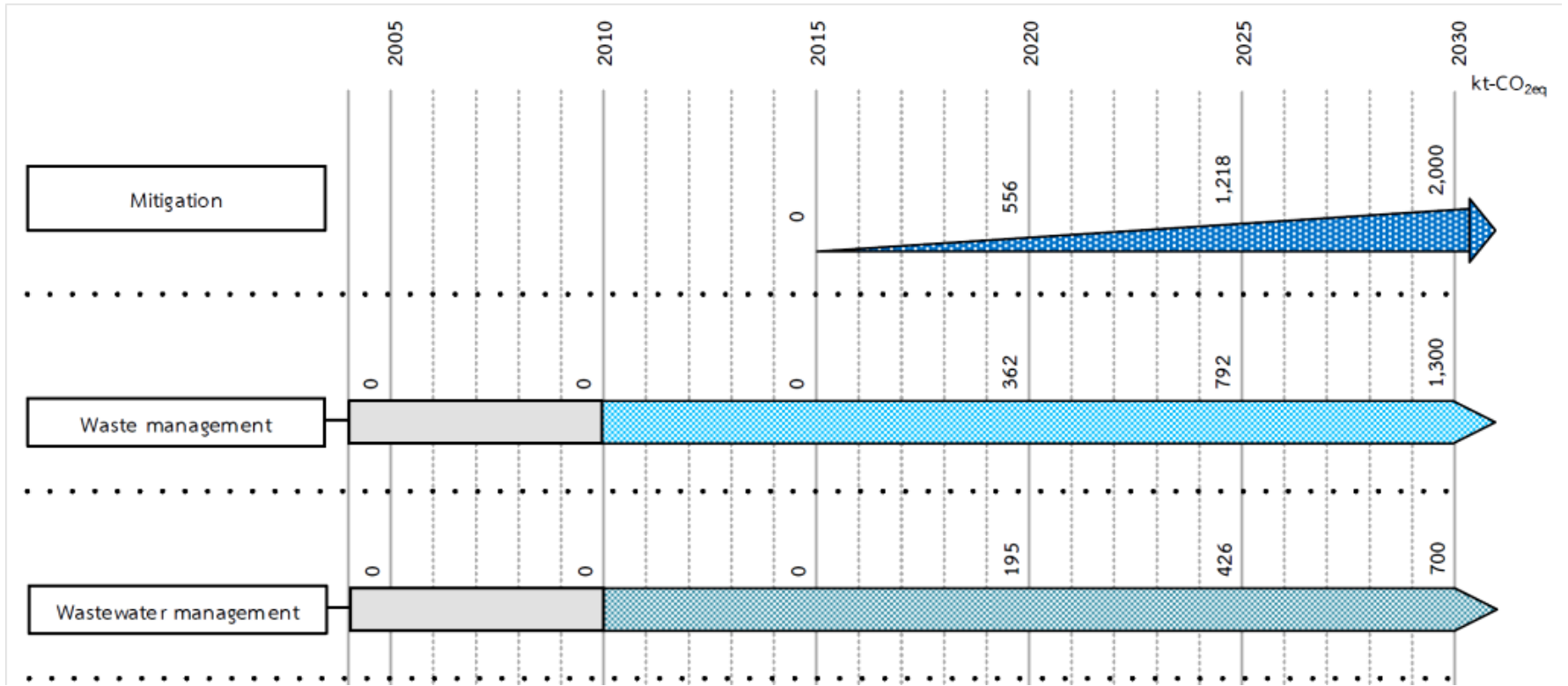
# BUILDING SECTOR



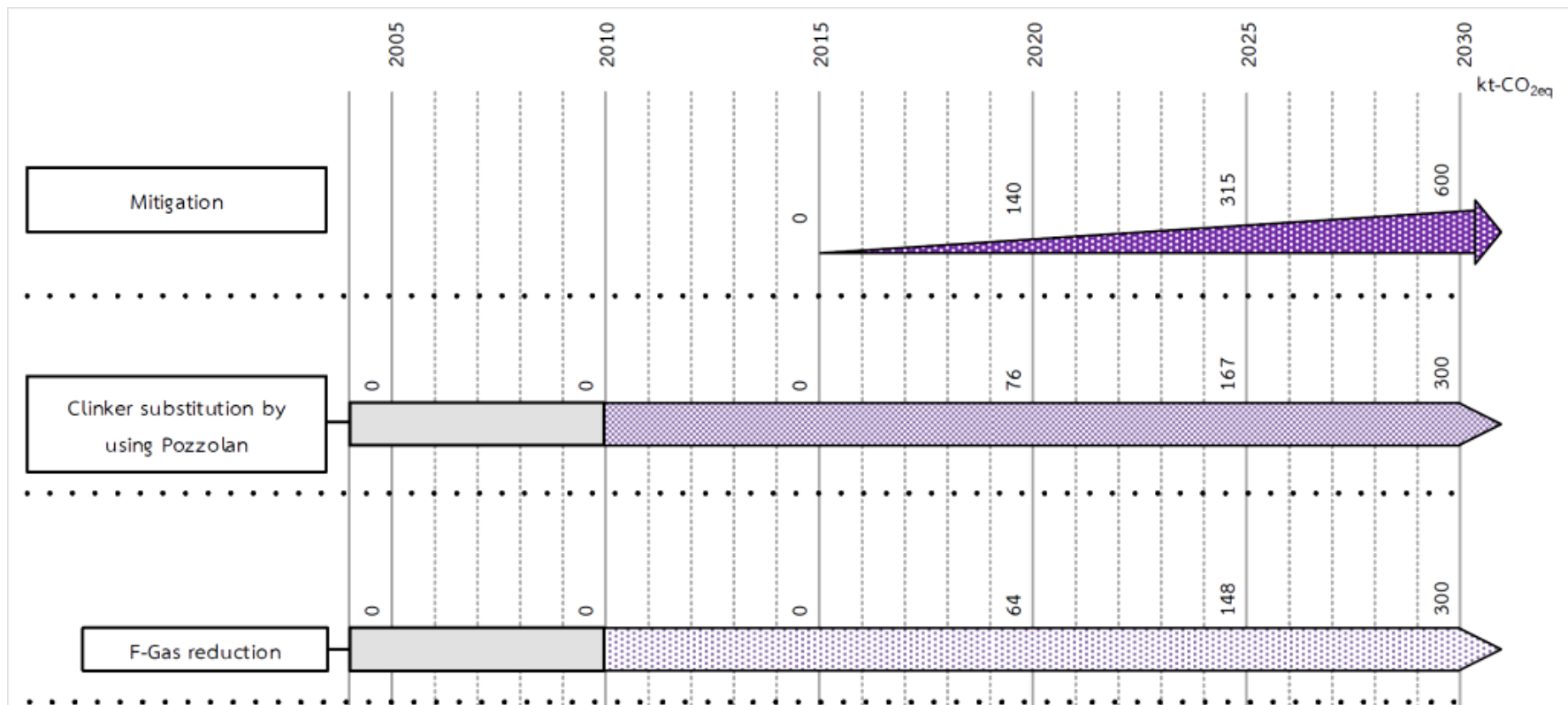
