



Comprehensive Assessment of Co-Benefits and Maladaptation of Solarisation in Thailand (CAST Solar)

Sarin K C

Environmental Economics Unit, HITAP

UNFCCC - Health Co-Benefits Workshop

23 September 2026

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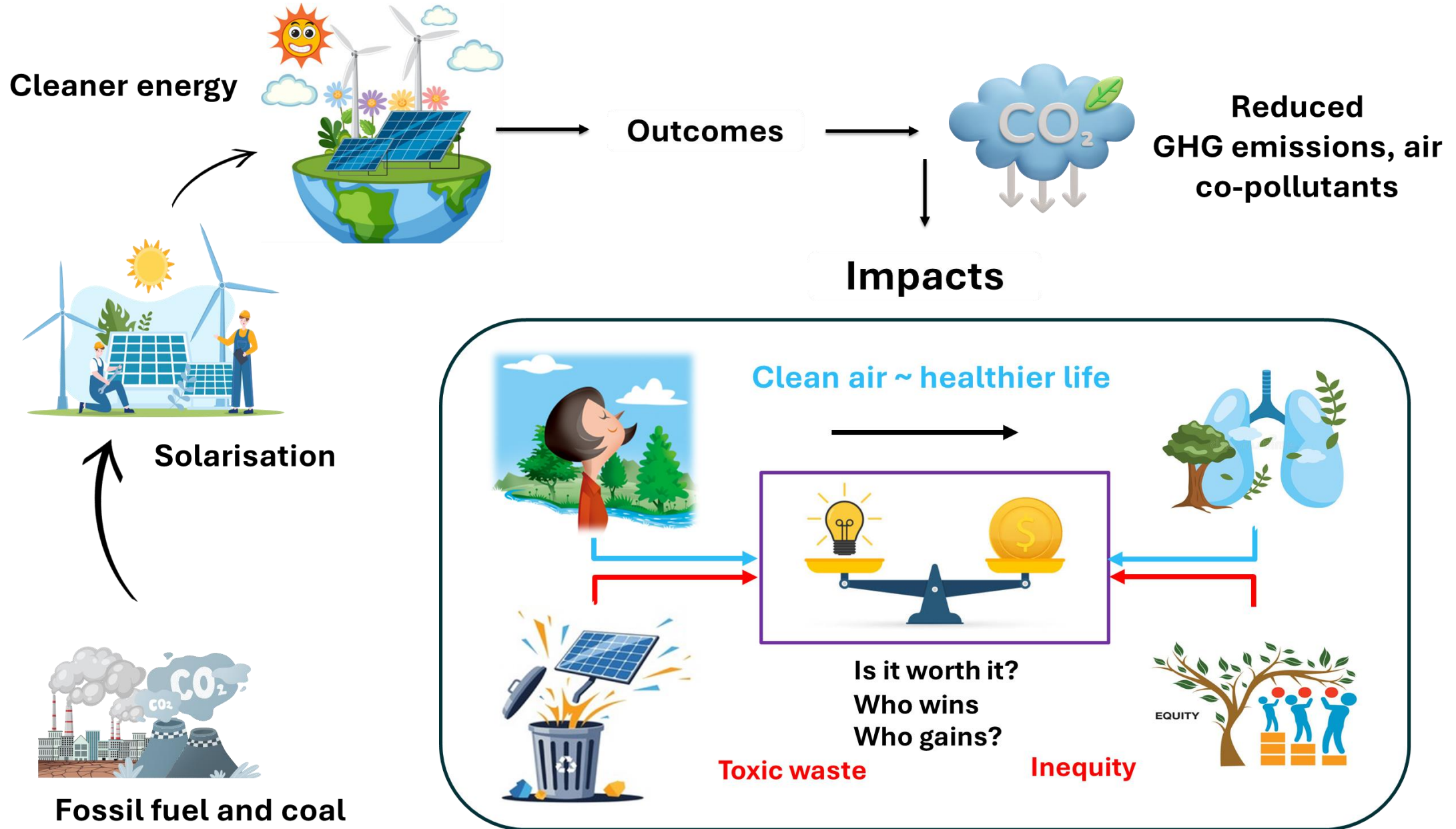


