Potential Economic implications of domestic ETS in Thailand

Carbon Business Office

Thailand Greenhouse Gas Management Organization (Public Organization)

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Main Objective

FY 15: Study of economic impacts from carbon pricing – Emission Trading and Carbon tax

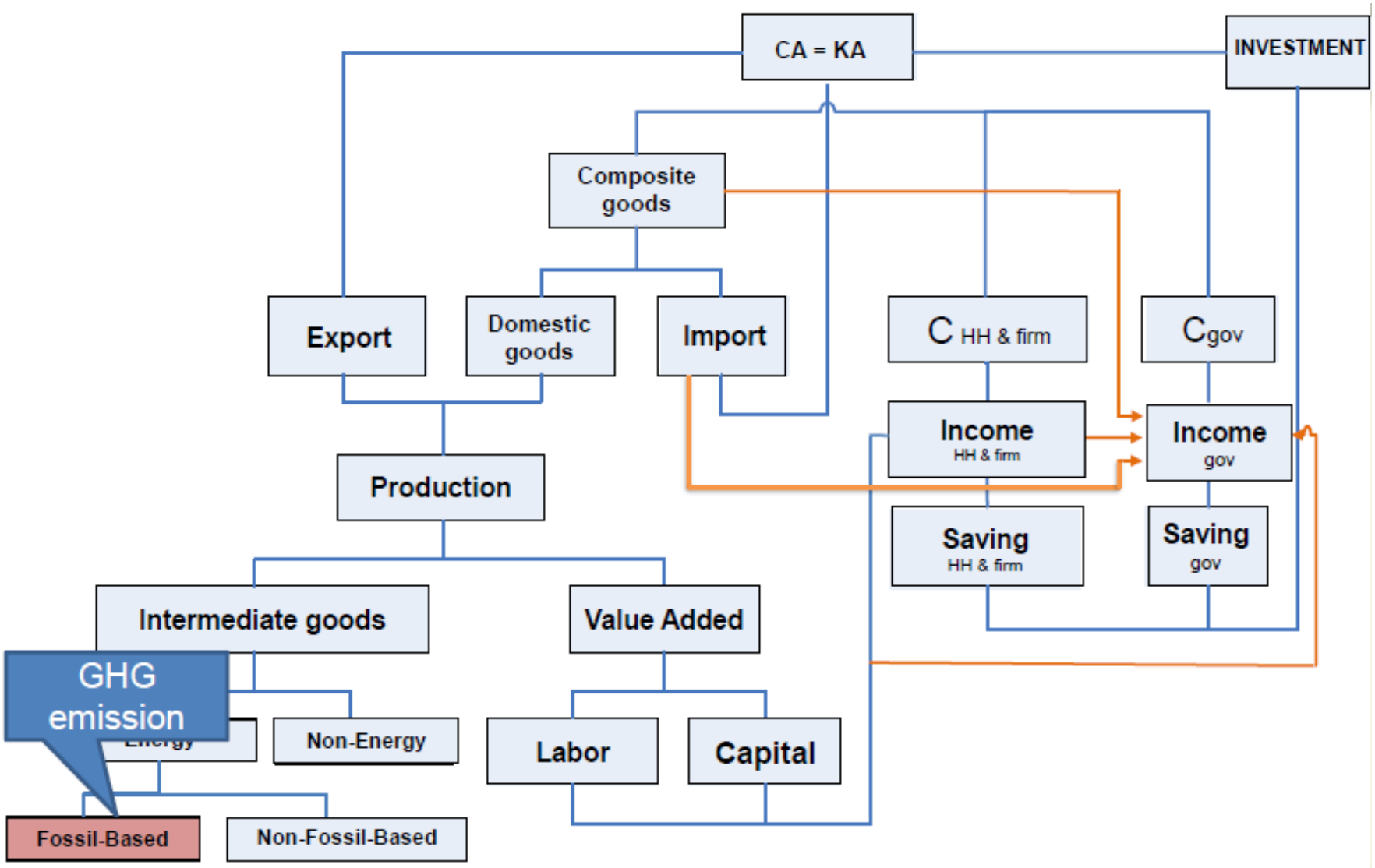
Assess economic impacts of cap-and-trade system to Thai economy comparing to other of alternative measures such as carbon tax