# RESIDENTIAL SECTOR



# WASTE SECTOR



# IPPU SECTOR

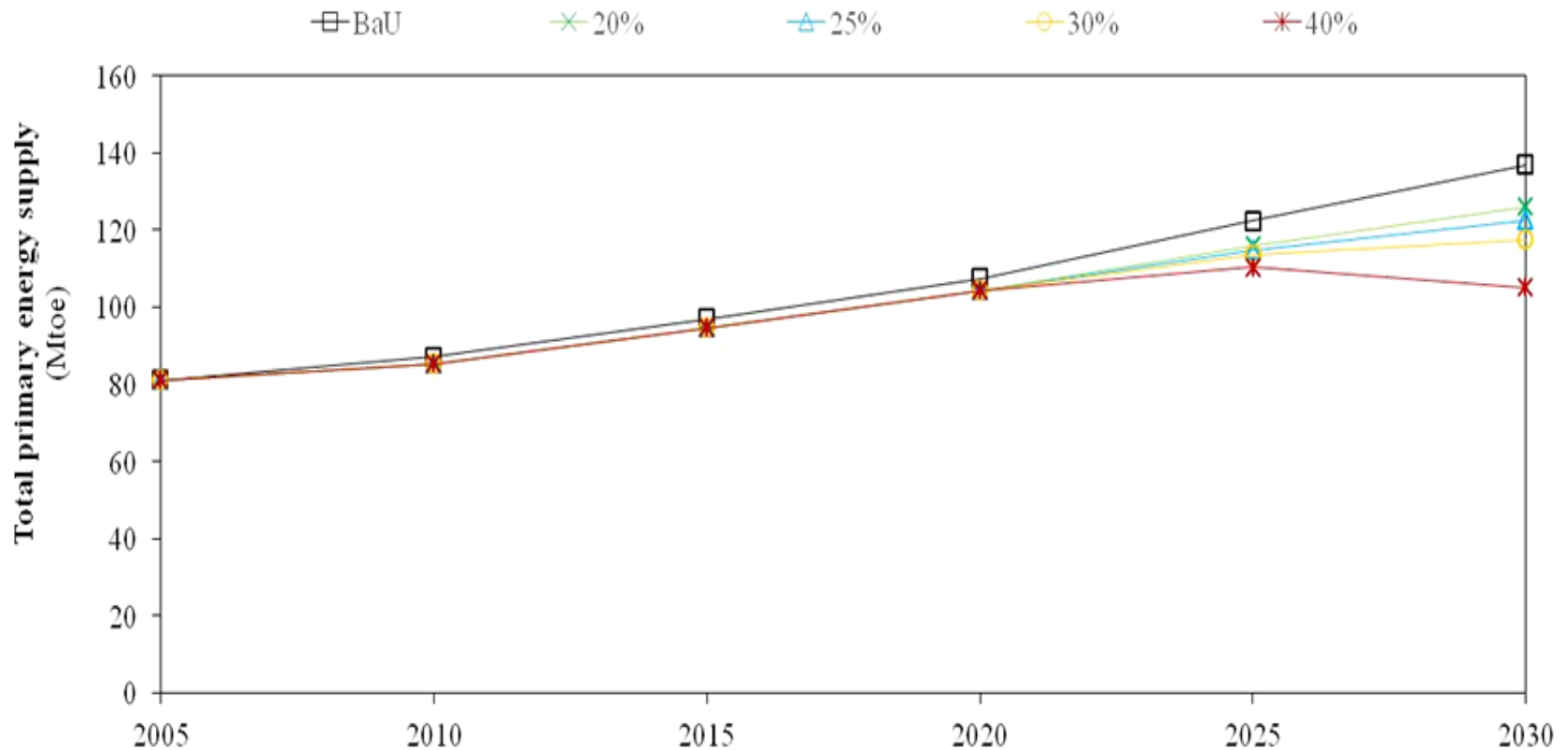




# Thailand's NDC 2030