Acknowledgement



Slides credit to: Dr. Wissawa Malakan, Dr. Nishanta Sharma, Dr. Diane Archer, Dr. Chayut Pinichka, Prof. Shabbir H. Gheewala, Phantira Spahankaew, Karitha Kongkasai, Thanakrit Songsangtrakarn

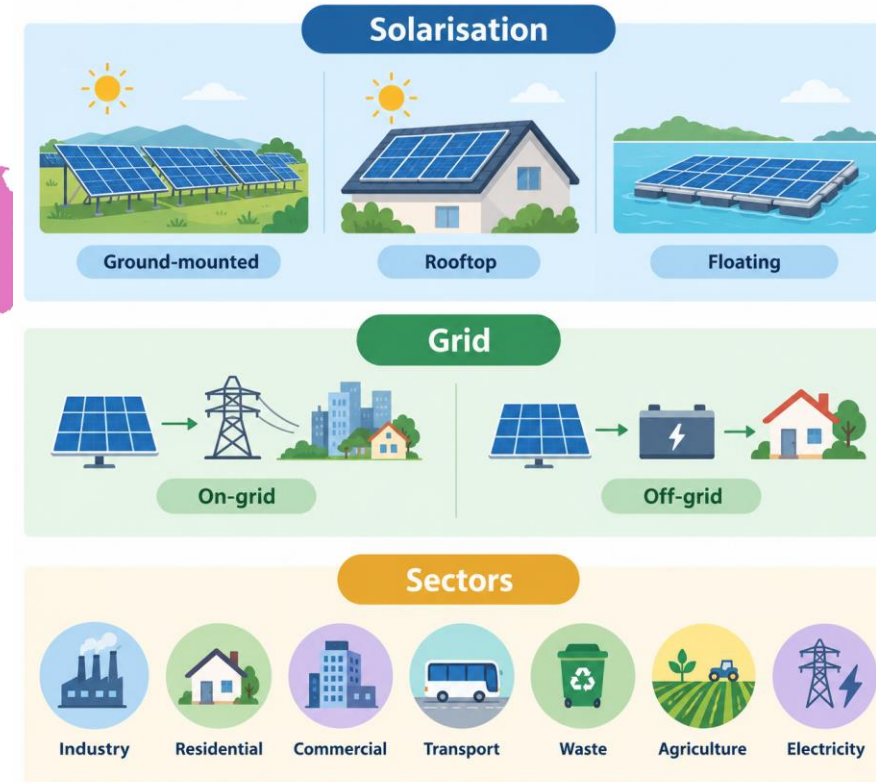
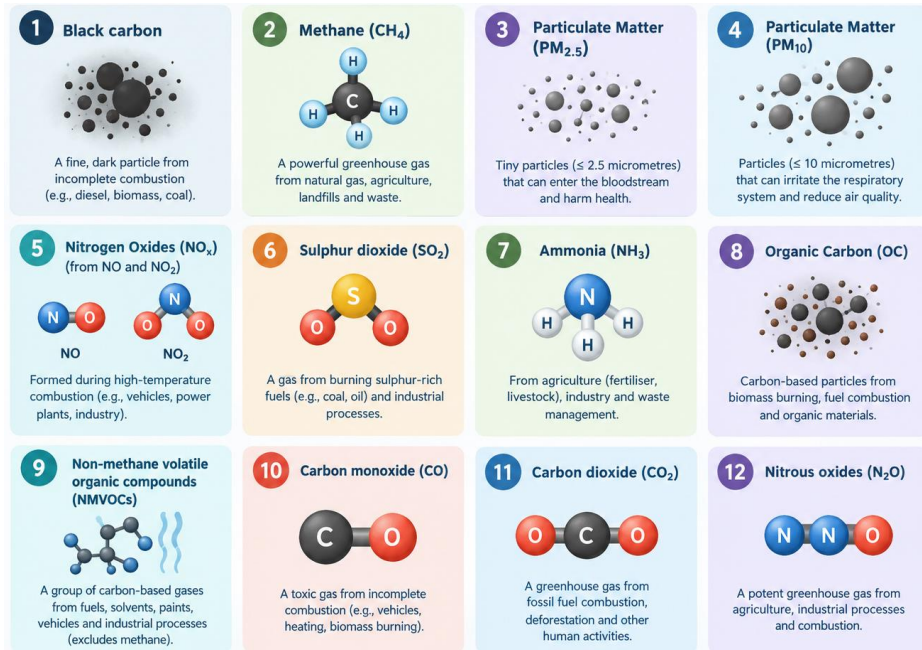
The Solar Story in Thailand



