IIASA’s Contribution to the IPCC

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IIASA Community Services related to the IPCC

- Community building (IAMC)
- Coordination of key community research activities (RCPs, SSPs)
- Conduct research and provide scientific input
- Host of major community data sets
The Integrated Assessment Modeling Consortium

- Co-founders: NIES, IIASA, and Stanford University
- Main scientific organization of the climate mitigation research community
- Identifies community research priorities and organizes community-wide activities and processes (e.g., IPCC SSP, RCPs)
New Community Scenarios for Integrated CC Assessments

Representative Concentration Pathways (RCPs)
- Forcing, Emissions, concentrations, land use, land cover

Socio-economic Pathways (SSPs)
- Descriptions of Alternative Socioeconomic Pathways

Earth System Model Simulations (CMIP5)
- Climate Change, climate variability

Integrated Analysis
- Mitigation, Adaptation, Impacts

Currently under way….

Based on Moss, Edmonds, et al. (2010)
Coordination of Community Research Activities
SRES: Special Report on Emissions Scenarios

IPCC Emissions Scenarios
• Extensive literature review
• Four narrative storylines
• Six modeling frameworks
• Forty emissions scenarios
• Six illustrative scenarios

Nakicenovic et al, 2000
The Representative Concentration Pathways (RCPs)

van Vuuren et al, 2011; Jones et al, 2013
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Some Key Scientific Contributions to the AR5
Some key inputs to the IPCC AR5

WGI: Emissions Budgets

WGII: Risk Framing

WGIII: Mitigation Scenarios

WGIII assessment largely based on five international intercomparison projects:

- EMF 27 (Technology)
- AMPERE (Delay & Policy)
- LIMITS (Burden sharing)
- AME (Asian focus)
- ROSE (Uncertainty)
Some key inputs to the IPCC AR5

WGIII assessment largely based on five international intercomparison projects:

- EMF 27 (Technology)
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GEA has served as a role-model of the IPCC’s assessment of climate change mitigation co-benefits (e.g. for air pollution & energy security)

Impact of Climate Policy on Energy Security

- Energy Trade (Global, 2050)
- Cumulative Oil Extraction (Global, 2010-2050)
- Electricity Diversity (Global, 2050)

[Graphs showing energy trade, cumulative oil extraction, and electricity diversity under different climate policies]

Energy Security Levels of GEA Scenarios in Bottom Panel
Integration across climate and other objectives is key for cost-effectively addressing environmental challenges.
IIASA as a Hub for Community Data Services
IIASA-IPCC Scenario Databases

IIASA-IPCC AR5 database:

IIASA-RCP database:

Other major databases:
Energy Modeling Forum (EMF24, EMF27, EMF28)
Global Energy Assessment (GEA)
Asian Modeling Exercise (AME)
AMPERE (EU-FP7 project)
LIMITS (EU-FP7 project)
Latin American Modeling Project (LAMP)

https://secure.iiasa.ac.at/web-apps/ene/AR5DB
http://tntcat.iiasa.ac.at/RcpDb/

2014
60,000 visits
3 million hits
1.5 TB downloads
Thank you!

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