## AIM/CGE Analysis

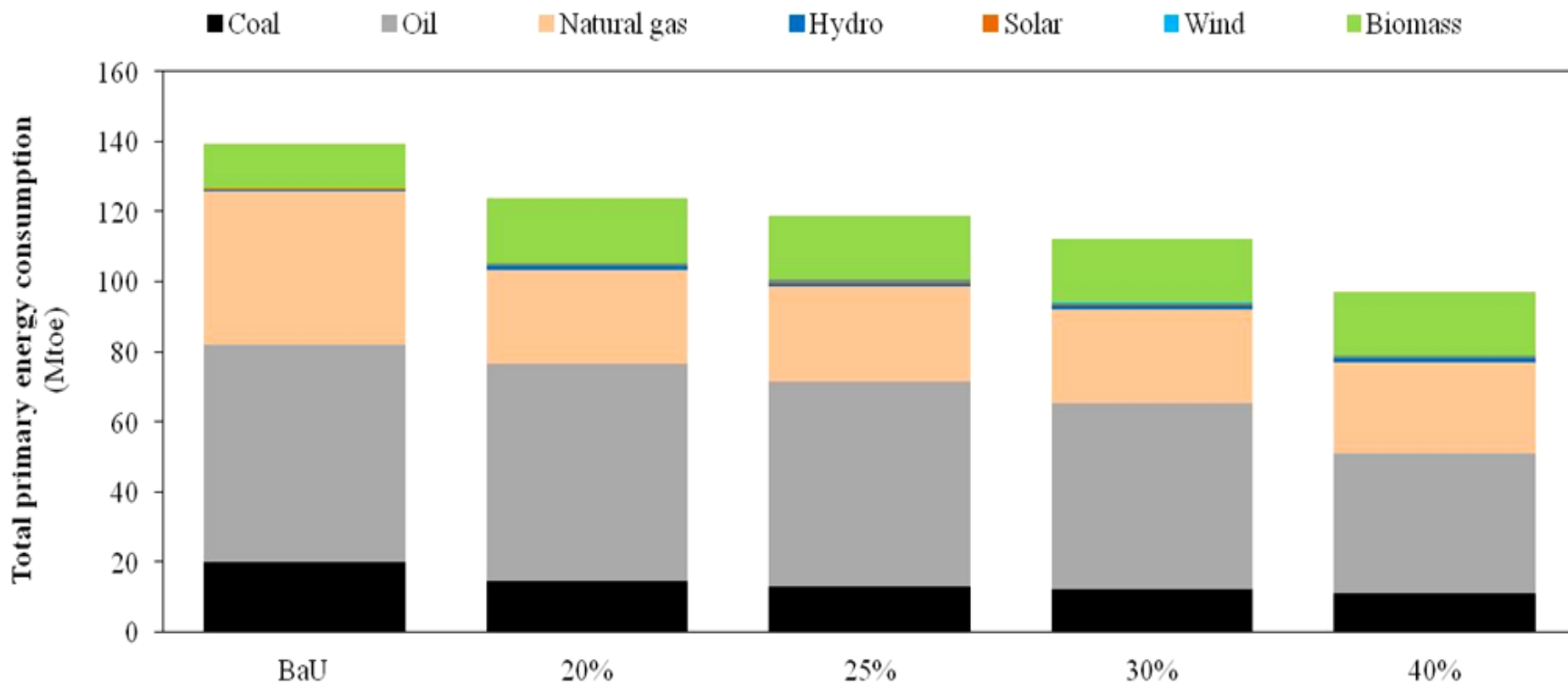
### Total Primary Energy Supply



# Thailand's NDC 