Analytical Tools for Assessing Low Carbon Society Measures:

Country-level Examples

THAILAND

6 February 2017
AIT

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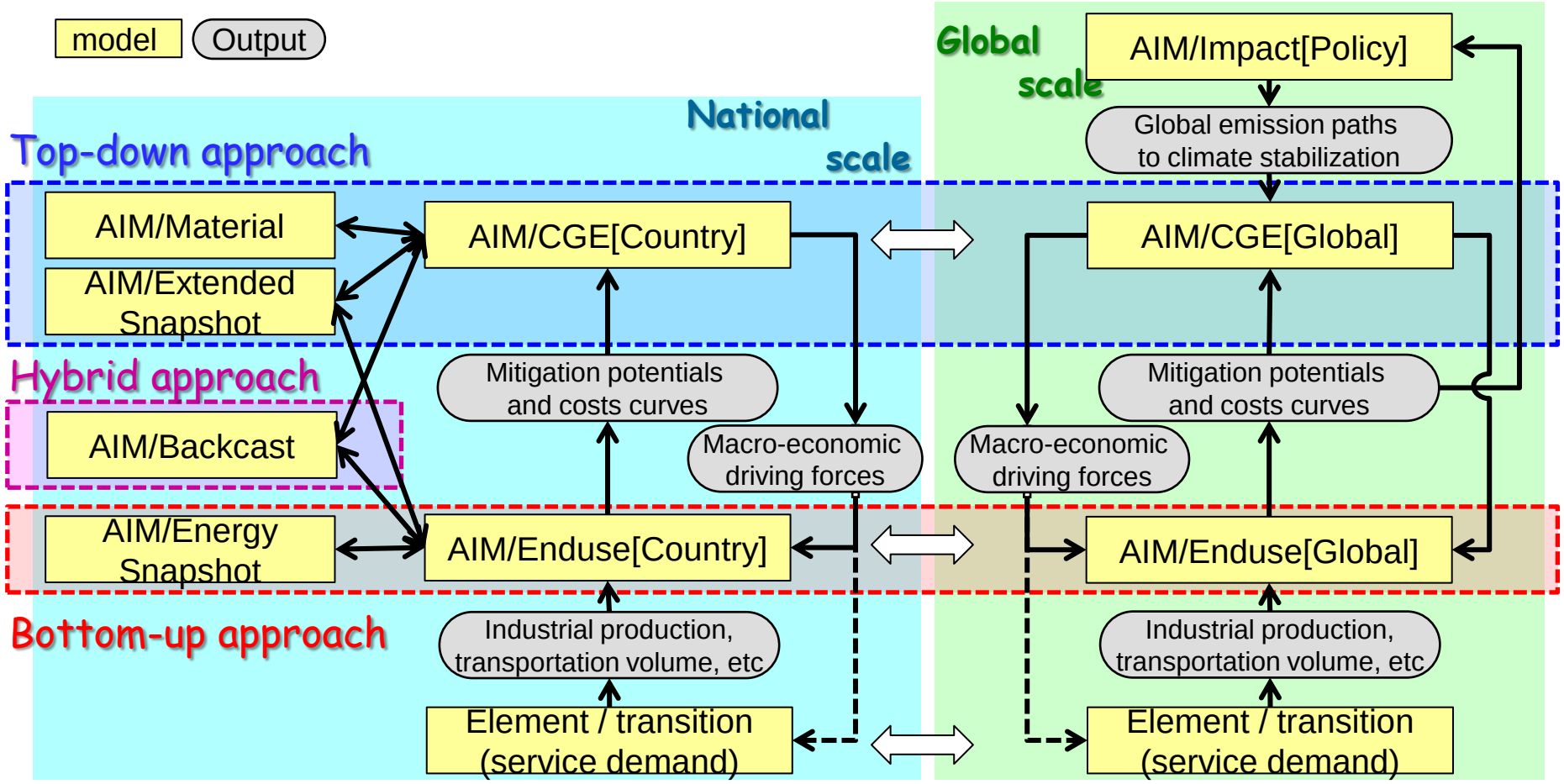
SIIT-TU

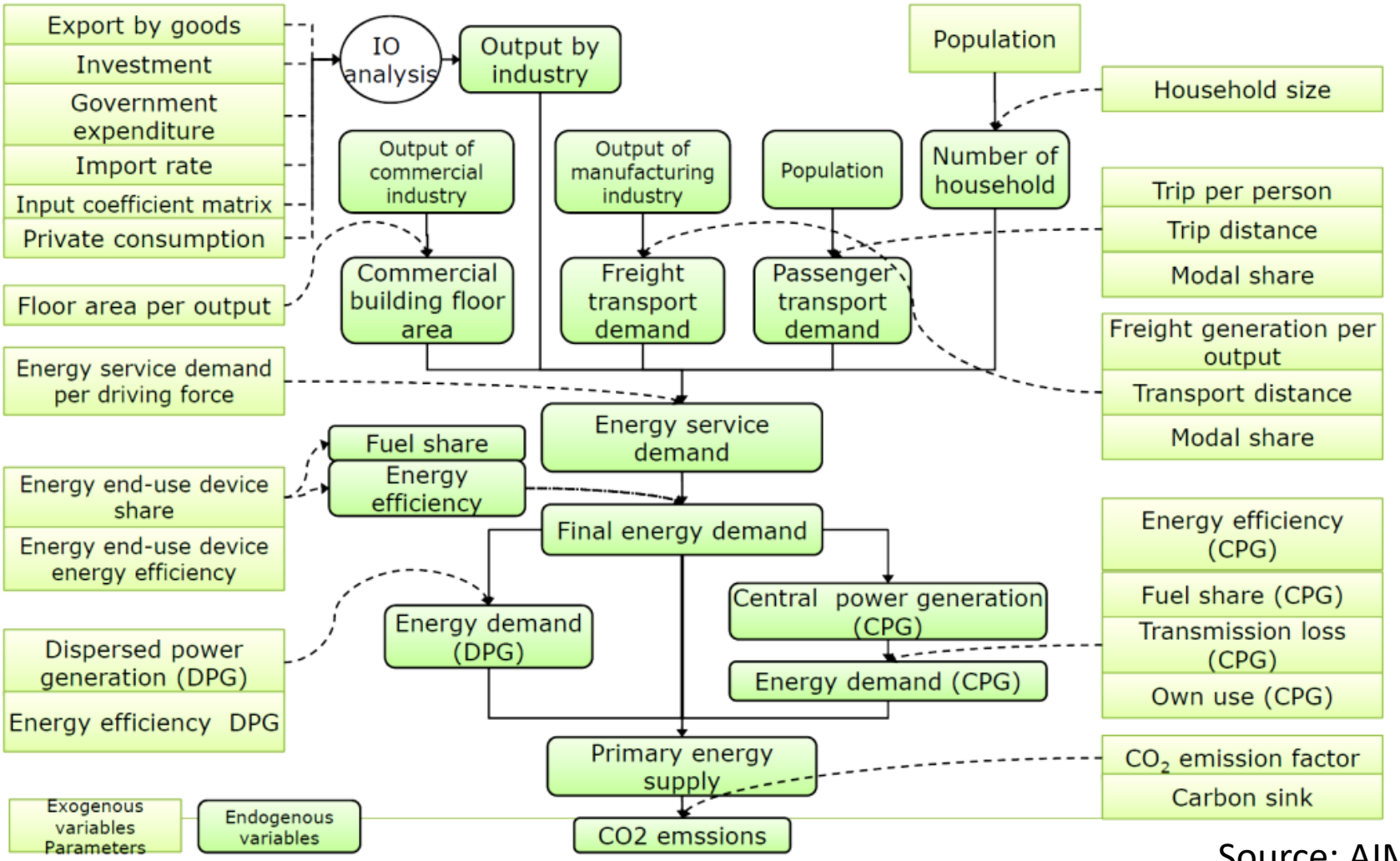
Asia-Pacific Integrated Model (AIM)
AIM family for mitigation analysis