Policy Recommendation

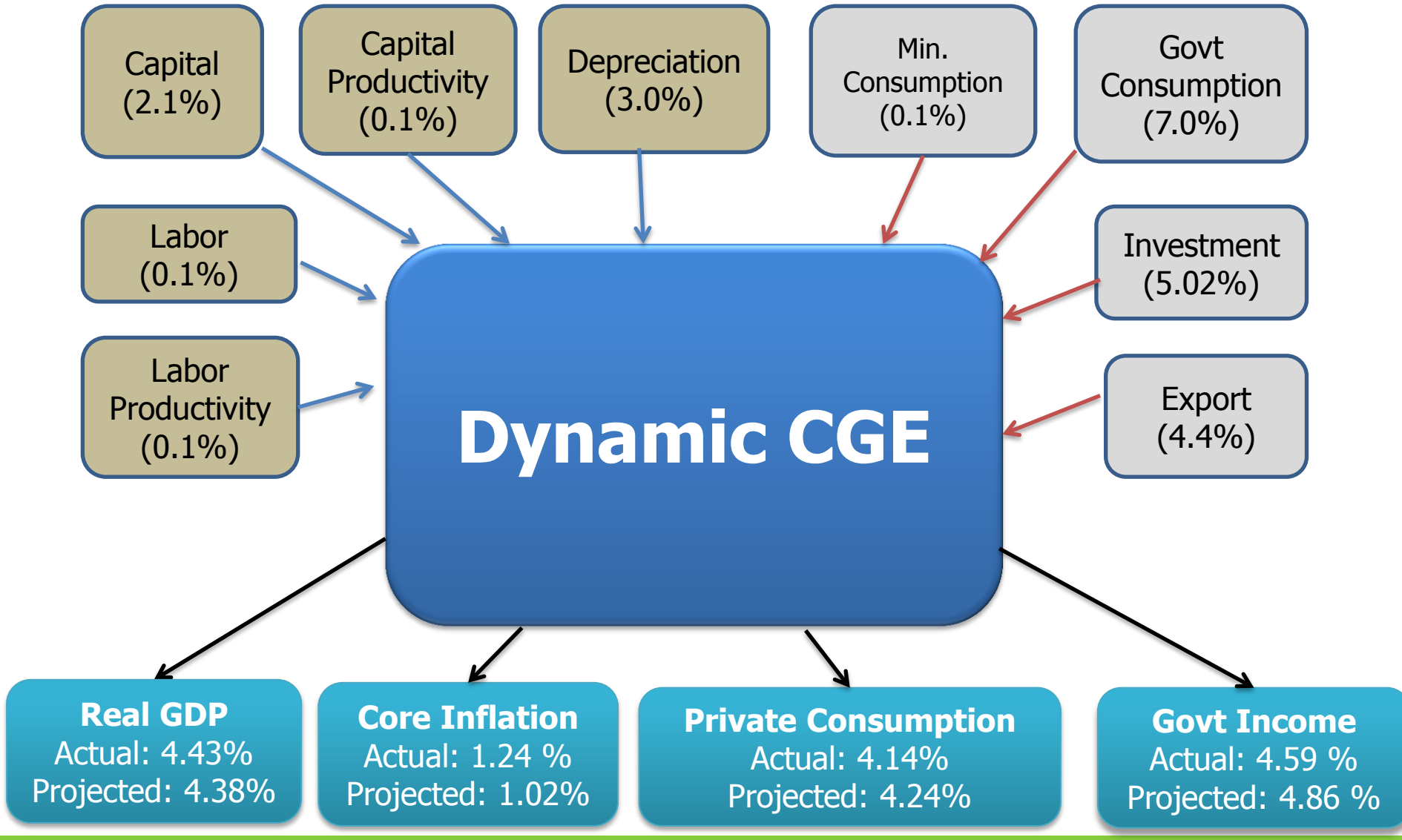
Dynamic CGE Model

- **Computable General Equilibrium Model(CGE)** is the set of non-linear equations representing economy-wide relationships of agents.
- **Most prices and quantities are freely adjusted in response to changes of external factors and policy instruments**. This structure represents the adjustment of all major markets in the economy.
- Main behavioral equations in the model includes these details:
  -42 production sectors based on the official national account
  -labor and capital markets
  -5 classifications of households based on income level
  -government
  -international trade

