Overview of the Asian Modeling Exercise

Leon Clarke, Kate Calvin, Jae Edmonds September 17, 2009 Tsukuba, Japan



Acknowledgements

Our thanks to the following organizations for their funding:









This is an open process and we welcome funding from other interested parties.



Goals of the Exercise

- Objective: to better articulate the role of Asia in addressing climate change.
 - Enhancing the Suite of Scenarios that Explore Asia's Role in Addressing Climate Change
 - Enhancing the Ability of Models to Effectively Represent Asia
- Means: To bring together global modelers that commonly participate in efforts to explore international policy architectures with regional modelers and experts with Asia-specific knowledge, understanding, data, and analysis.
 - A coordinated modeling exercise that attempts to link these communities to provide more effective modeling and analysis of Asia within a global context.
 - A small set of coordinated scenarios and a range of extensions by individual modeling teams.

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Motivation: Asia's Role





% of Global Total

% of Global Total

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EMF 22 MiniCAM Scenario (Reference)

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Motivation: China & India's Role in 2050



EMF 22 International Transition Scenarios (Reference)

Two Categories of Issues for Better Articulating the Role of Asia in Addressing Climate Change

- Enhancing the Suite of Scenarios that Explore Asia's Role in Addressing Climate Change
 - Have we identified the most pressing issues that modeling could address?
 - Have we, accordingly, articulated the most valuable scenarios?

Enhancing the Ability of Models to Effectively Represent Asia

- What key elements are missing from the representations of Asia in the global models? In the regional models?
- Which elements could we improve through this exercise? How?
- How can the global models leverage off the regional models?
- How can the regional models leverage off the global models?

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Schedule

- First Meeting:
 - When: September 17-18, 2009
 - Where: Tsukuba, Japan
 - Objective:
 - Review Existing Asian Scenarios Work
 - Plan a New Scenario Exercise
- 2 to 3 subsequent meetings, every 6 months
 - 2nd Meeting: March 2010
 - 3rd Meeting: September 2010
- Final Product:
 - Special Issue of a Journal (2011)



1st Meeting's Agenda

AGENDA

Day 1: September 17, 2009	
Welcome – Mikiko Kainuma	

0.50 10 0.40	welcome – wikiko Kamuma
8:40 to 8:45	Introduction – Jae Edmonds
8:45 to 9:20	Overview – Leon Clarke

OVERVIEW OF MODELING CAPABILITY-THE GLOBAL MODELS

Chair: Leor	n Clarke
9:20 to 9:40	Kate Calvin: PNNL
9:40 to 10:00	Geoff Blanford: EPRI
10:00 to 10:20	Keywan Riahi: IIASA
10.00 10 10.20	

OVERVIEW OF MODELING CAPABILITY-THE REGIONAL MODELS

Chair: Jae Edmonds

10:40 to 11:00	Ram Shrestha: Asian Institute of Technology
11:00 to 11:20	Chin Siong Ho: U. Technology Malaysia
11:20 to 11:40	Jiang Kejun: China Energy Research Institute
11:40 to NOON	Yong Gun Kim: Korea Environment Institute

LUNCH

0.00 . 0.10

NOON to 13:00	Jiang Kejun:	What Do Asian Pol	icy Makers	Want To Know:	China
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OVERVIEW OF MODELING CAPABILITY-THE GLOBAL MODELS

Chair: Geof	f Blanford
13:00 to 13:20	Valentina Bosetti: FEEM
13:20 to 13:40	Elmar Kriegler: PIK
13:40 to 14:00	Peter Russ: EU
14:00 to 14:20	Junichi Fujino: NIES
14:20 to 14:40	Tom Kram: PBL
14:40 to 15:00	Dominique van der Mensbrugghe: WB
15:00 to 15:20	Atsushi Kurosawa: JIEA

15:20 to 15:40 COFFEE BREAK

OVERVIEW OF MODELING CAPABILITY-THE REGIONAL MODELS

Chair: Stephanie Walldoff	
15:40 to 16:00	Suduk Kim: AJOU University
16:00 to 16:20	Vaibhav Chaturvedi or P.R. Shukla: IIAM
16:20 to 16:40	Zhang Xiliang: Tsinghua University
16:40 to 17:00	Shuichi Ashina: NIES

OPTIONS FOR THE ASIAN MODELING EXERCISE

Chair: Leon Clarke		
17:00 to 17:30	OPEN DISCUSSION	

 Day 1: 18 Presentations, 20 Minutes Each

- We need to be very strict about time management
- Pre-defined presentation template
 - 4 slides describing the model
 - 1 slide on Asian baselines
 - 3 slides on Asian scenarios