Source: NIES Japan

AIM/ExSS

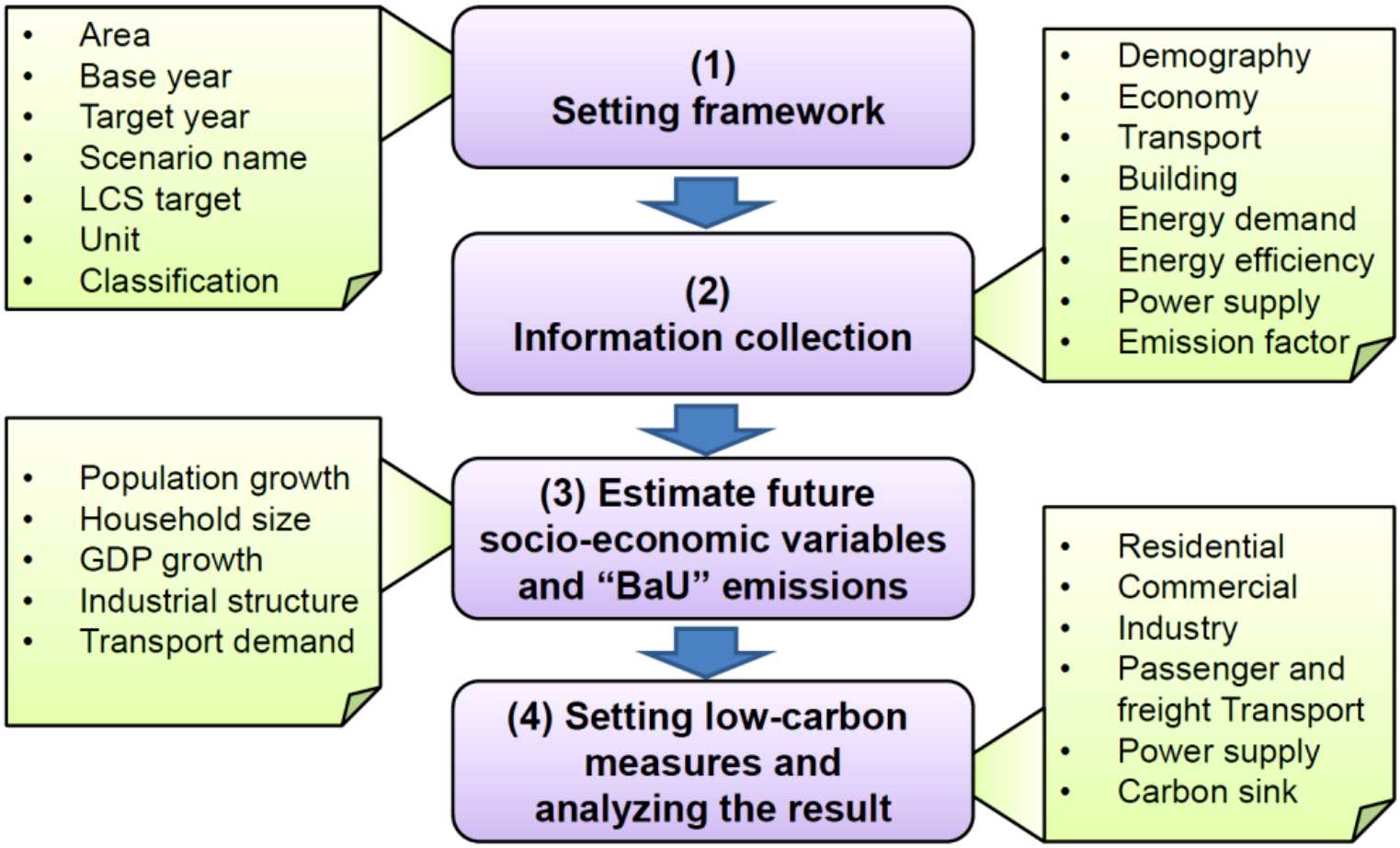
Model structure



Source: AIM

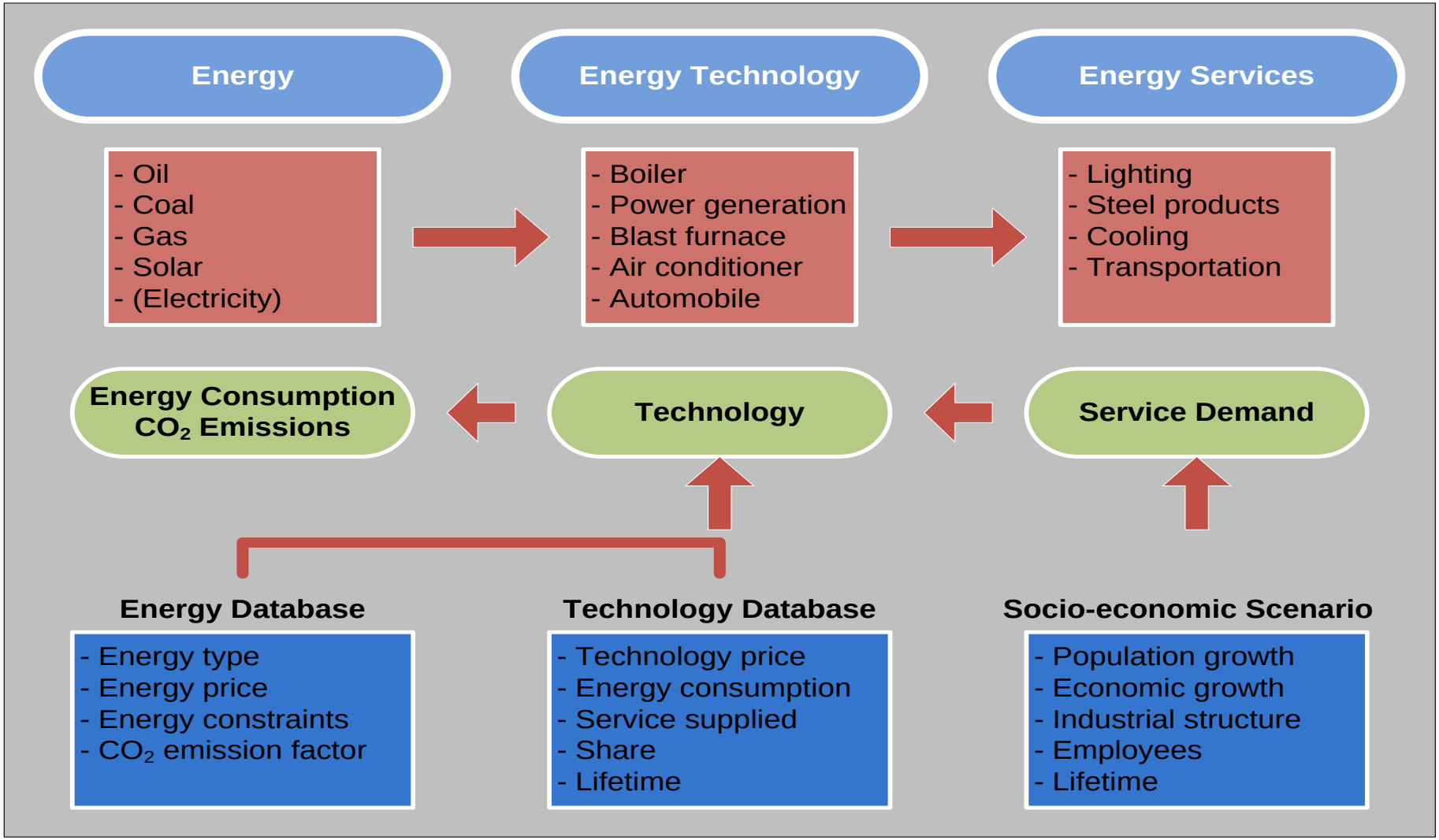
AIM/ExSS

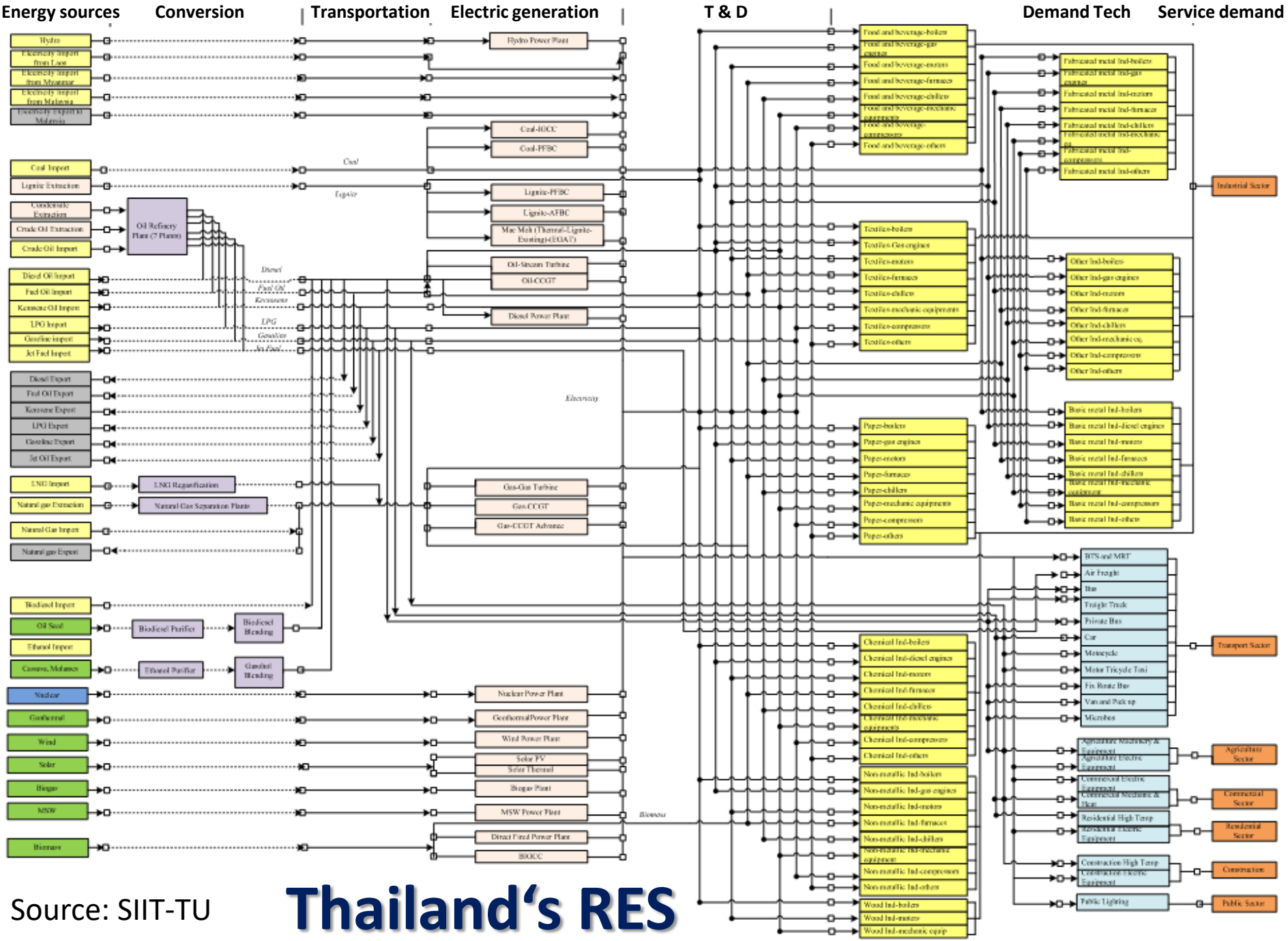
Four Steps



Source: AIM

Methodology (AIM/Enduse), NIES





Source: SIIT-TU

Thailand's RES

AIM/CGE

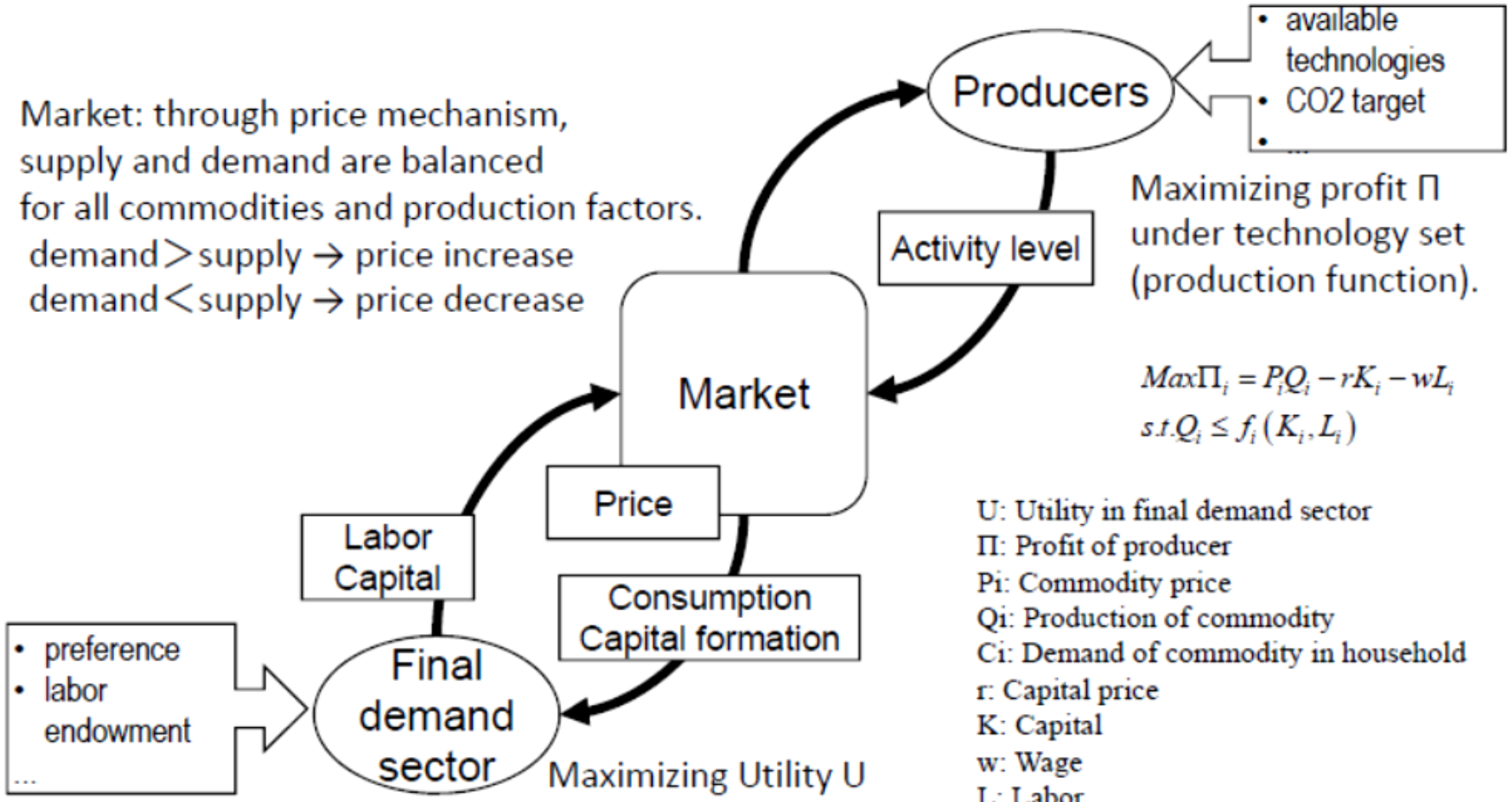
What's CGE?