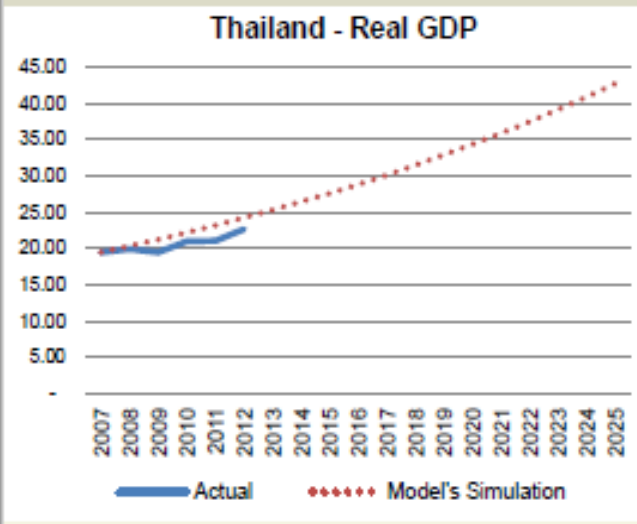
Main Structure of CGE Model

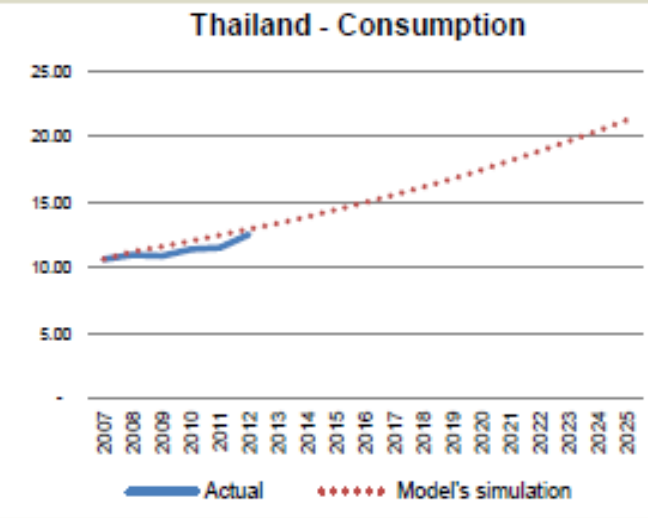


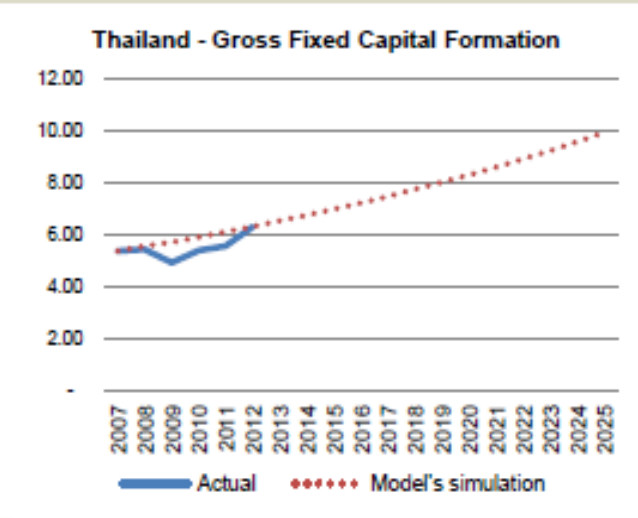
Main Assumptions and Forecasting Results

