Pacific Northwest NATIONAL LABORATORY

# PNNL-Thammasat December 2022

October 18/19, 2022

SE Asia Digitalization Project

U.S. DEPARTMENT OF ENERGY BATTELLE

PNNL is operated by Battelle for the U.S. Department of Energy

# Agenda

- Recent and upcoming deliverables
- January Trip Logistics
  - Official letters to MEA, BMA, EGAT, EPPO
- Modeling discussion
  - Responses to electricity generation comments (in progress)
  - Discussion of the service satiation parameter for urban cooking
  - Initial emissions results for full set of scenarios (policies + emissions constraints)
  - Discussion of scenario design and policies

# Recent and upcoming deliverables

| GCAM Training Session | Timeline |
|---|---|
| GCAM training 1 | Jun 2022 |
| GCAM training 2 | Oct 2022 |
| GCAM training 3 | Dec 2022 |

| Workshops | Timeline |
|---|---|
| Workshop 1 with local institutions | Sep 2022 |
| Workshop 2 with local institutions | Jan 2023 |
| Workshop 3: ASEAN Best Practices workshop | Jun 2023 |

| Deliverables | Timeline | Status | Milestones |
|---|---|---|---|
| **Memo 1: 1 Page memo with list of official Thammasat team members and roles** | Sep 2022 | Complete | Milestone 1 |
| **Workshop 1 Plan: 1 Page Agenda and Participant list for Workshop 1** | Sep 2022 | Complete | |
| **Memo 2: 2-3 Page Memo with Feedback on Input Data, Scenario 1 and Scenario 2** | Nov 2022 | Complete | Milestone 2 |
| **Workshop 2 Plan: 1 Page Agenda and Participant list for Workshop 2** | Nov 2022 | PNNL Review | |
| **Memo 3: 2-3 Page Memo with Feedback on Scenarios 3, 4, 5** | Feb 2023 | | Milestone 3 |
| **Workshop 3 Plan: 1 Page Agenda and Participant list for Workshop 3** | Apr 2023 | | Milestone 4 |

# January Trip Logistics

| Date | Attendees | Location |
|---|---|---|
| Monday, 16 Jan | US Embassy, PNNL | 95 Thanon Witthayu, Khwaeng Lumphini, Khet Pathum Wan, Krung Thep Maha Nakhon 10330, Thailand |
| | USAID, PNNL | Athenee Tower, 25th Floor, 63 Witthayu Rd, Khwaeng Lumphini, Khet Pathum Wan, Bangkok 10330, Thailand |
| | TU Cybersecurity Team, PNNL | 2 Na Phra That Alley, Phra Borom Maha Ratchawang, Phra Nakhon, Bangkok 10200, Thailand |
| Tuesday, 17 Jan | MEA, PNNL, TU | 1192 Rama IV Rd, Khlong Toei, Bangkok 10110, Thailand |
| | BMA, PNNL, TU | 173 Dinso Rd, Khwaeng Sao Chingcha, Khet Phra Nakhon, Krung Thep Maha Nakhon 10200, Thailand |
| | EPPO, PNNL, TU | 121/1-2 Phetchaburi Rd, Thung Phaya Thai, Ratchathewi, Bangkok 10400 |
| Wednesday, 18 Jan | EGAT, PNNL, TU | 53 หมู่ที่ 2 Charan Sanit Wong Rd, Bang Kruai, Bang Kruai District, Nonthaburi 11130, Thailand |
| | TU modeling team, PNNL | 3J94+HX4, Phahonyothin Rd, Khlong Nueng, Khlong Luang District, Pathum Thani 12120, Thailand |

# January Trip Logistics

- Official Letters to MEA, BMA, EGAT, EPPO
  - PNNL to provide list of discussion topics for each meeting
  - What information needs to be included in the meeting request letters?
  - Who should send the letters?

# Modeling Discussion: Electricity Generation

- Ongoing Modeling Discussion: https://docs.google.com/document/d/1tRT5CmB3WHPE2lOrd-I0v8G4pMTA7P-D5MAOzakAQBk/edit#heading=h.18asv5sx06du

- Next steps for PNNL
  - Separate domestic and imported hydropower in results
  - Limit geothermal electricity generation
  - Remove nuclear electricity generation
  - Add biomass share floors to policies
    - ✓ PDP2018 vs updated LTS
- Update to modeling approach: share of total electricity generation rather than absolute values