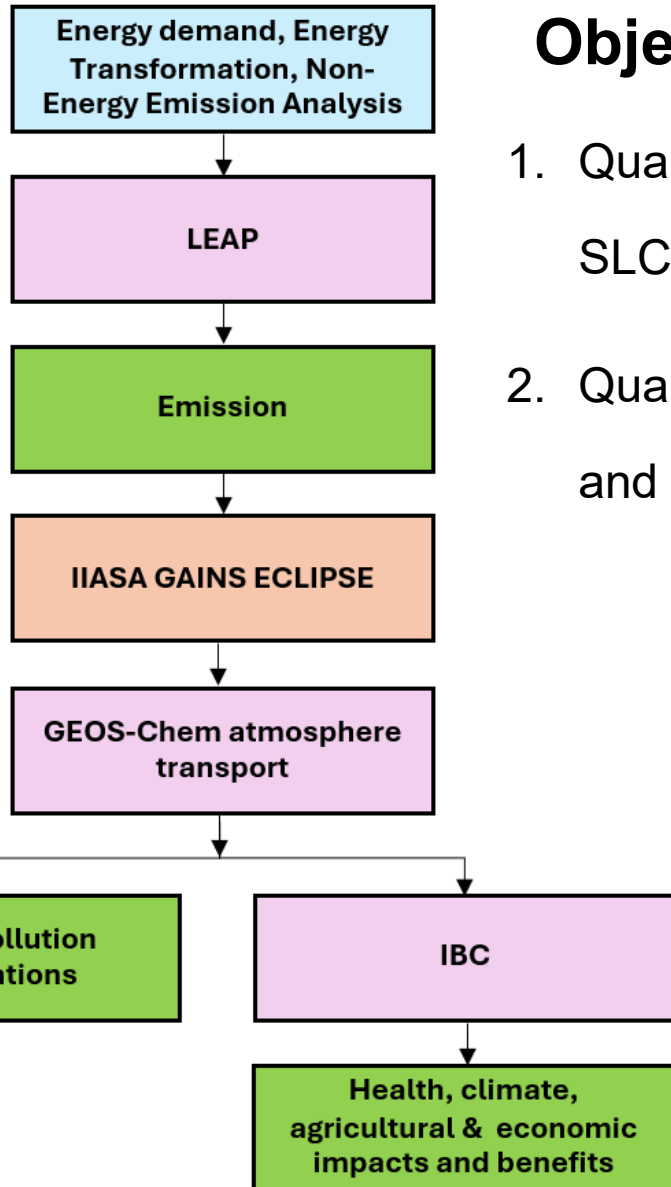
Study overview

#	Studies	PI	Team	Methodology
1	Emissions and concentration	Dr. Wissawa Malakan	HITAP, Mahidol, Chulalongkorn, SEI	Low Emissions Analysis Platform (LEAP) GEOS-CHEM Integrated Benefit Calculator (IBC)
2	Health impact	Dr. Kanitta Bundhamcharoen	IHPP, BOD Thailand	Comparative Risk Assessment
3	Environmental impact	Prof. Dr. Shabbir H. Gheewala	JGSEE, KMUTT	Life cycle assessment (LCA)
4	Just transition	Dr. Diane Archer	SEI	The JET-18 Indicator Framework • Policy analysis • Secondary data analysis • Survey and KIs
5	Economic impact	Dr. Nishanta Sharma	HITAP, Thammasat	Computable general equilibrium (CGE) modelling