- "**Computable**": quantitative
- "**General**": treatment of all commodities, sectors and production factors in the treated society
- "**Equilibrium**": demand and supply of each commodity and factor are balanced through the price mechanism

Source: AIM

AIM/CGE

AIM/CGE -Top-down approach-

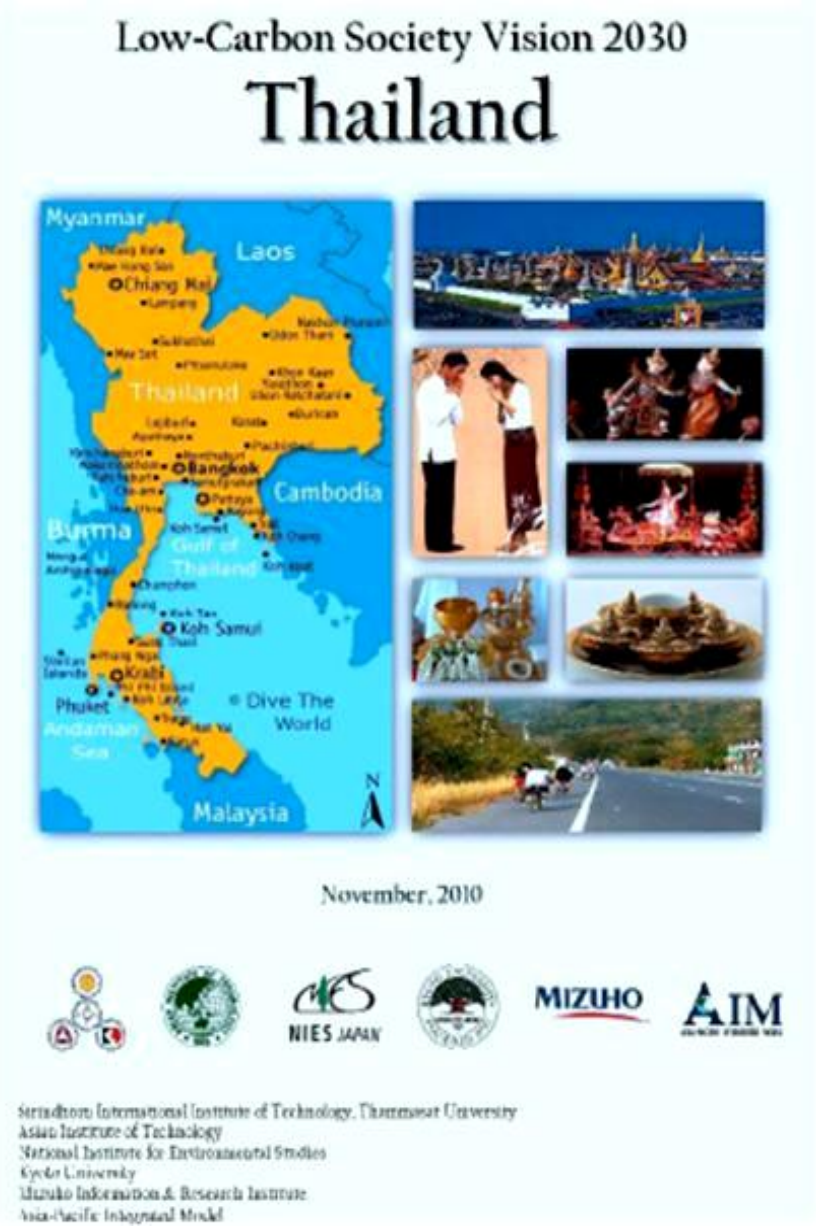


AIM

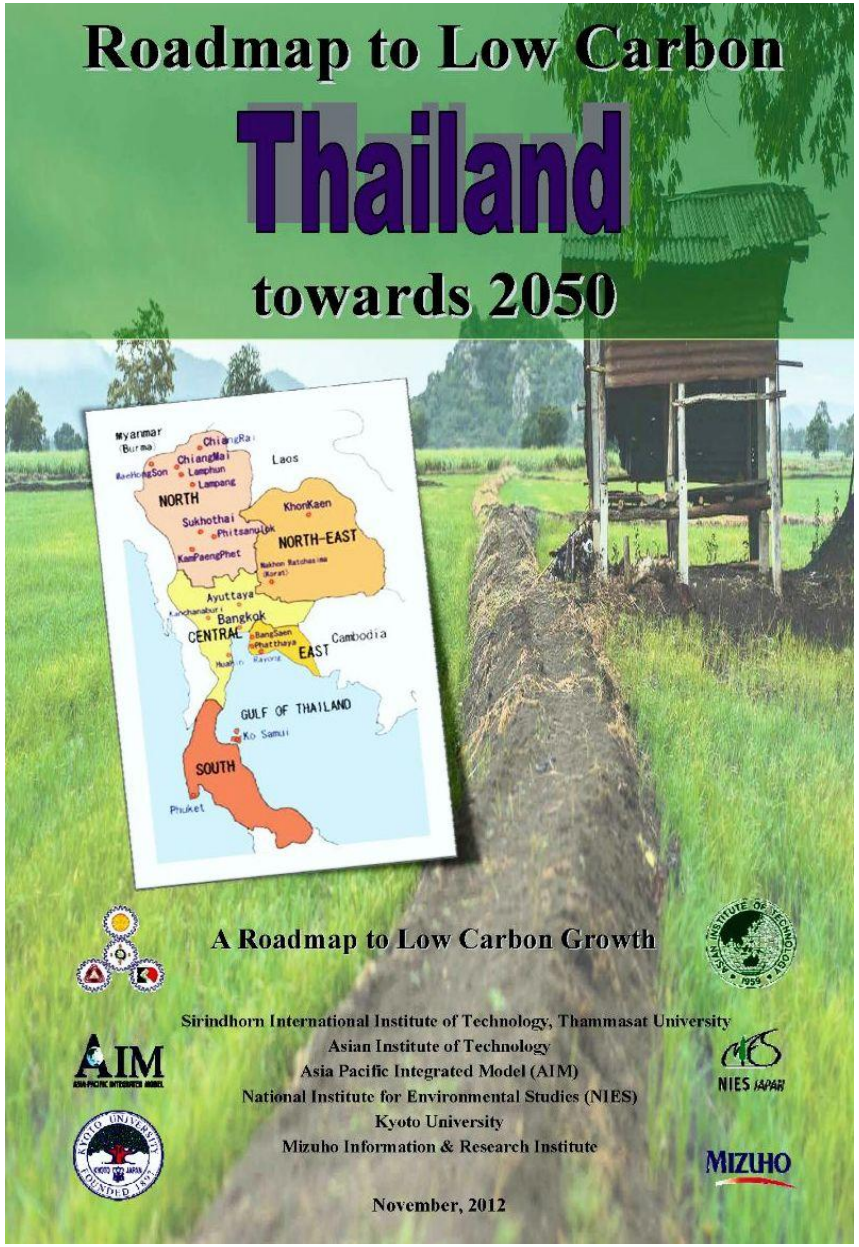
Source: AIM

LCS Modelling for Thailand

1. LCS Scenario 2030 by AIM/ExSS
2. Appropriate CO_2 mitigation target in 2020 by AIM/Enduse
3. Roadmap to Low Carbon Thailand 2050 by AIM/Enduse
4. Economic impacts of CO_2 mitigation targets by AIM/CGE
5. Peak CO_2 Scenario for Thailand
6. 1.5 Degree Scenario for Thailand

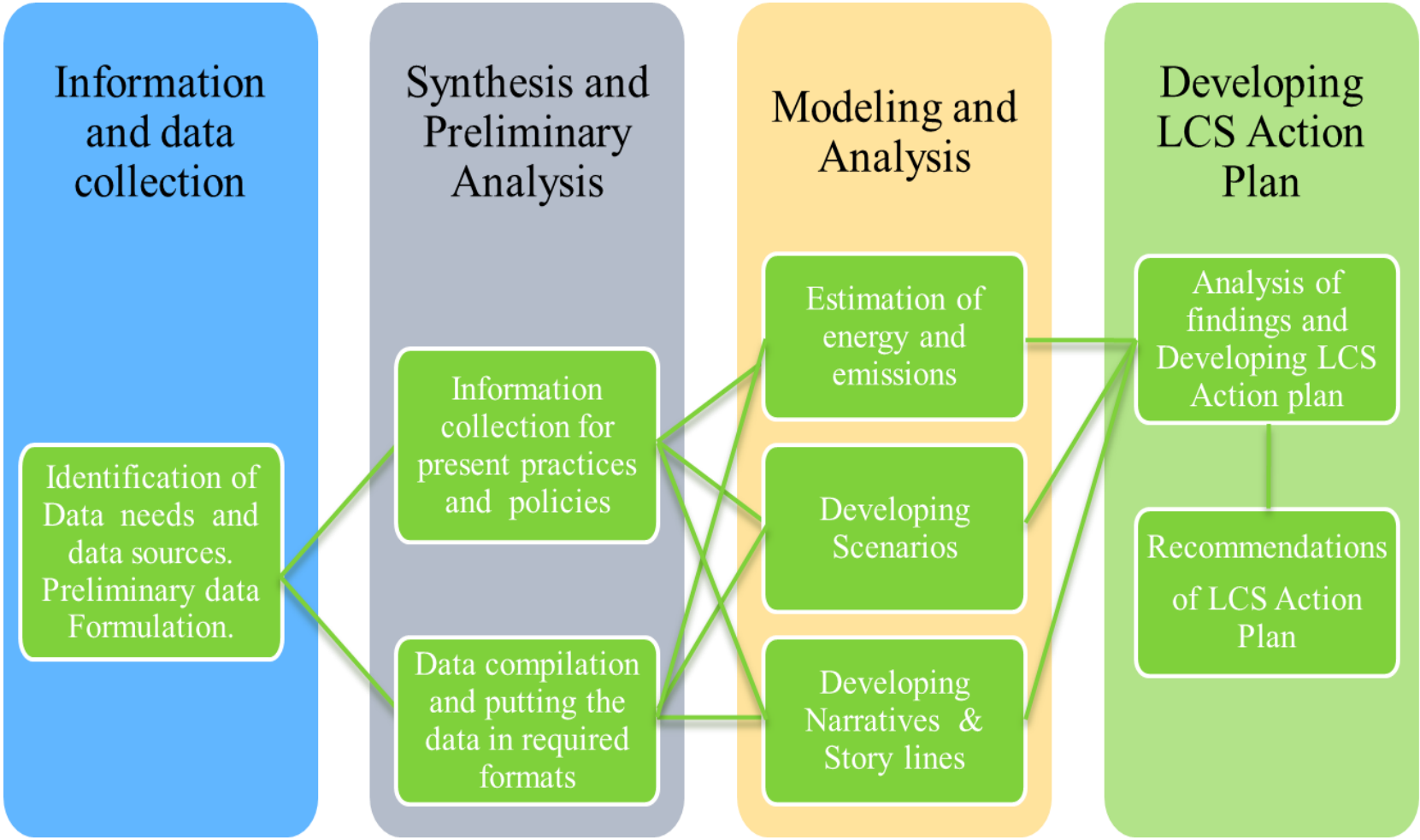


1st LCS Scenario by AIM/ExSS



2nd LCS Roadmap by AIM/Enduse

Methodology (LCS Action Plan)