# Modeling Discussion: Building Sector

- Next steps for PNNL
  - Address the anomaly of Bangkok's high service satiation parameter for urban cooking
  - Ensure that cooking technology shares reflect reality
  - Implement cooking electrification policy

| Region | Service satiation (EJ/ floorspace) |
|---|---|
| Bangkok | 0.97 |
| Nonthaburi | 0.11 |
| Samut Prakan | 0.29 |
| Rest of Thailand | 0.07 |

Reference scenario cooking service output

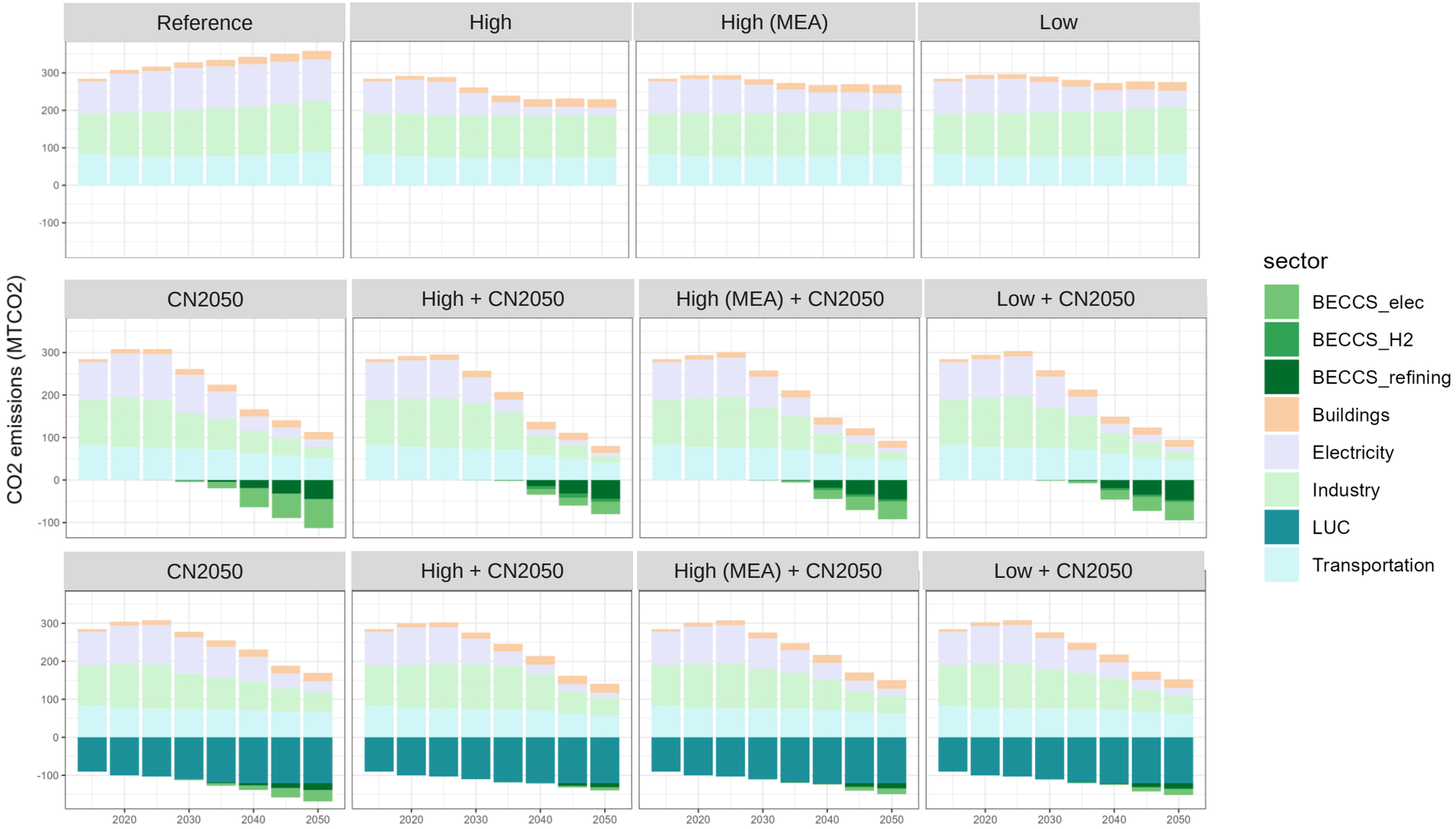
# Modeling Discussion: Initial Emissions Results

**(All of Thailand)**

Policies

Policies + carbon neutral 2050 (without LUC)

Policies + carbon neutral 2050 (with LUC)