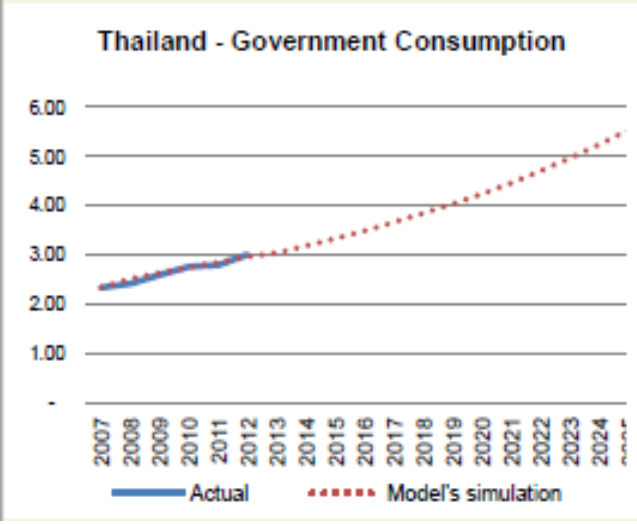


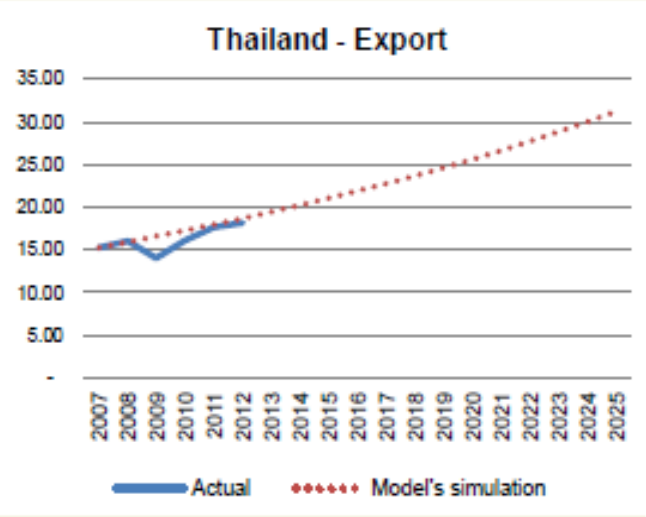
Projected GDP's Components

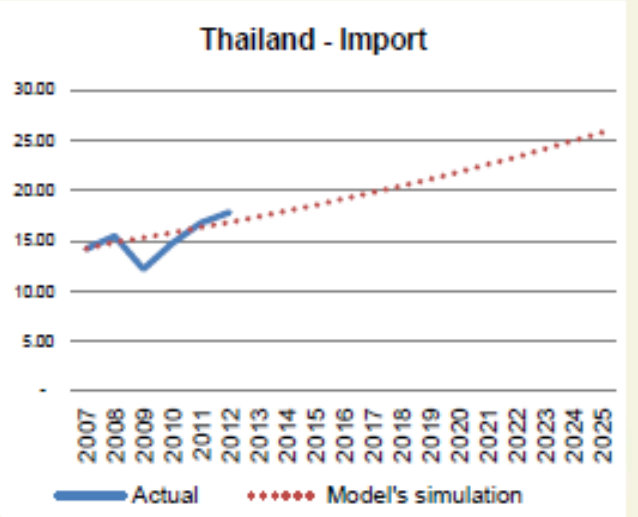




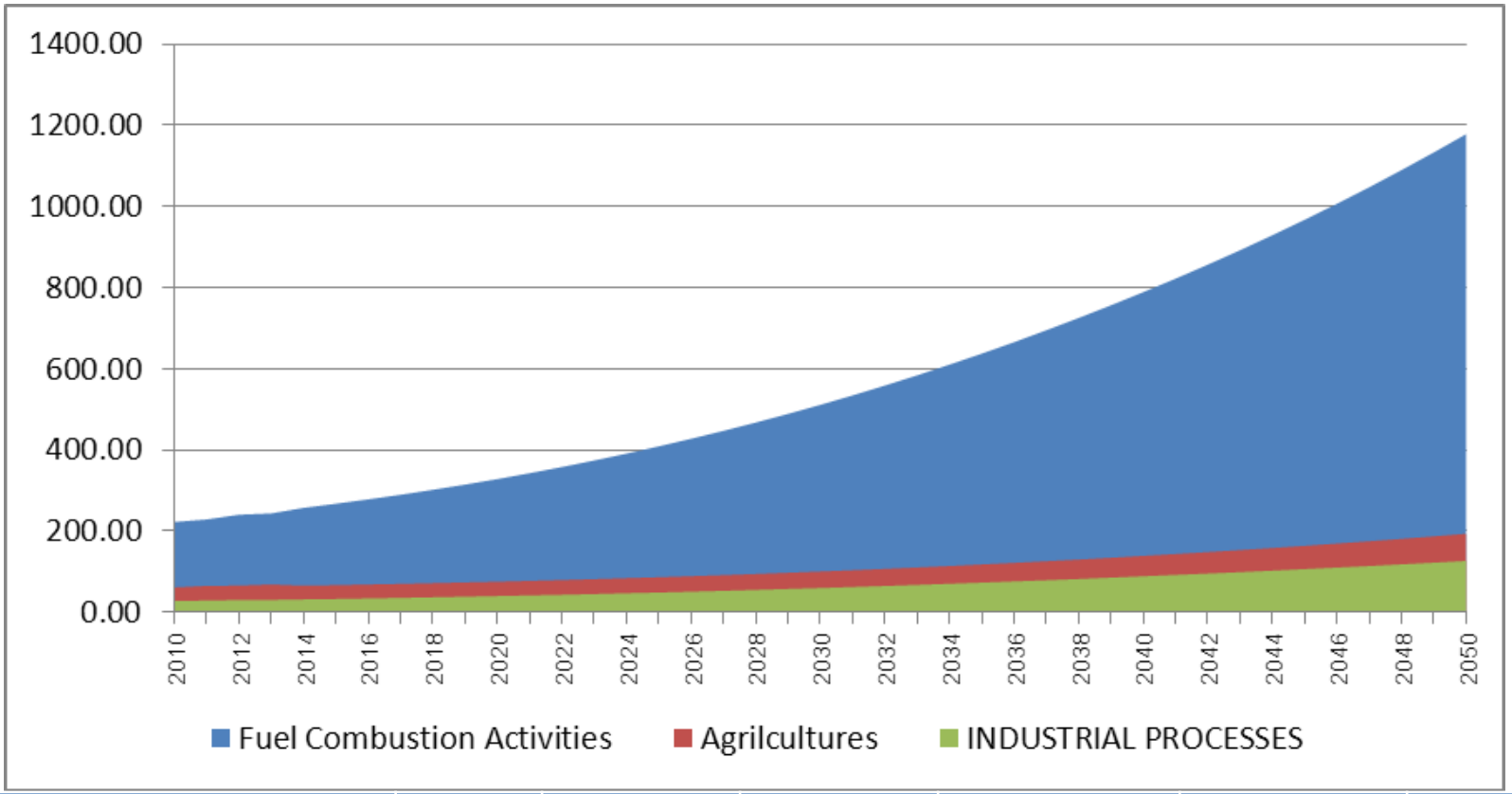






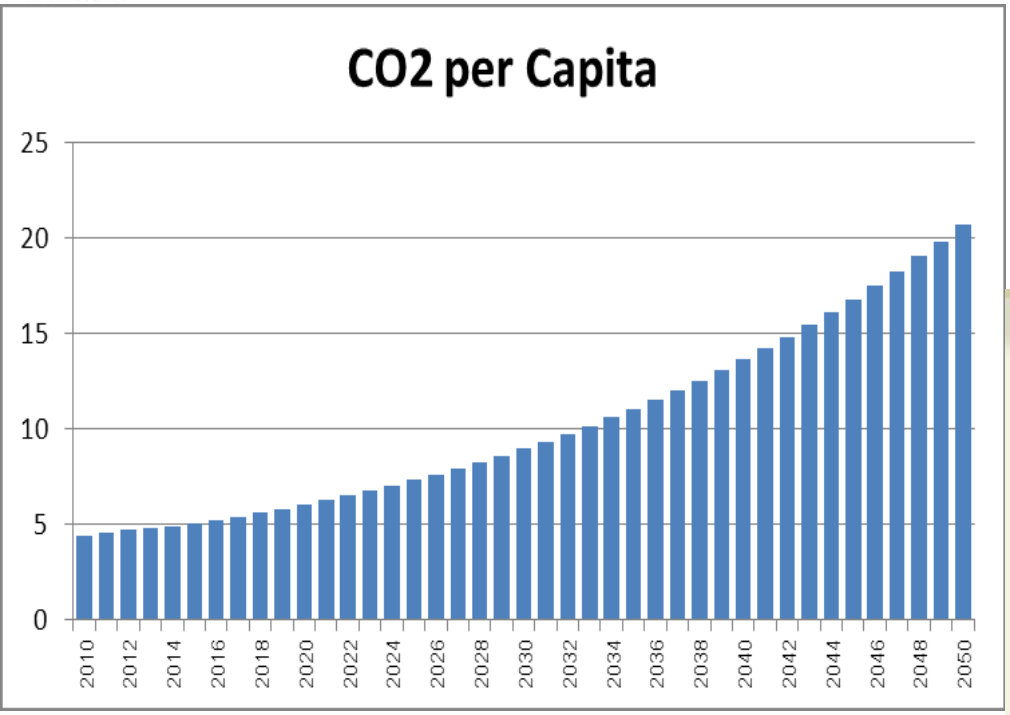


Projected GHGs Emission - BAU

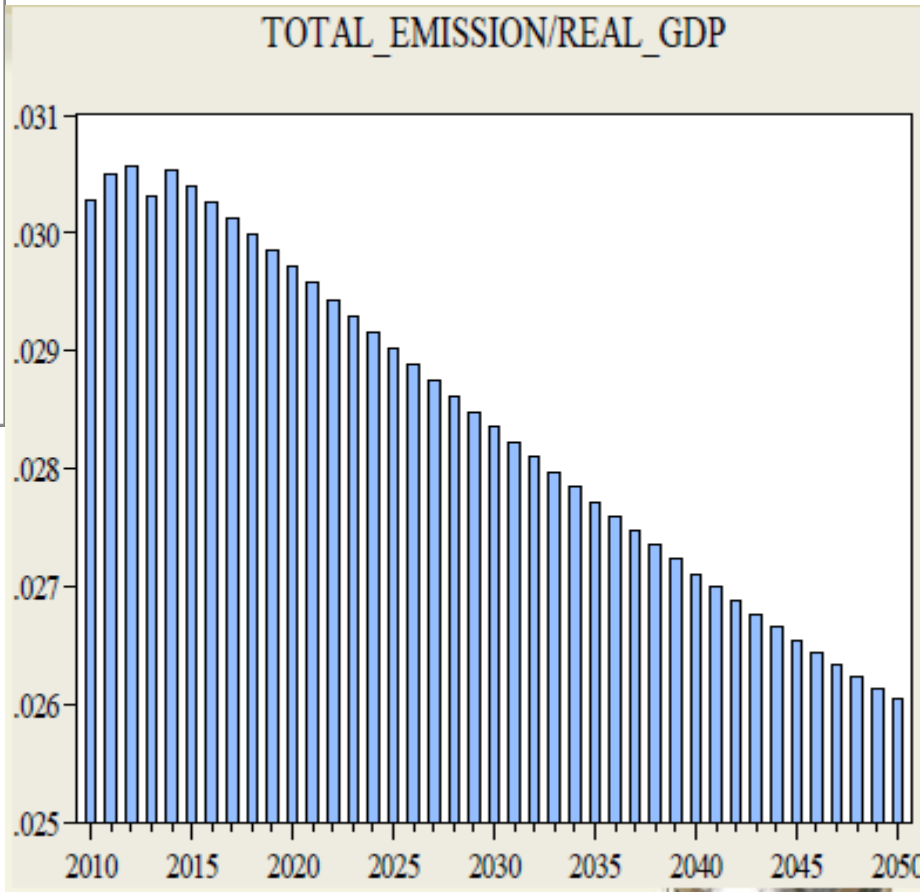


	2010	2020	2030	2040	2050	CAGR
Total Emission	312.08	443.91	671.74	1016.57	1498.69	**4.00%**
Fuel Combustion Activities	222.40	328.35	511.26	788.85	1178.43	**4.26%**
Agricultures	61.53	75.53	100.57	138.96	193.53	**2.91%**
Industrial Process	28.15	40.04	59.92	88.76	126.74	**3.83%**

Projected GHGs Emission – BAU (Con't)