Role of Integrated Assessment Model (IAM) in Thailand domestic discussion

I. Review, Analyze mitigation potentials Thailand's contributions

- **Review of UNFCCC and Thailand CDM and Pre2020 Mitigation**
- **Status/Readiness of Thailand for contributions**
- **Countermeasures/Priority areas of Contributions**

II. **AIM/Enduse** and Multi-benefit analyses

- **AIM Modeling Energy**
  → **Result From Model**
  (Energy Consumption, CO_2 Emission, Abatement Costs)
  → **GHG Mitigation Potential**
- **Pre2020 Assessment**
  (Cost Effectiveness, Co-benefit, Energy Security)

→ **Policy measures for agreement**

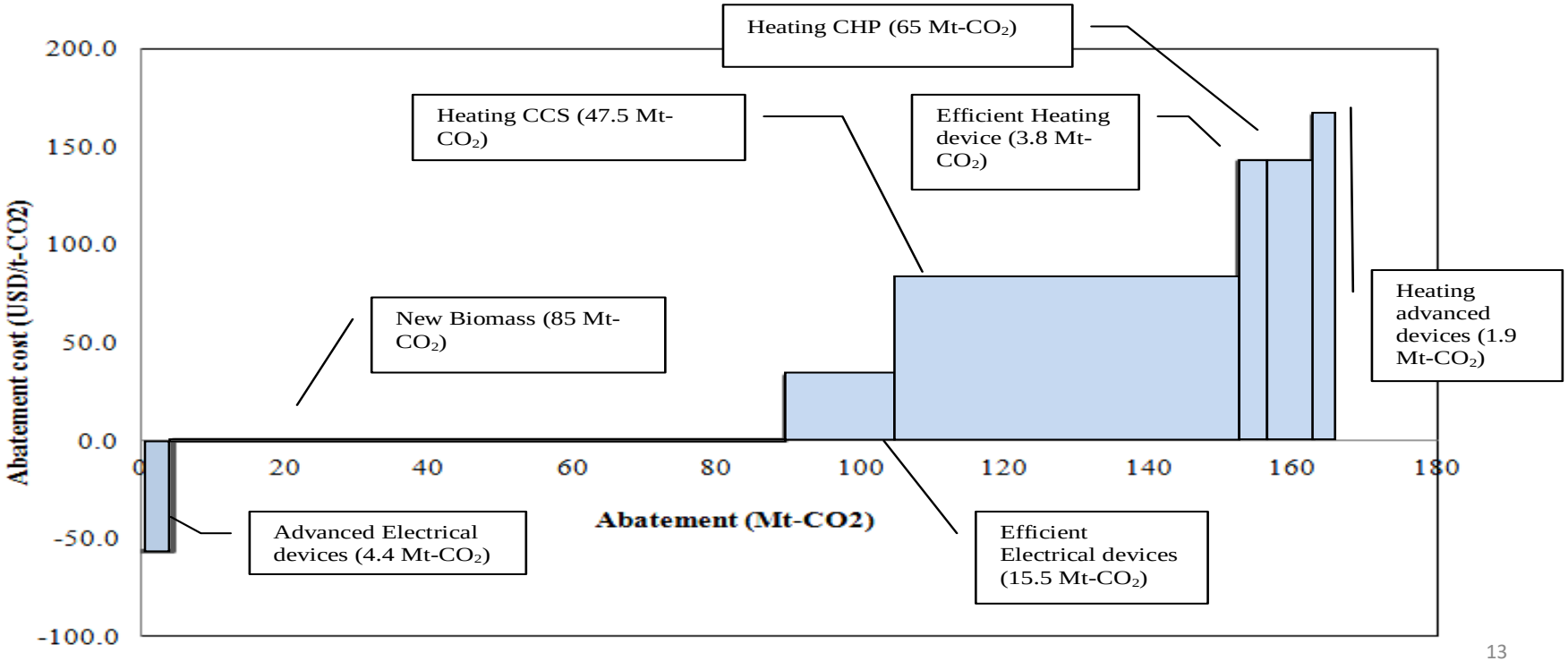
III. Consultation and Pledge preparation

- **Stakeholders Involvement**
- **Thailand's Readiness and Contributions**

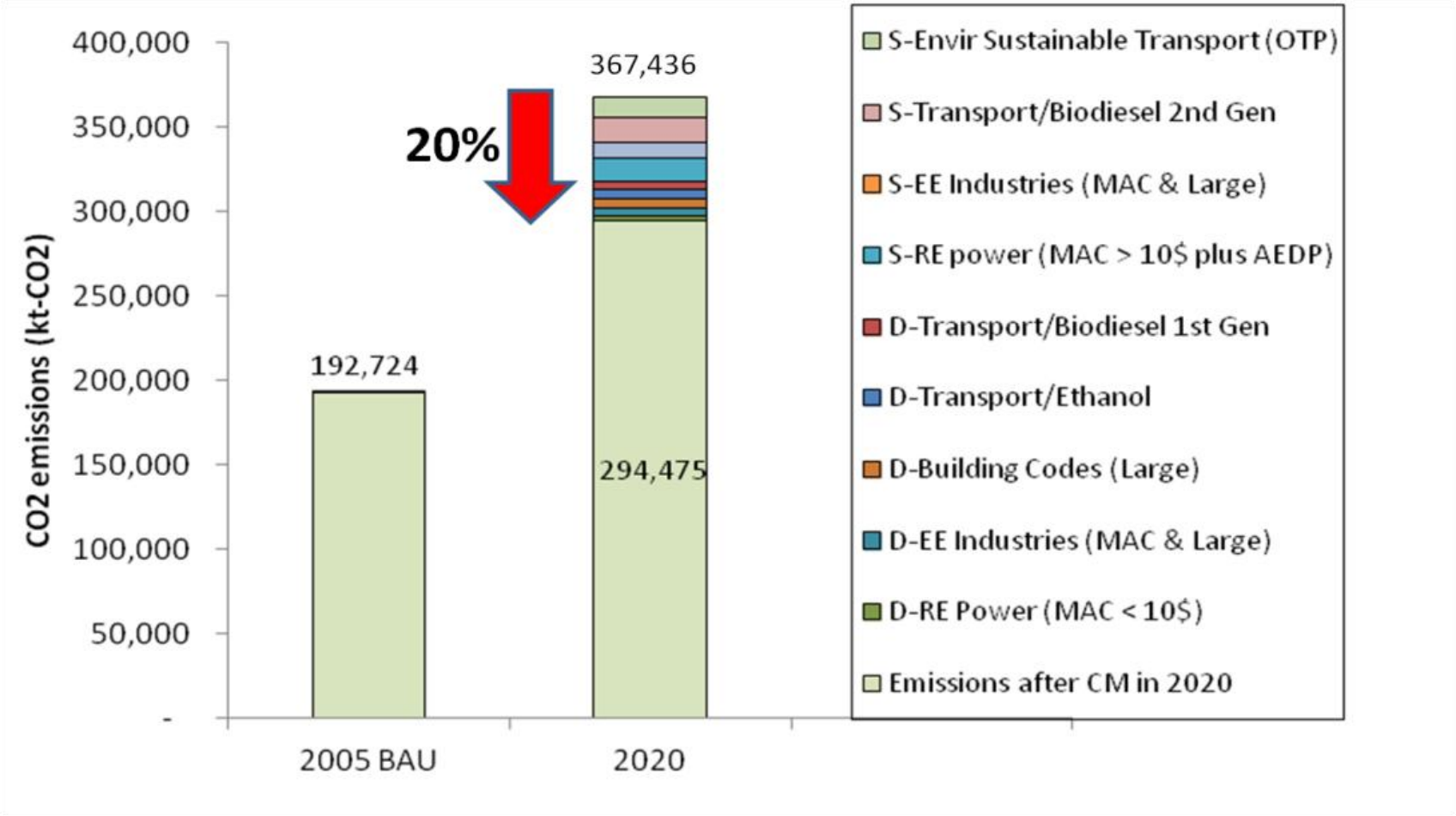
NCCC & Gov't Decision

Successful Application of IAM to Thailand LCS

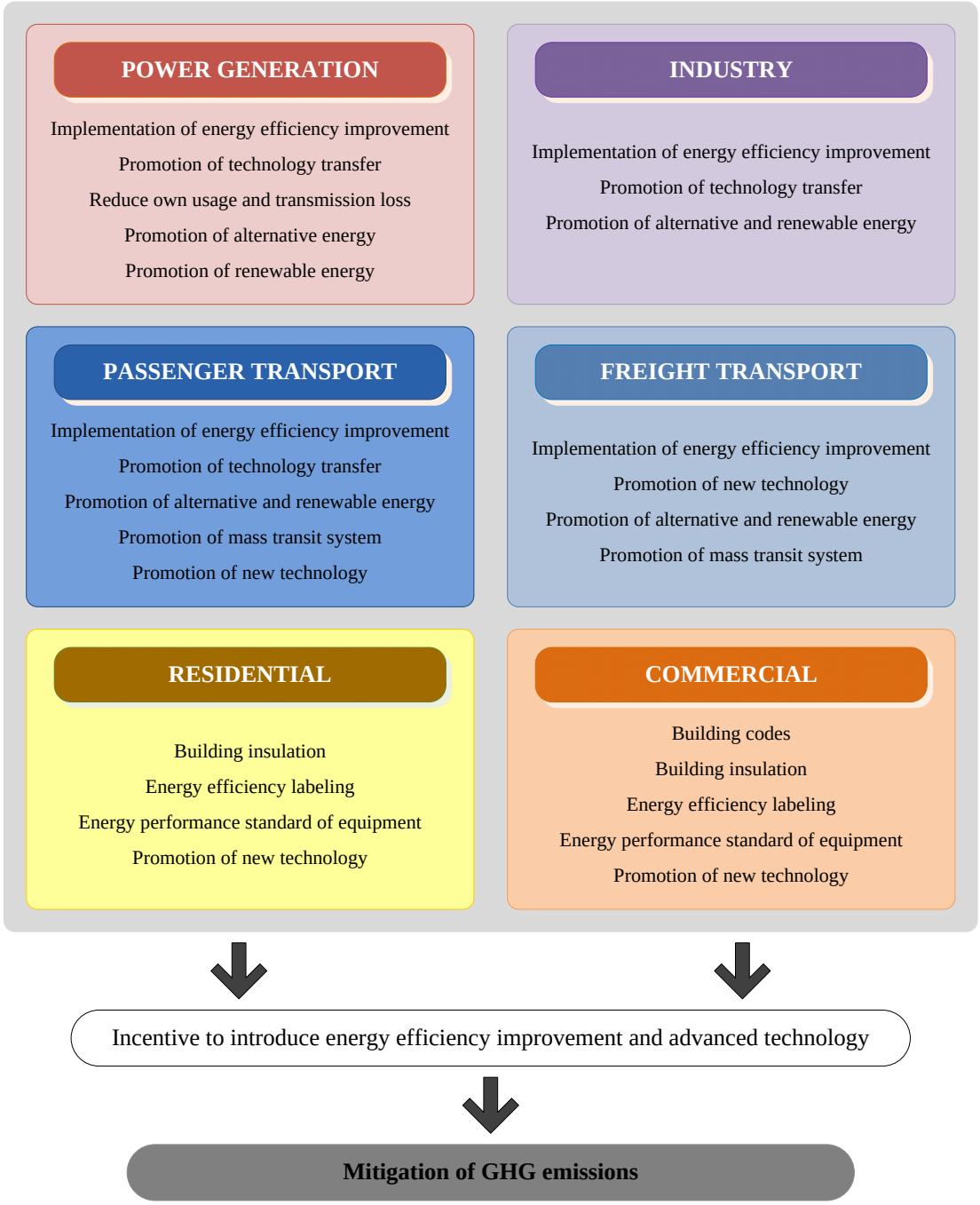
- **Co-benefits** are also assessed, and they reveal positive aspects of GHG mitigation under NAMA/NDC frameworks
- **Abatement costs** of actions are identified across the sectors.
- The **MRV** process of NAMA/NDC needs cooperation among related ministries.