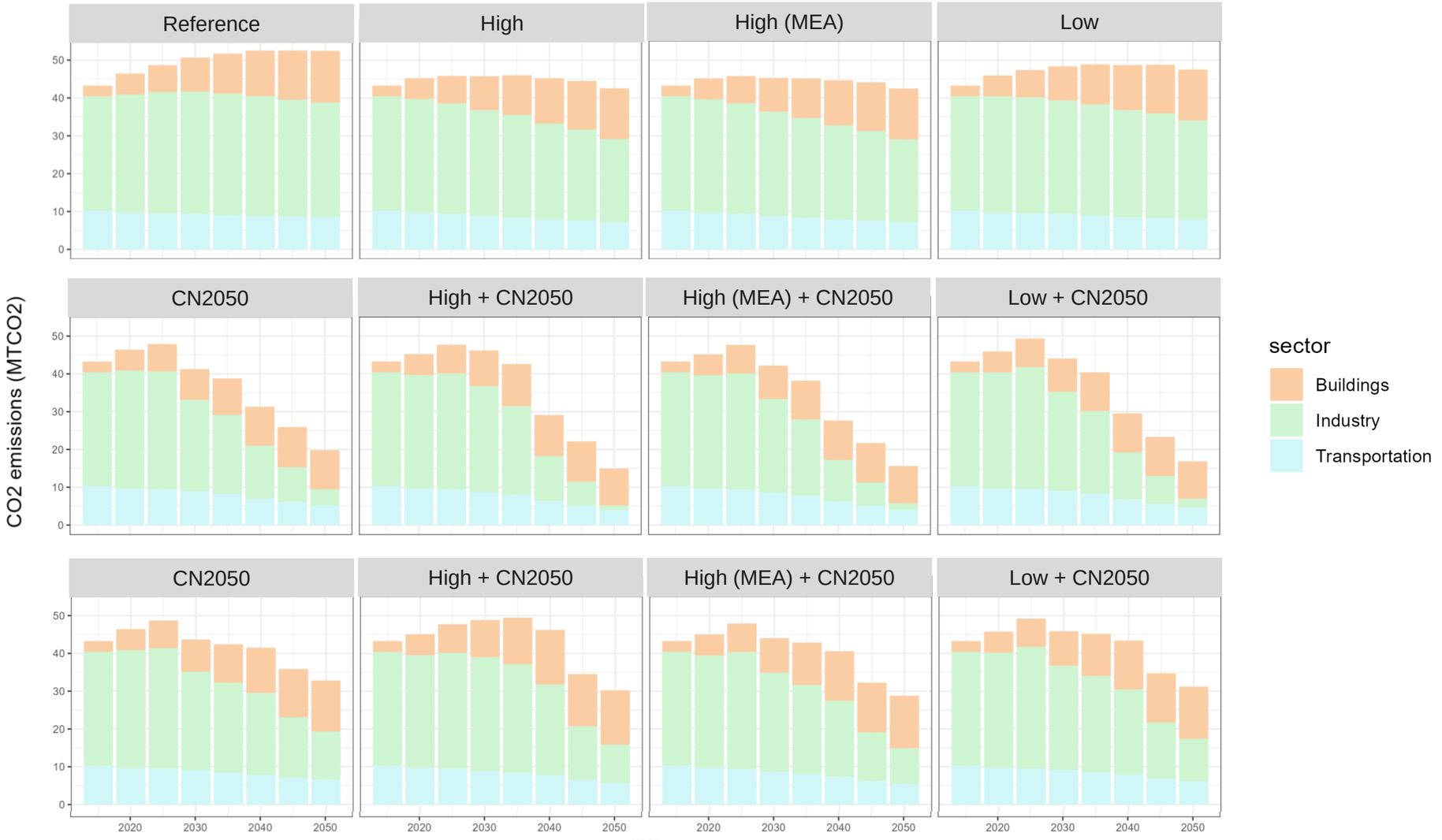
# Modeling Discussion: Initial Emissions Results

**(MEA area)**

Policies

Policies + carbon neutral 2050 (without LUC)

Policies + carbon neutral 2050 (with LUC)



# Modeling Discussion: Key Questions and Next Steps

- Are we capturing the extent of possible emissions reductions in the MEA area with the current policies?
  - Next step: add a cooking electrification policy
  - Are any additional policies needed?
- Should we consider a CO2 emissions constraint for the MEA area itself?
- Should we move forward with the emissions constraint version that includes the assumed land sink?

Pacific Northwest
NATIONAL LABORATORY

# Thank you