CO_2 per capita will reach 20 tones/years in 2050

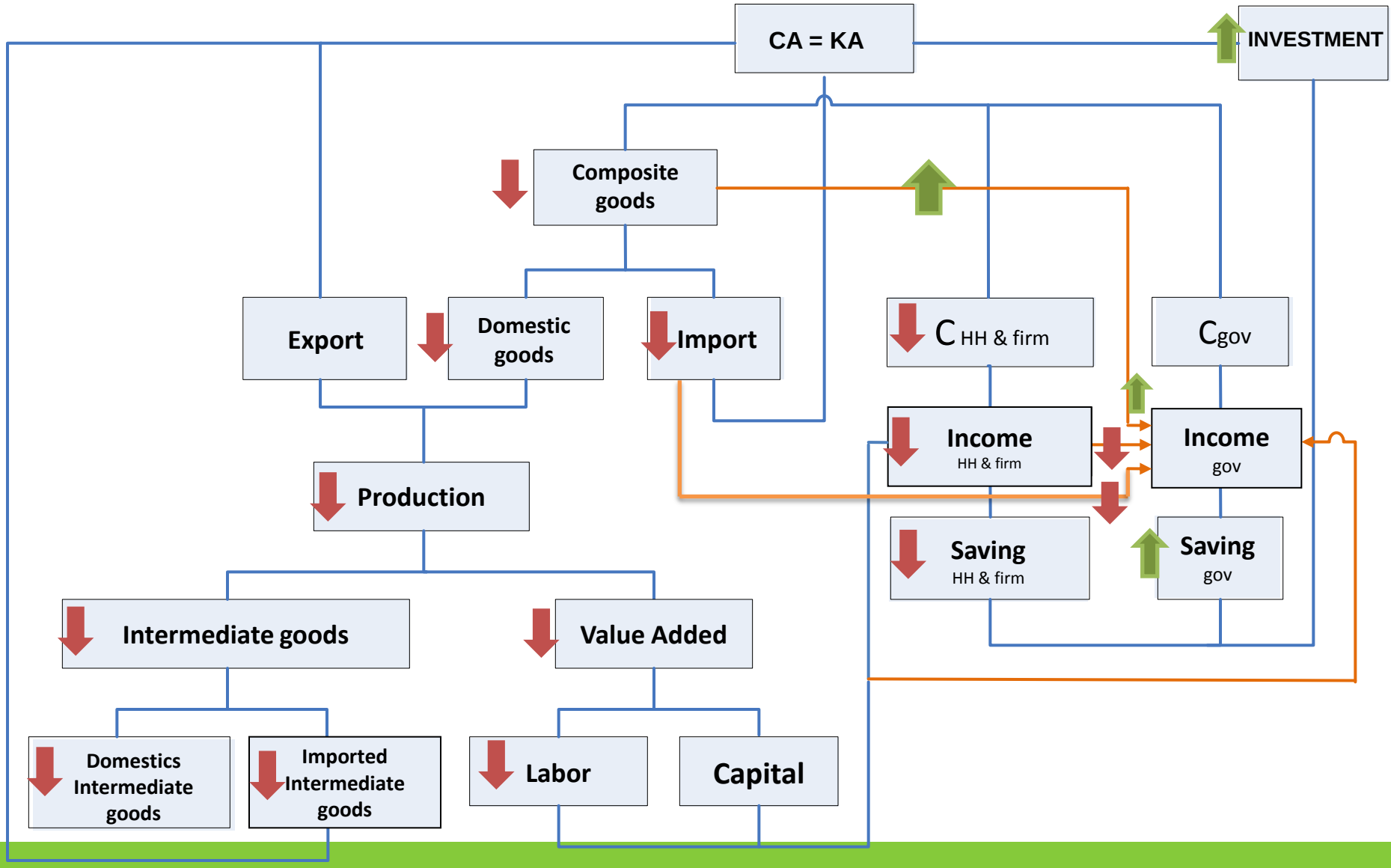


Thailand's emission intensity continuous decrease.

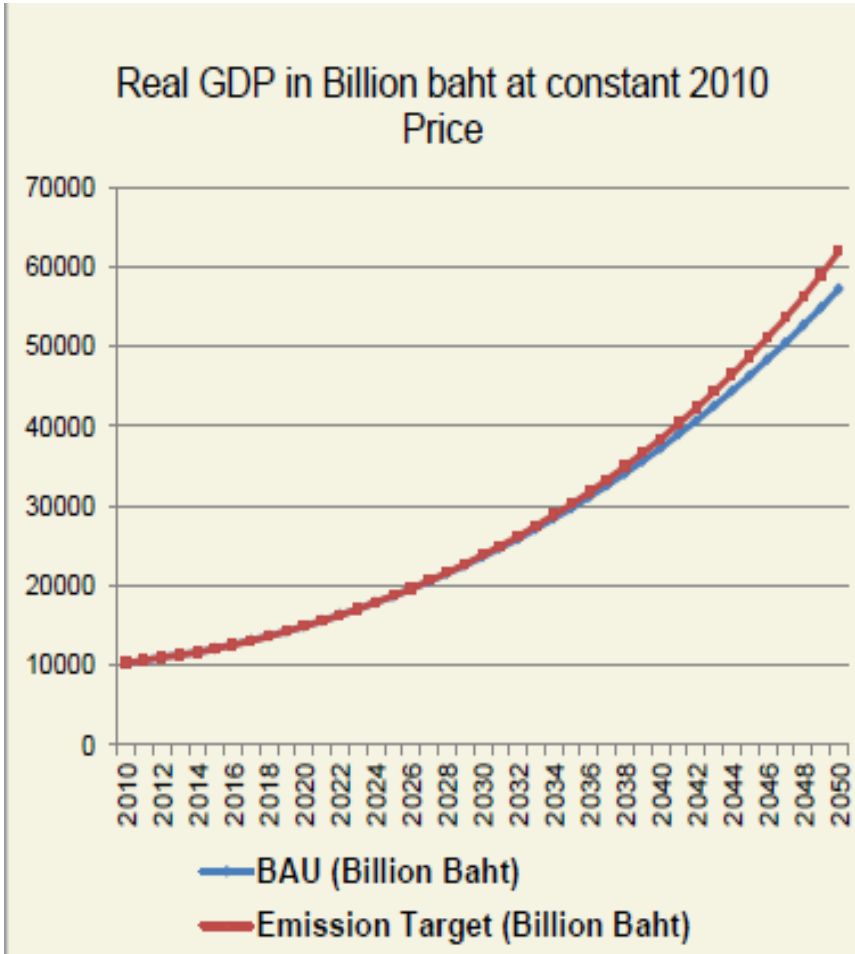
(Ton of CO_2e per 1,000 baht of GDP)