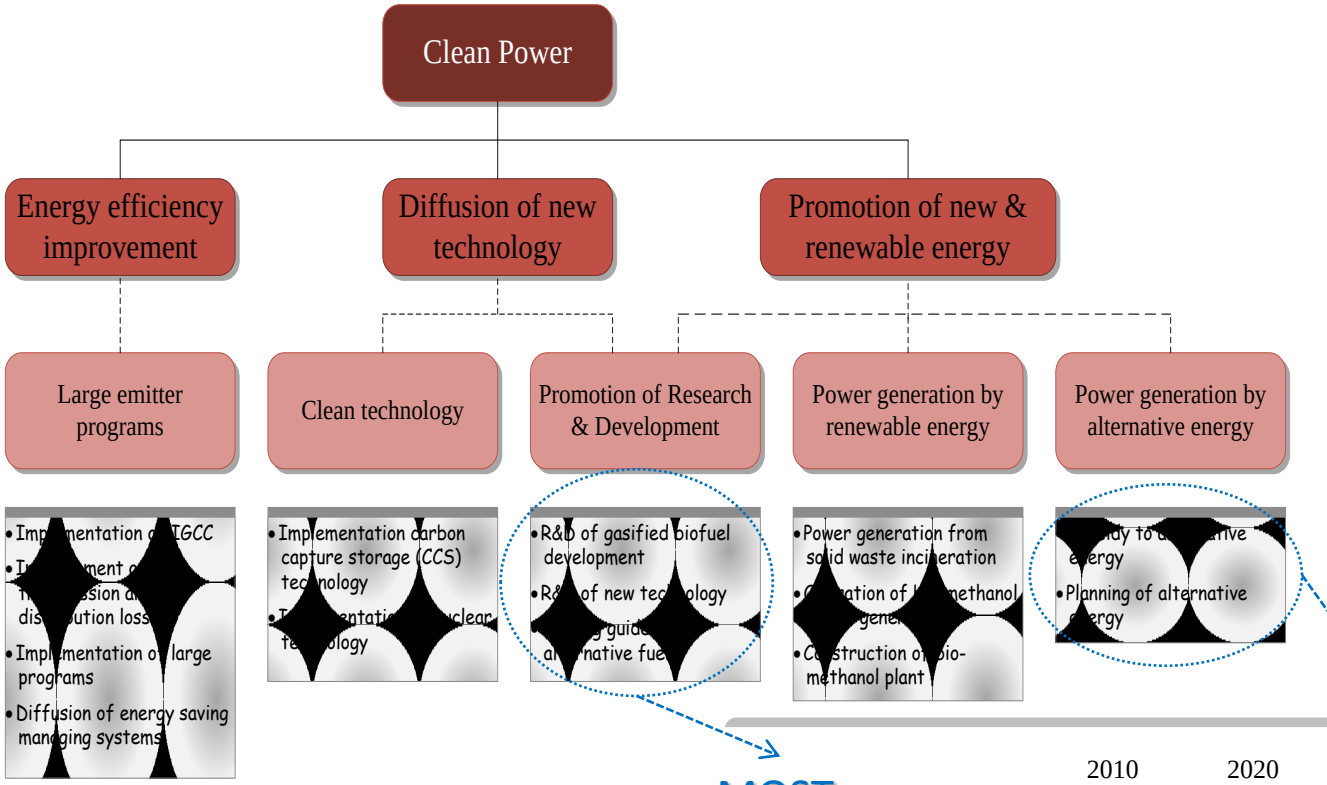
High Potential Scenario :
Potentials of CO_2 Countermeasures in 2020 at 20%



Policy Package for Roadmap to "LOW CARBON THAILAND"