2030

## AIM/CGE Analysis

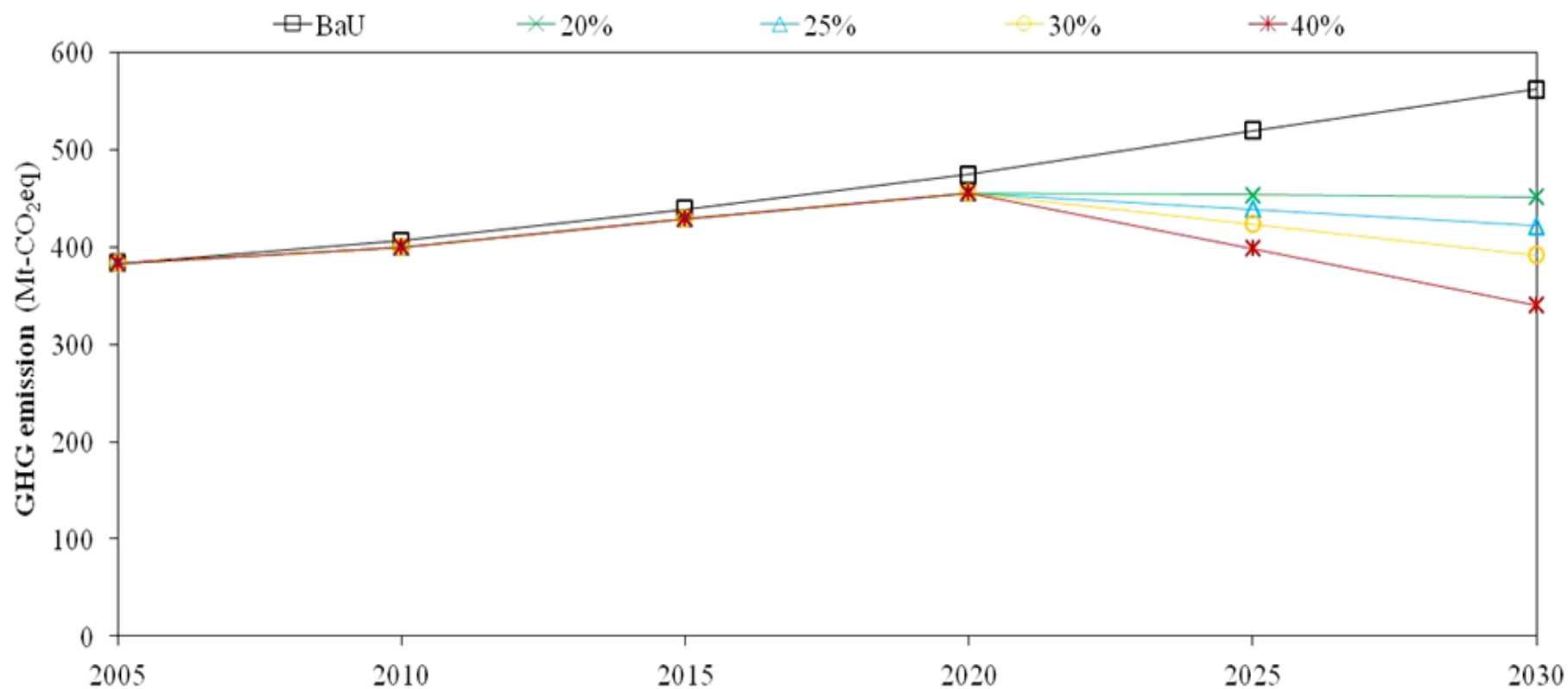
### Total Primary Energy Supply by Fuel Type