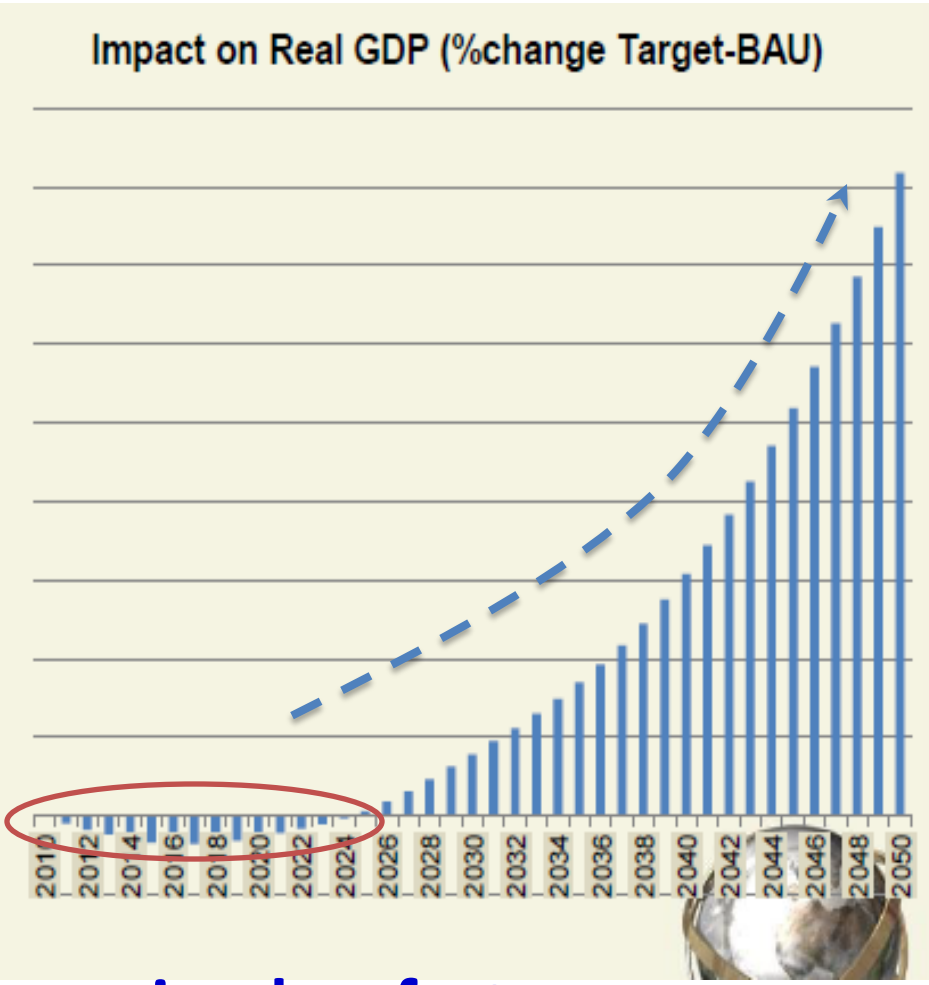
Carbon Tax and Thai Economy

Impacts of C.tax on Thailand's Econ.



GDP in the Long-run under Tax Recycling Measure

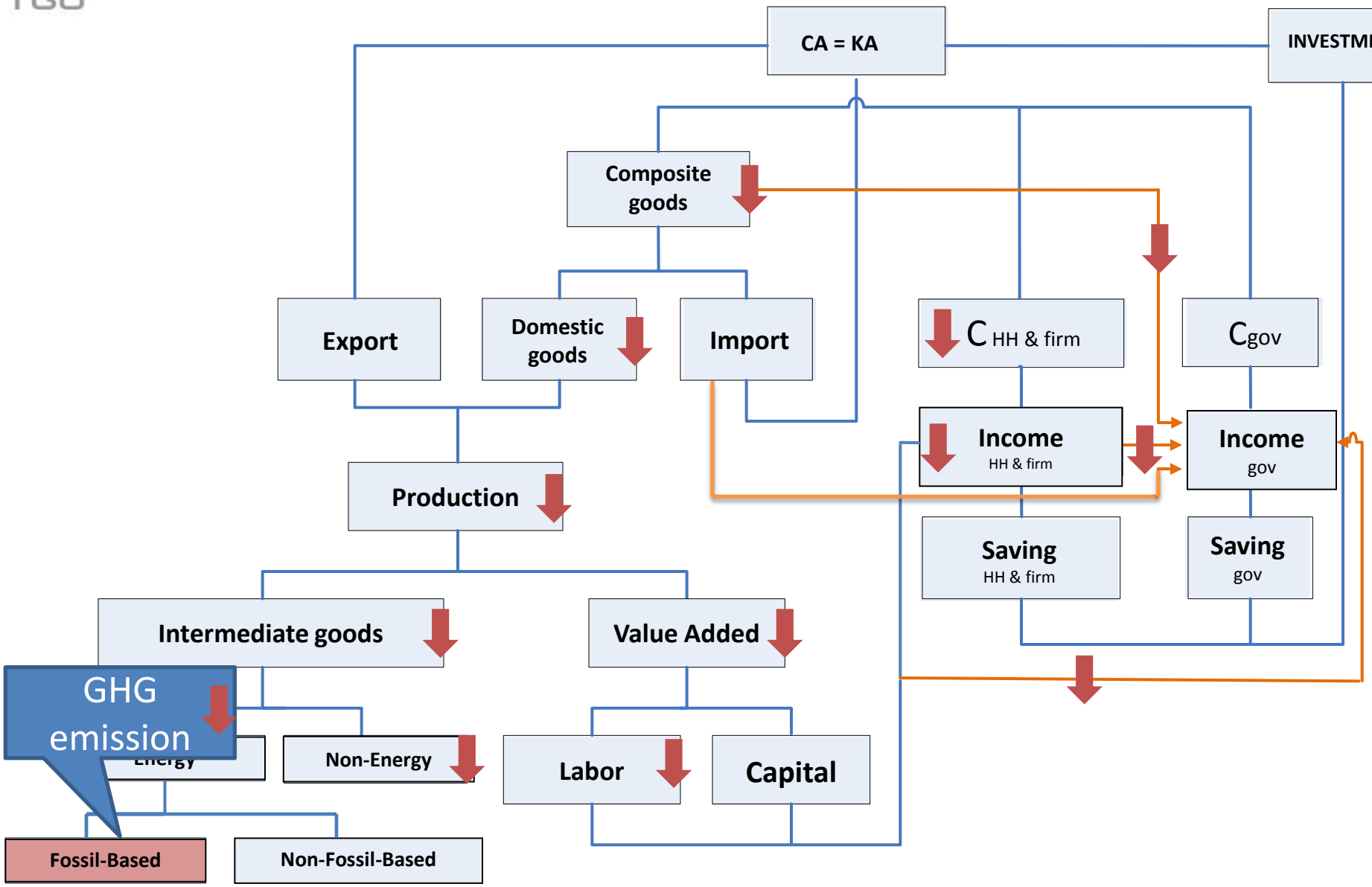




Tax Recycling Measure is a key factor for turn around in long-run

Cap and trade and Thai Economy

Impacts of ETS on Thailand's Econ.