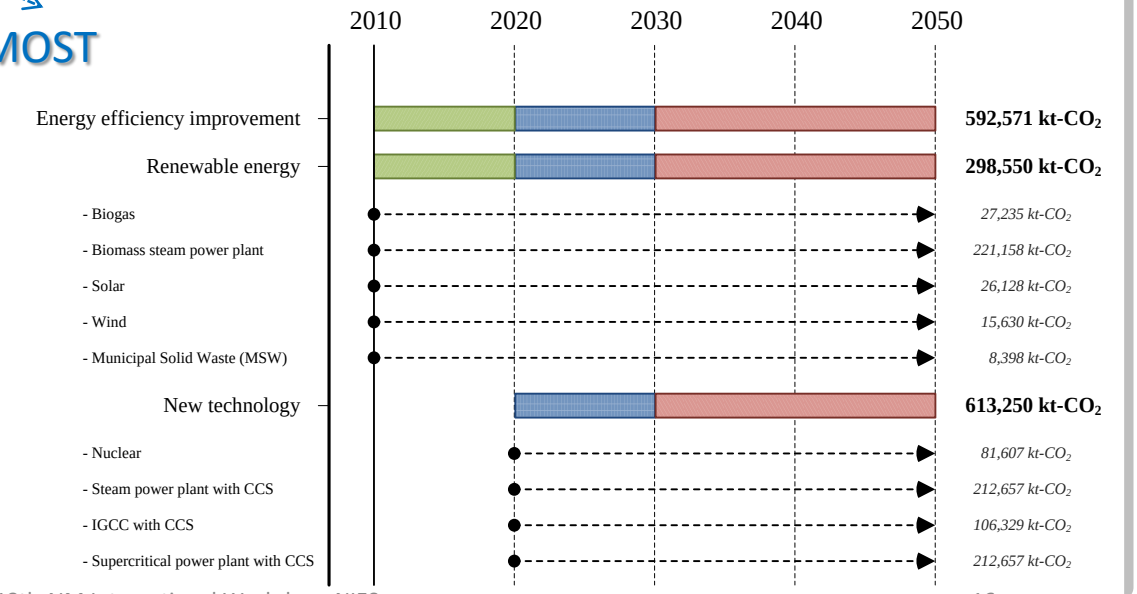


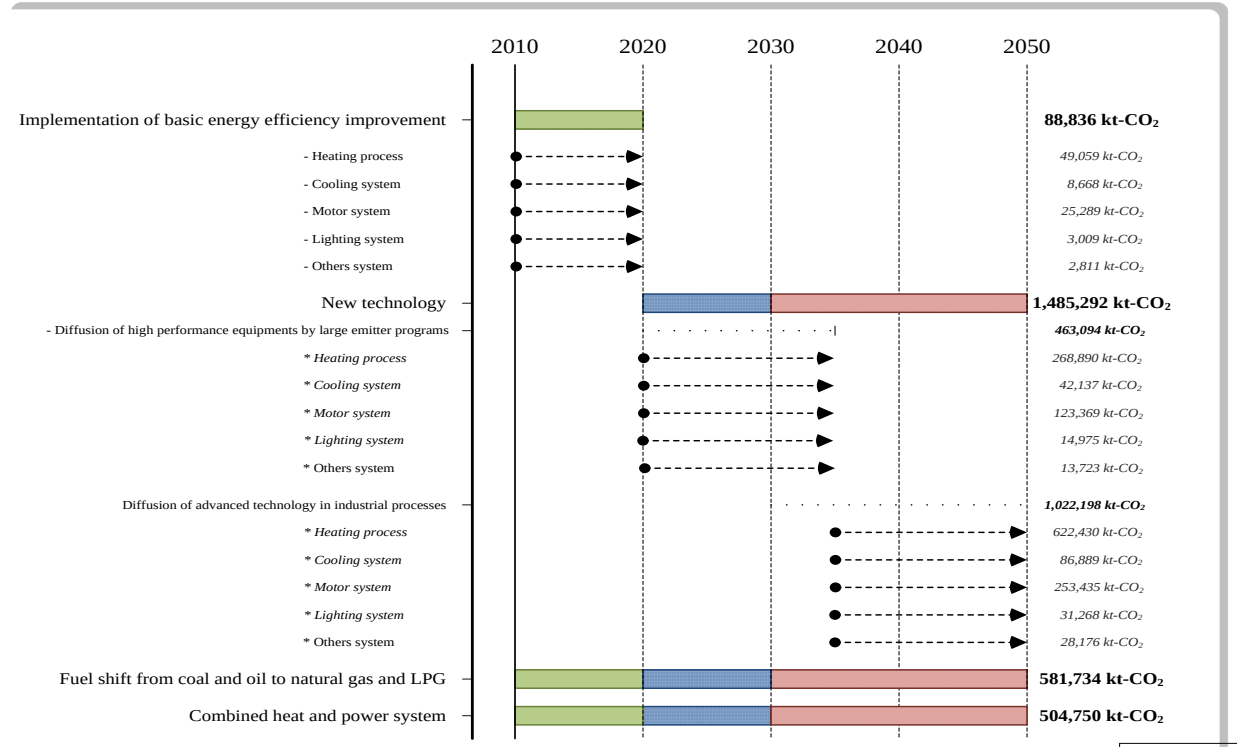
LCP-ABS Action 1: Clean Power



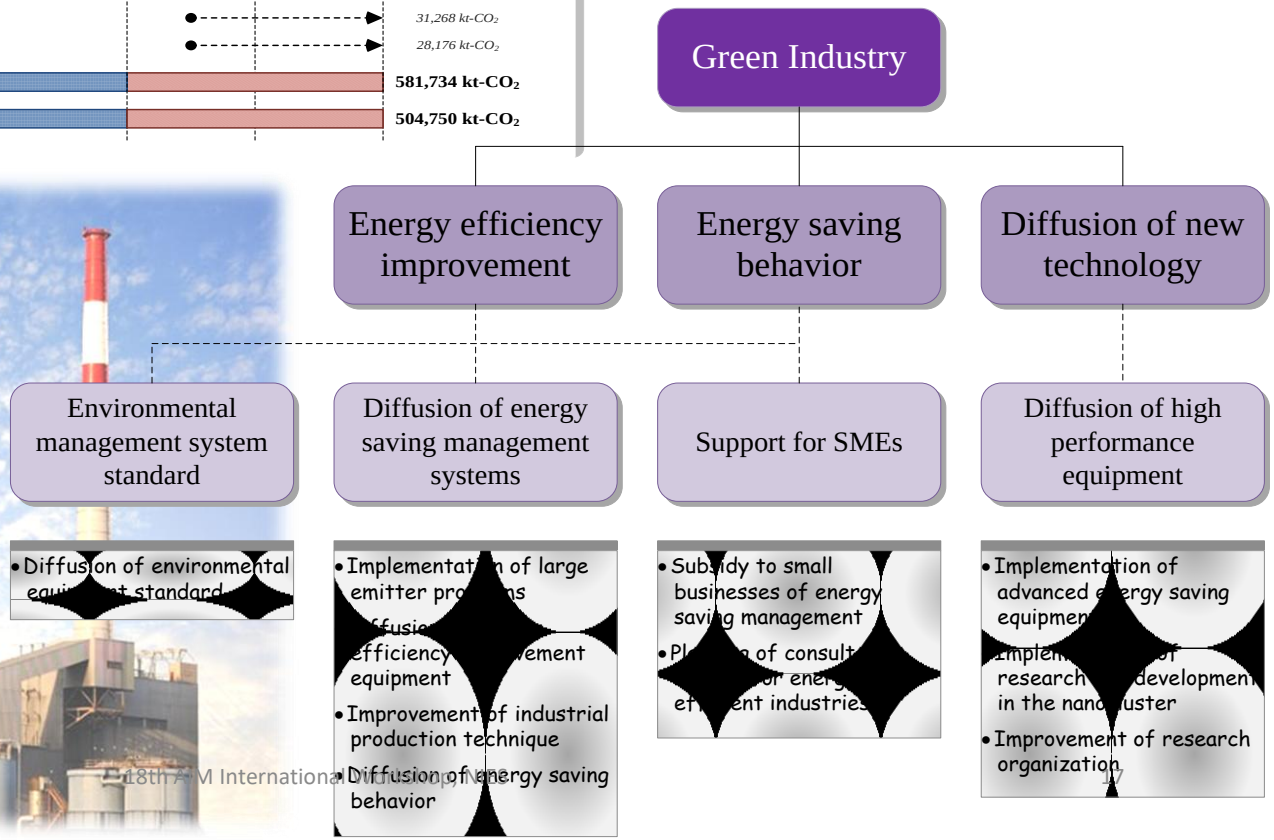
DEDE, EGAT

MOST

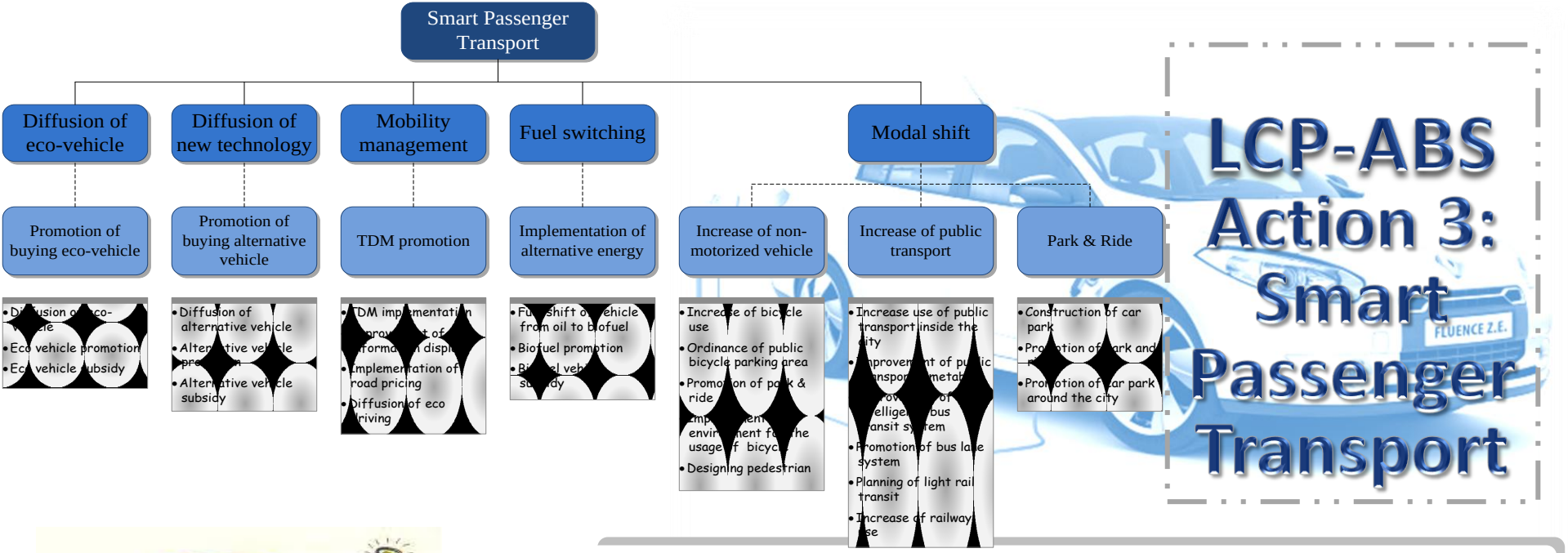


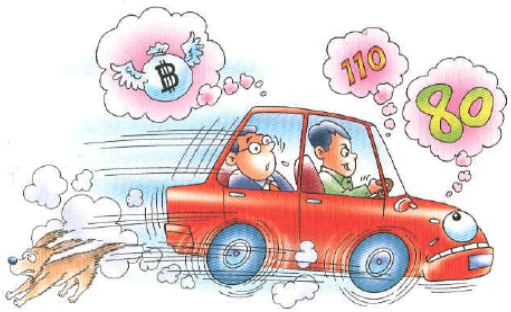


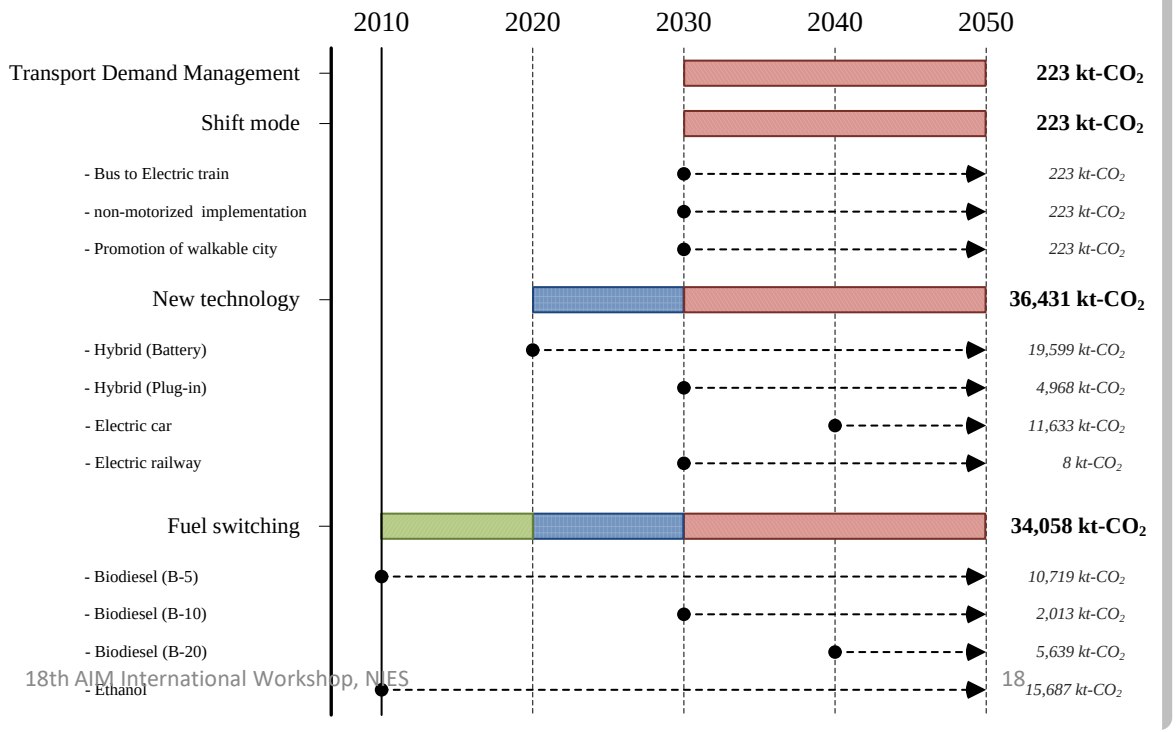
LCP-ABS ACTION 2: GREEN INDUSTRY