# Thailand's NDC 2030

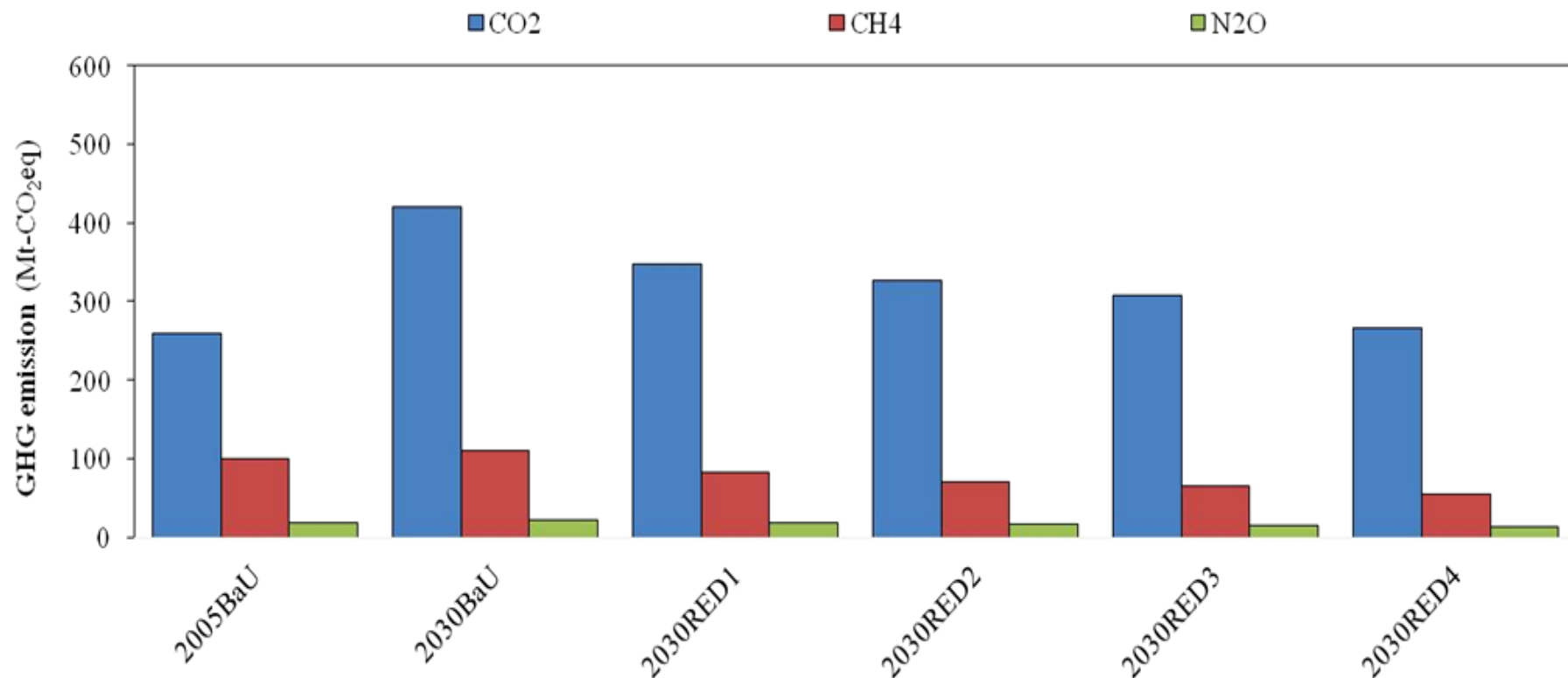
## AIM/CGE Analysis

### GHG Emissions



# Thailand's NDC 2030 AIM/CGE Analysis

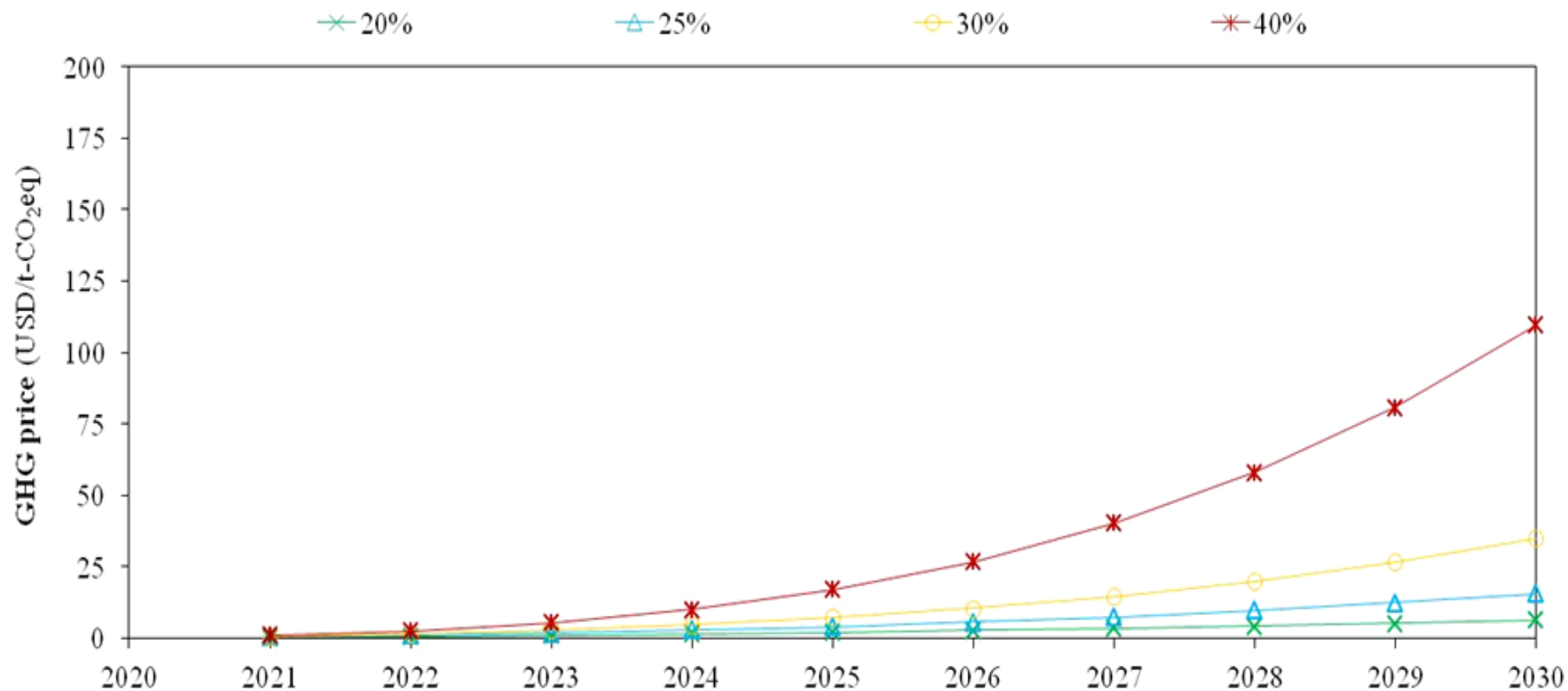
## GHG Emissions by gas type



# Thailand's NDC 2030

## AIM/CGE Analysis

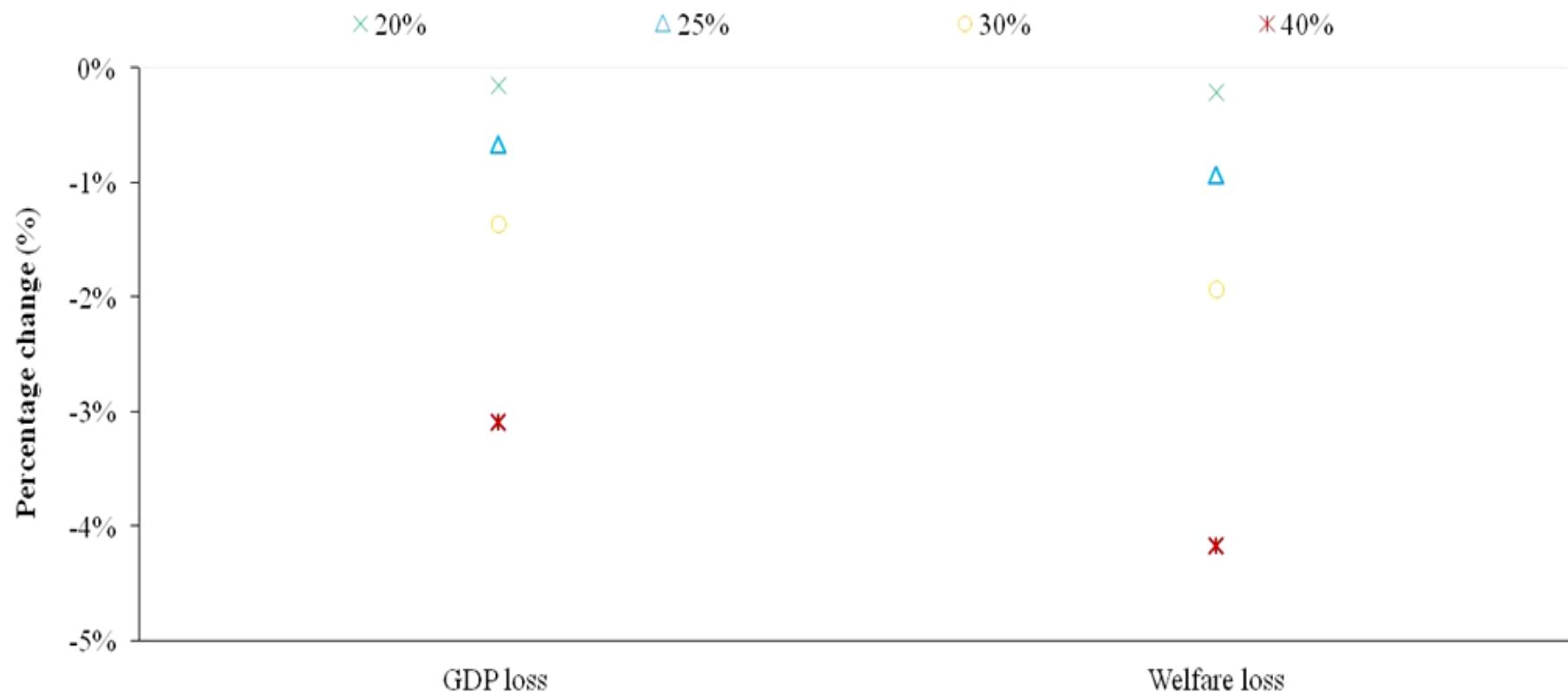
### GHG Prices





# Thailand's NDC 2030 AIM/CGE Analysis

## Macro-economic Impacts



# Conclusions

- We develop Thailand's NDC Roadmap 2030 and Peak Scenario.
- We analyzed renewable energy achievements of Thailand's NDC together with the economic impacts of GHG emission reduction.
- Macro-economic loss will be small under the 20% GHG reduction target; however, it will be large under the stringent GHG emission reduction targets.
- Thus, to achieve the stringent GHG emission reduction levels, government needs to promote and harmonize availability of RE and available land use with national climate policy.
- It is confirmed that current Power Development Plan 2015, Thailand's INDC can be achieved by full RE deployment.
- Moreover, both AEDP2015 and EEP2015 set the targets of achievement higher than ever, i.e. 30% deployment of RE in AEDP2015 and 30% energy intensity reduction in EEP2015.

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**Thank You**