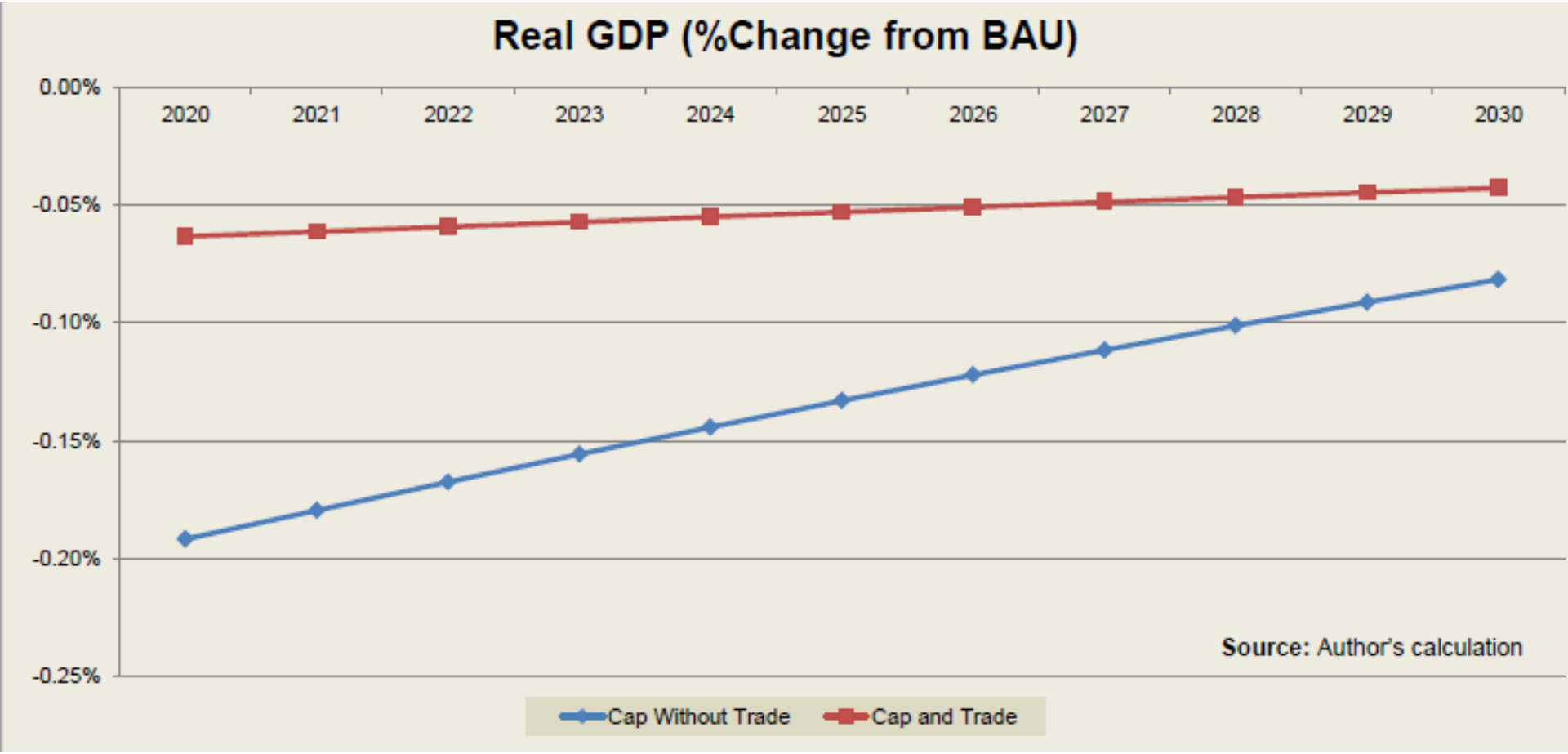
Assumptions on Trading simulation – Thai CGE model

In this study, it was assumed that 4 sectors will be included the emission-trading market.

- *SEC 13 FOOD*
- *SEC 23 CHEM*
- *SEC 27 IRON*
- *SEC 26 NMETAL*

- ***Each sector was capped for 1%*** reduction of CO_2 emission comparing to its BAU. And these 4 sectors will be buyers in the market.
- Electricity sector (SEC 32 ELECT) will be the only **seller** due to the lowest marginal abatement cost and huge amount of supply.

Economic Impacts of ETS



Cap-and-Trade scheme brings lower impact on GDP, comparing to cap-without-trade policy.

Key Finding

Carbon Tax	Emission Trading
Revenue Recycling is the key to "turn around GDP in long-run"	**ETS can reduce economic impact in short-term**; comparing to carbon tax and command & control.

- Command and control approach might lead to severe economic impact comparing to Carbon Tax and ETS measures.

- For long term goal, Government should consider to use **auction** for ETS allowance allocation because they could **recycle revenue** to support low carbon policy and/or invest in low carbon technologies. **In this regards, ETS might be the best policy option in GHGs reduction for Thailand.**

Thank you

READY Thailand to Combat Climate Change

Thailand Greenhouse Gas Management Organization (Public Organization)

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