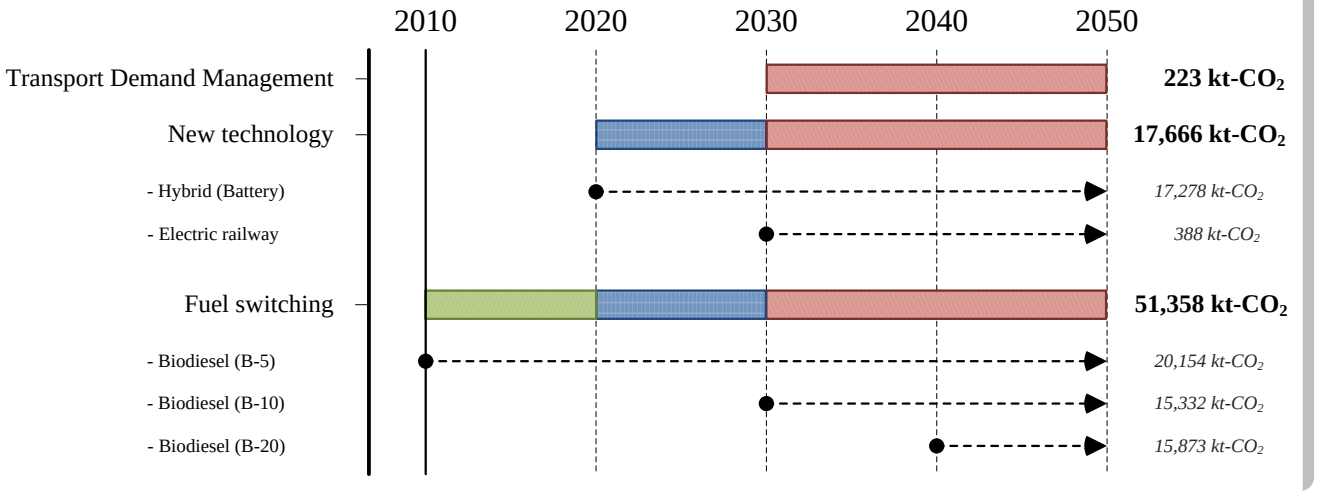


LCP-ABS Action 3: Smart Passenger Transport

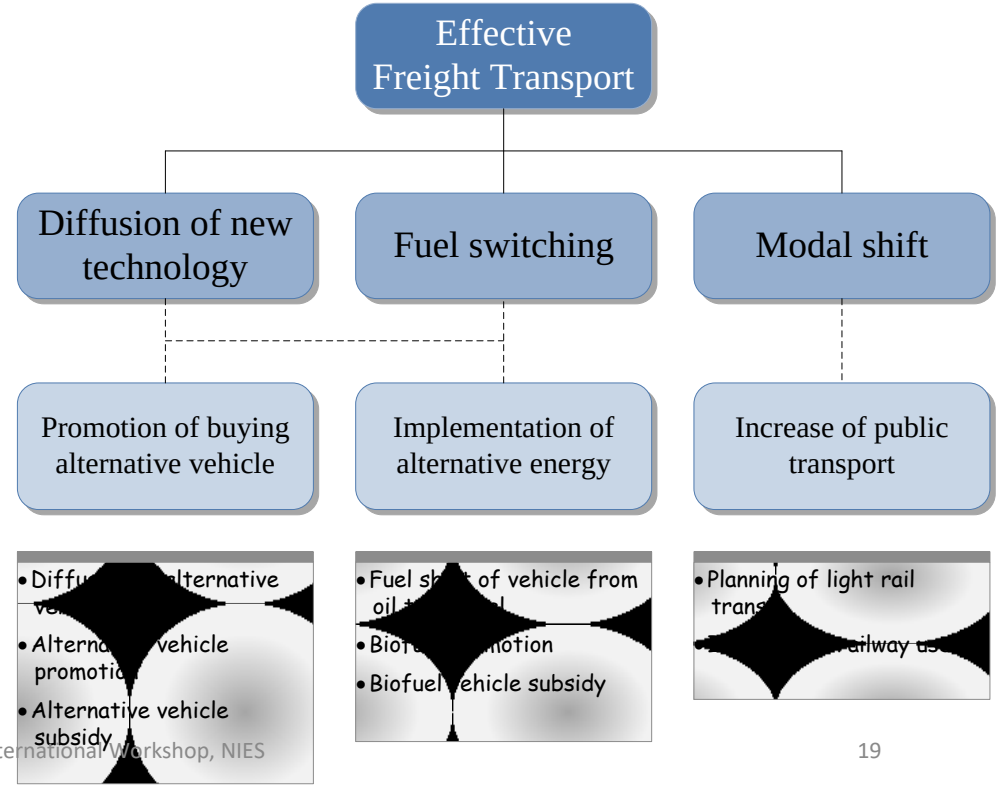


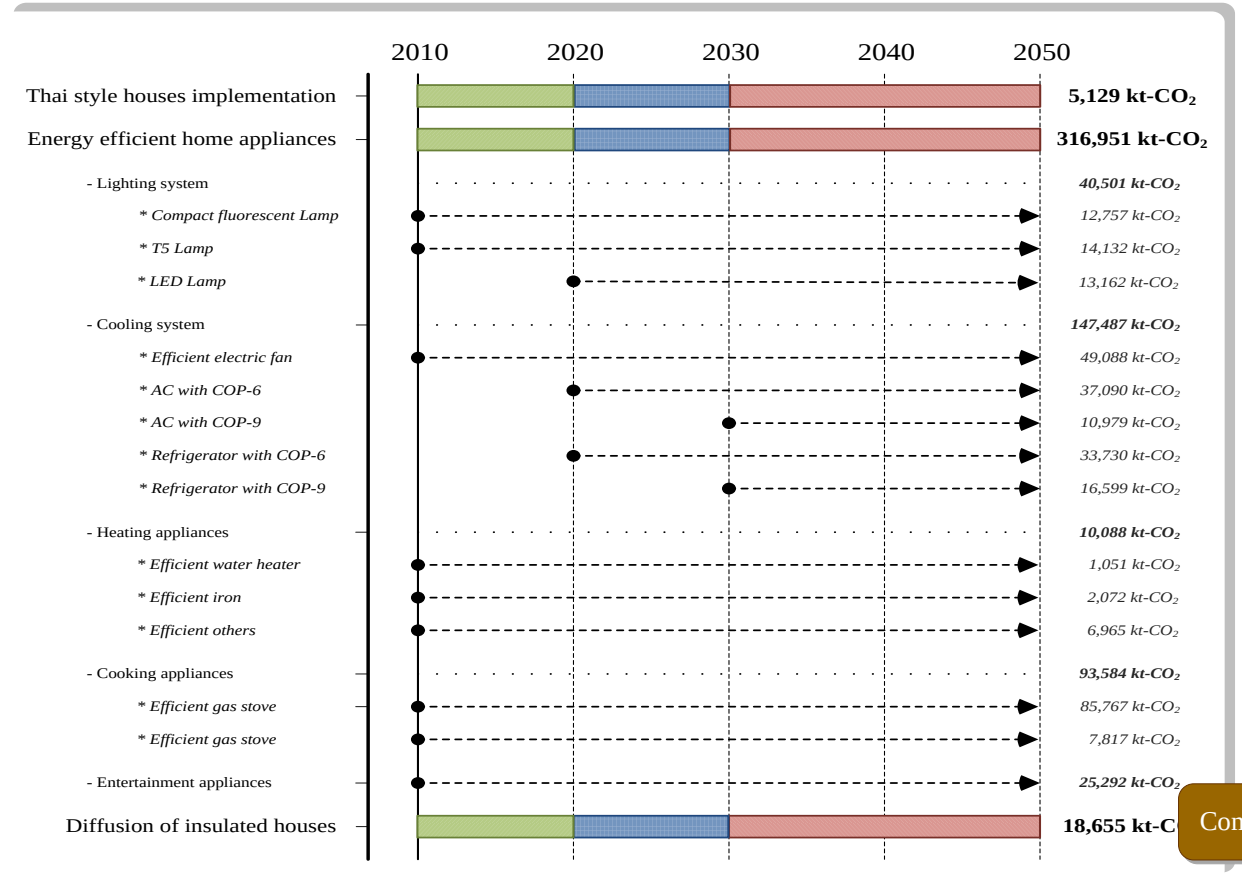




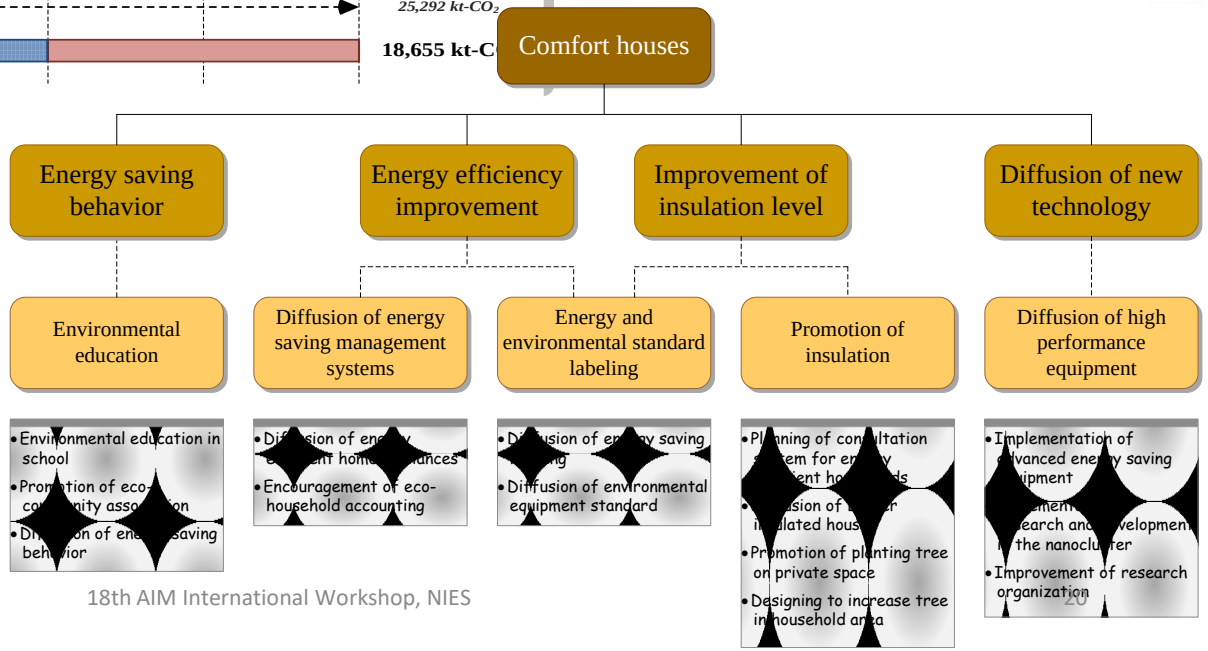


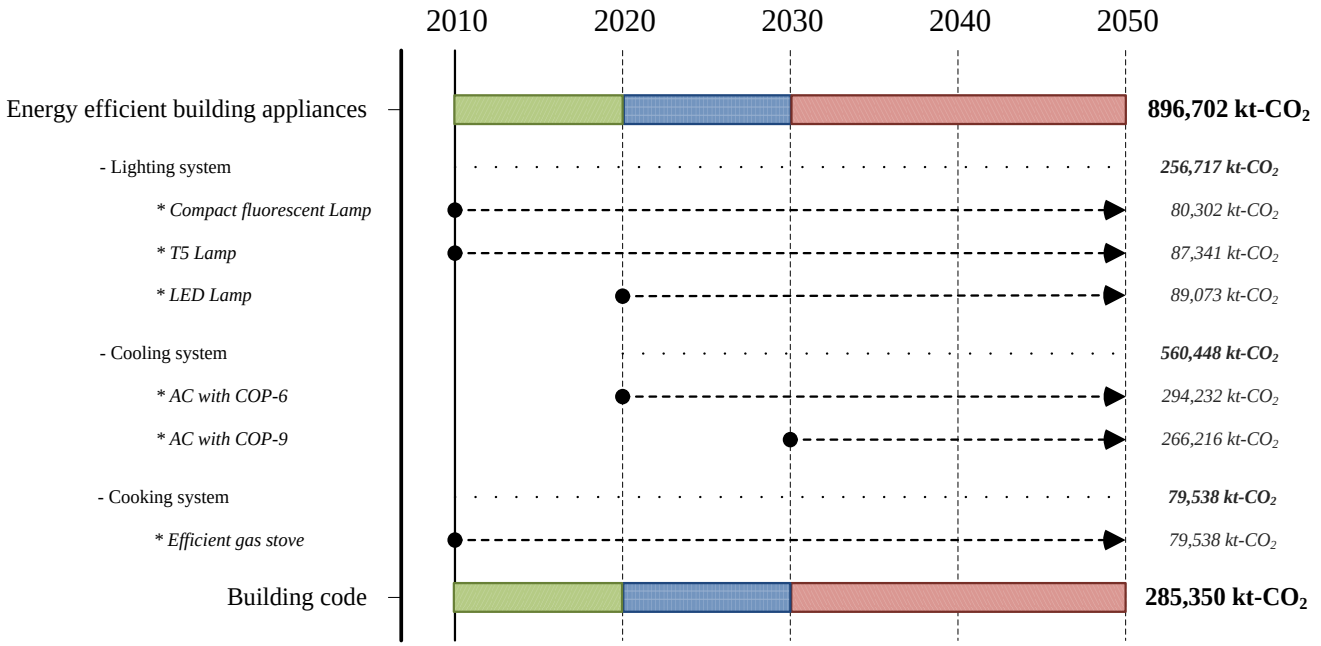
LCP-ABS Action 4: Effective Freight Transport