Scope



Modelling Emissions/Concentrations and their Impacts



Objectives:

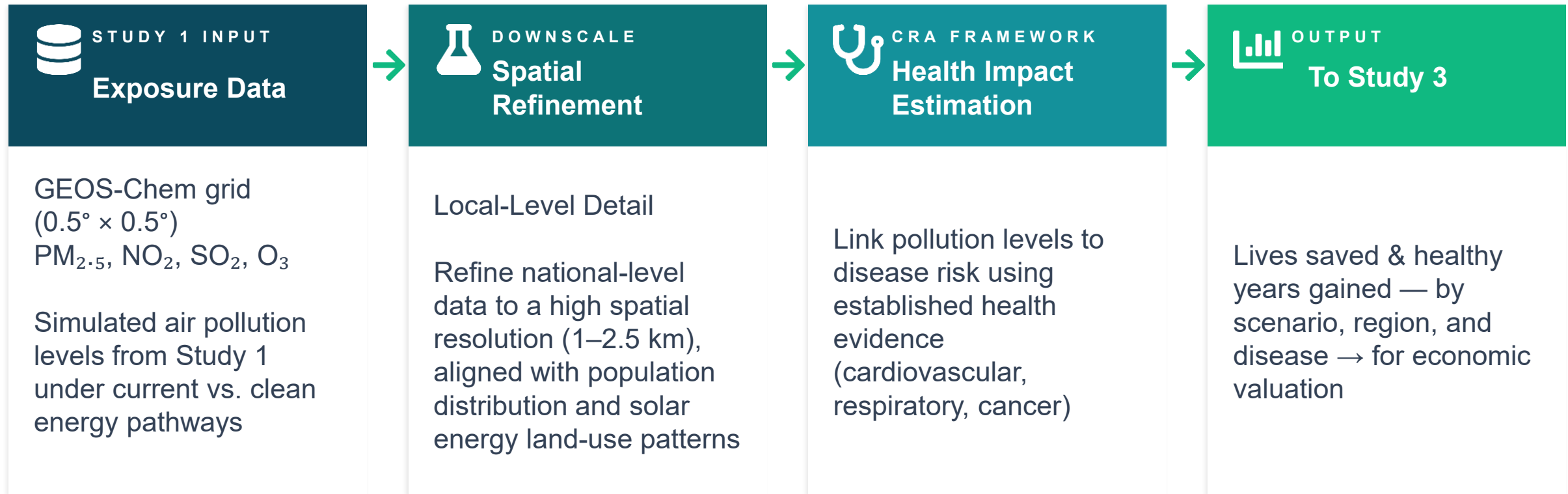
1. Quantify reductions in national and regional emissions of GHGs, SLCPs, and air pollutants (spatially and temporally)
2. Quantify the national health, climate, agricultural and economic impacts and benefits under solarization policy

Outputs:

1. Emissions trajectories and reductions/Ambient pollutant concentrations
2. Premature mortality avoided
3. Crop-yield loss avoided
4. Radiative forcing and global mean temperature change
5. Monetized health and agricultural benefits

Health Impact Assessment using Comparative Risk Assessment

 How many healthy life years could Thailand gain and how much could health risks be reduced through cleaner air from solar energy transition?



KEY: Thai-specific BOD data (5 rounds) | High-resolution 1 - 2.5 km spatial model | Province-level PAF estimates | Policy scenario capability

Just Transition: The JET 18-Framework

1. Policy analysis to assess just elements
2. Secondary data analysis to assess distribution of access to solar energy
3. In-depth interviews with users on barriers
4. Review of best practices
5. Roundtable with policymakers



Waste management: Life Cycle Assessment (LCA)

Objective: To provide practical guidelines on managing PV waste



CGE Modelling Using AIM

Objective: To estimate the spatial, temporal, and distributional macroeconomic impact of solarisation