Day 2:

Focus on the plan going forward

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Participants

- 41 People are Attending the First Meeting
 - 11 from USA, 9 from Europe, 6 from Japan, 6 from India, 4 from China, 2 from Korea, 1 from Indonesia, 1 from Thailand, 1 from Malaysia
- 10 Global Modeling Teams:
 - EU, EPRI, FEEM, IIASA, JGCRI, JIEA, NIES, PBL, PIK, World Bank
- 6 Regional Modeling Teams:
 - Asian Institute of Technology, China Energy Research Institute, Tsinghua University, Korea Environment Institute, AJOU University, IIAM



Growth and Development Paths: The effect of different

population and economic growth assumptions in Asian regions



EMF 22 International Transition Scenarios (Reference)

International Climate Targets: The implications of varying international

climate policies on Asian regions



EMF 22 International Transition Scenarios

Non-Cap-and-Trade Climate Policies: The impact of various policy based commitments (e.g., RPS, energy efficiency standards, CAFE standards) on Asian regions

POLICY	REGIONS
Economy-Wide CO2 Constraint	Annex I
Power Sector Carbon Intensity	Africa, China, India, Latin America, Korea, Middle East, Southeast Asia
CAFE Standard	China, India, Latin America, Korea, Middle East, Southeast Asia
Biofuels Target	China, India, Latin America, Korea, Southeast Asia
Industry Carbon Constraint	China, Korea
Policy-Based Crediting	Africa, China, India, Latin America, Korea, Middle East, Southeast Asia

2035 Emissions by Sector



2035 Emissions by Region



Source: PNNL/Pew Center Collaboration

Non-Climate Policies: The impact of various non-climate policies (e.g., sulfur standards, BC policies) on Asian regions



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EMF 22 MiniCAM Scenario (Reference)

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Technology: The effect of various technology assumptions (different technology availability, different costs) on mitigation in Asian regions



EMF 22 MiniCAM Scenario (Reference & Scenario 1 3.7 W/m² N.T.E.)

telle Since 1965

Land-use Policies: The impact of land-use policies (e.g., offsets, REDD) on agriculture, land-use, and land-use change emissions in Asian regions.



CHINA'S LAND

INDIA'S LAND

EMF 22 MiniCAM Scenario (Reference & Scenario 1 3.7 W/m² O.S.)

telle Since 1965

Imperfect Cooperation on Climate Policy: The degree of emissions leakage in Asian regions as a result of differentiated climate policies around the world.



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EMF 22 International Transition Scenarios (2030)

Climate Policy on Energy Security and International Trade:

The implications of climate policy on energy security and international trade within Asia, and between Asia and the rest of the world.



EMF 22 International Transition Scenarios (2100)

- Growth and Development Paths: The effect of different population and economic growth assumptions in Asian regions
- International Climate Targets: The implications of varying international climate policies on Asian regions
- Non-Cap-and-Trade Climate Policies: The impact of various policy based commitments (e.g., RPS, energy efficiency standards, CAFE standards) on Asian regions
- Non-Climate Policies: The impact of various non-climate policies (e.g., sulfur standards, BC policies) on Asian regions
- Technology: The effect of various technology assumptions (different technology availability, different costs) on mitigation in Asian regions
- Land-use Policies: The impact of land-use policies (e.g., offsets, REDD) on agriculture, land-use, and land-use change emissions in Asian regions.
- Imperfect Cooperation on Climate Policy: The degree of emissions leakage in Asian regions as a result of differentiated climate policies around the world.
- Climate Policy on Energy Security and International Trade: The implications of climate policy on energy security and international trade within Asia, and between Asia and the rest of the world.

Address a subset of these in the core scenarios! address the rest in in extensions by the individual modeling groups. <u>We must prioritize.</u>

ATORY

THIS IS A GOAL-ORIENTED MEETING

We have two primary objectives.

- Figure out what sort modeling capabilities and results are out there, at both the regional and global scale.
- Get a sense of the highest value next steps to move forward on a coordinated scenario exercise.
 - Enhancing the Suite of Scenarios that Explore Asia's Role in Addressing Climate Change
 - Enhancing the Ability of Models to Effectively Represent Asia
- We want to keep conversation focused on these two objectives.
- We have a lot of material to go through, so we will plan to be dictatorial in keeping the process on track.
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