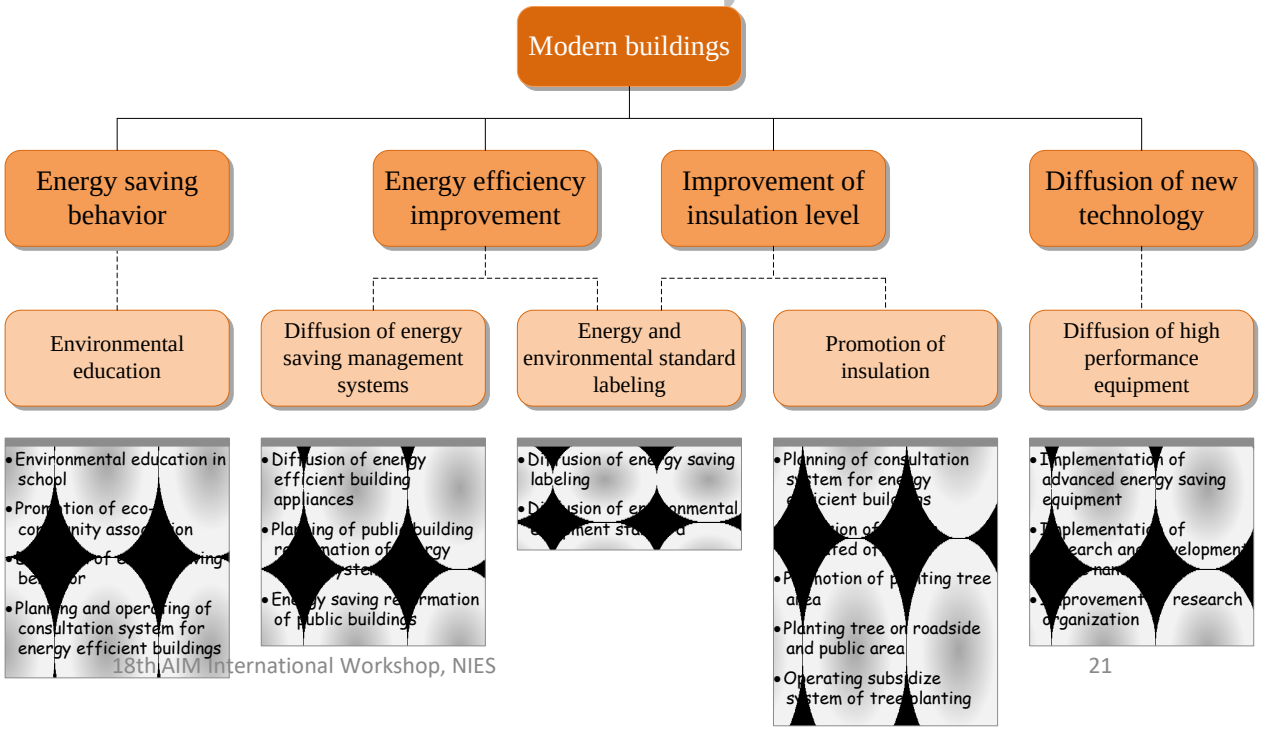


LCP-ABS Action 5: Thai Style Comfortable Houses



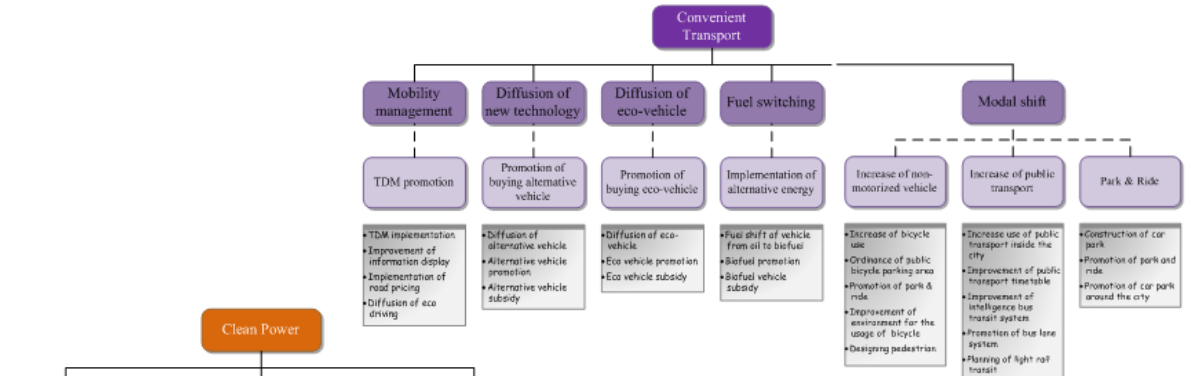


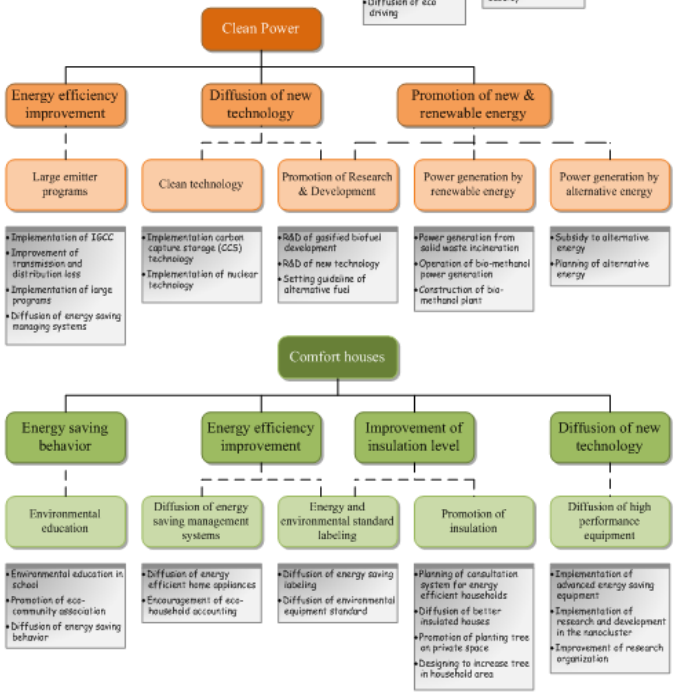
LCP-ABS Action 6: Modern Buildings

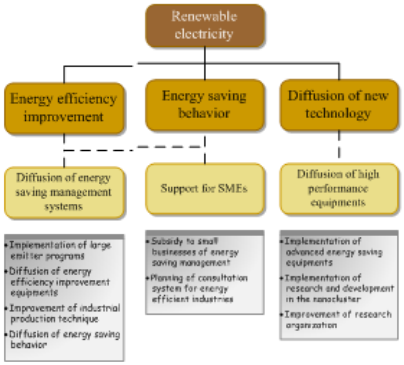


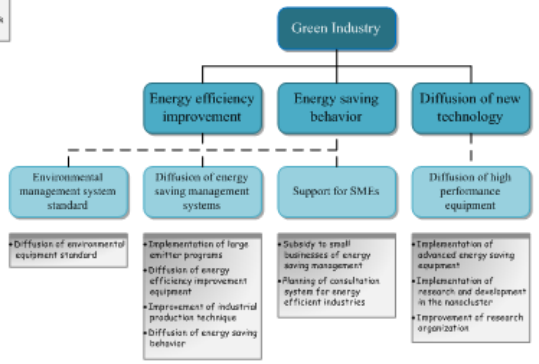
Robust Roadmap to Thailand's LCS Scenario

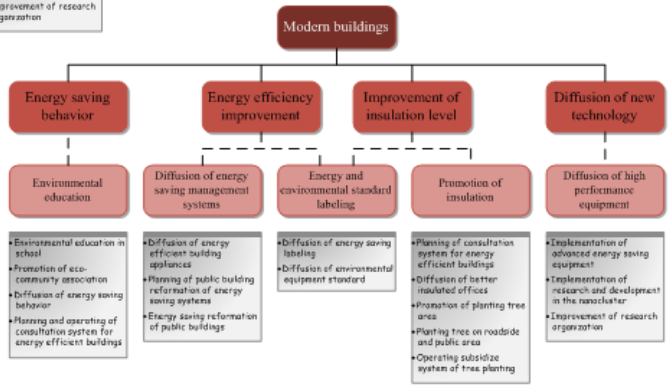
Power sector
Industries
Buildings
Transport sector



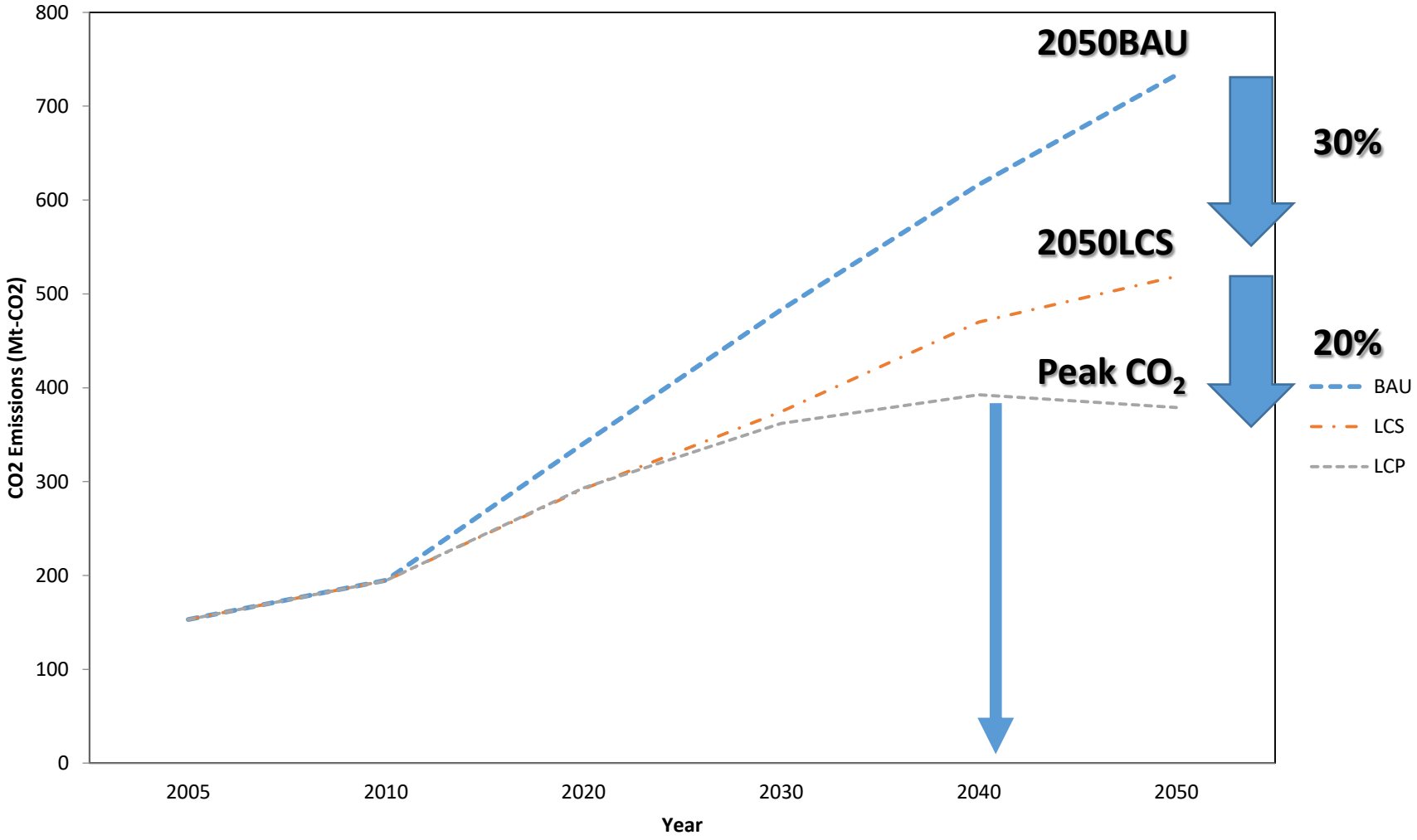








Total GHG Emissions 2005-2050 (Peak CO_2)



Acknowledgement

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Thank You