

# **IAMC Scientific Working Group on Data Protocols and Management**

**Volker Krey**



# Ongoing and Proposed SWG Activities

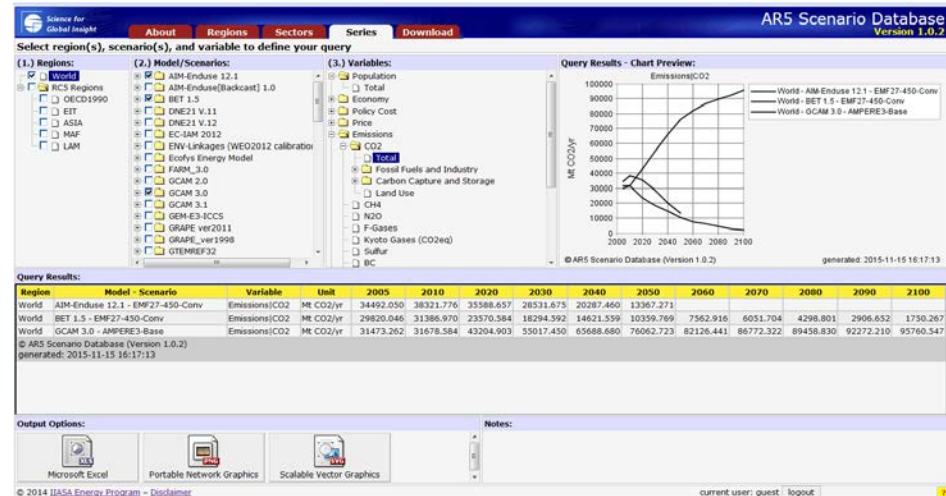
- Community Scenario Repository
- Spatial data exchange formats
- Harmonized region definitions
- Harmonized model documentation

# Community Scenario Repository: A Cross-Cutting Activity with the Scenario SWG

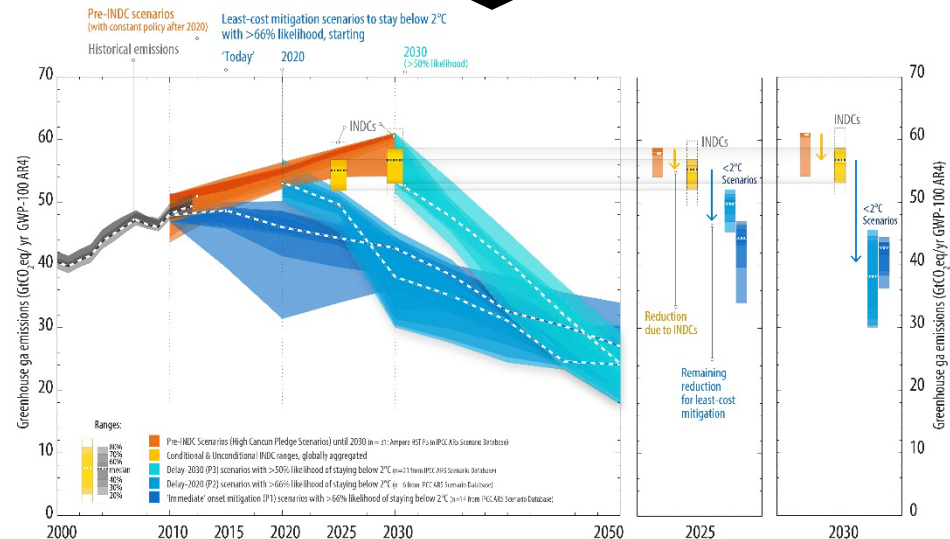
Keywan Riahi (IIASA), Tom Kram  
(PBL), Detlef van Vuuren (PBL)

# Experience

- AR5 scenario database visible (e.g. cited in UNFCCC INDC synthesis report)
- Requests for access to IAM SSP data coming in now



AR5 scenario database



UNFCCC INDC Synthesis Report, Figure 2

[http://unfccc.int/focus/indc\\_portal/items/9240.php](http://unfccc.int/focus/indc_portal/items/9240.php)

# Proposal and Objectives

## Proposal

- Establish central IAMC scenario repository to collect national, regional, and global scenarios from research community
- Use SSP framework as organizing principle for classifying scenario literature

## Objectives

- Broadening the scope of SSP analysis beyond the marker scenarios and models
- Promoting use of SSPs in national and regional analysis
- Enhancing transparency of IAM results (incl. documentation of input data)

# Up for Discussion

- Distinction between harmonized and non-harmonized scenarios (based on socio-economic SSP elements)?
- What are the minimum criteria for submission to repository?  
e.g. sectoral coverage, time horizon, variables, (peer-reviewed) publication
- Do we want automated quality checks and/or a review process to ensure decent data quality?

# Process

- Establish joint Scenario-Data SWG committee to deal with detailed questions
  - submission criteria
  - data template and meta data
  - review processand to deal with issues that pop up during implementation
- Involvement of IAMC SC and membership

# Spatial data exchange formats

Steven J. Smith (PNNL)



SSP scenarios will be used for a number of the CMIP6 MIPs

- CMIP6 modelers want one historical pathway to as late a date as practical, with future scenarios consistent at the grid-cell level
- SSPs are being finalized now, but base-year emissions vary and will not match newer inventory data out to 2014.
  - With GCMs/ESMs using historical emissions out to 2014, IAM scenarios will need to be harmonized to historical time series
- Harmonized SSP emissions will need to be mapped to a spatial grid

## Proposal (For Discussion)

Propose using common routines (perhaps implemented within IIASA database?) for harmonization and gridding.

- Harmonization by aggregate sector using methodology
- Mapping to spatial grid using common (open source) gridding algorithms (i.e. van Vuuren et al. 2007 method?)
  - JGCRI proposes to extend the CEDS historical gridding routines to apply to the harmonized SSP emissions database

# Harmonized region definitions

David L. McCollum (IIASA), Elmar  
Kriegler (PIK), Kate Calvin (PNNL)

# Why should we harmonize regional information in IAMs?

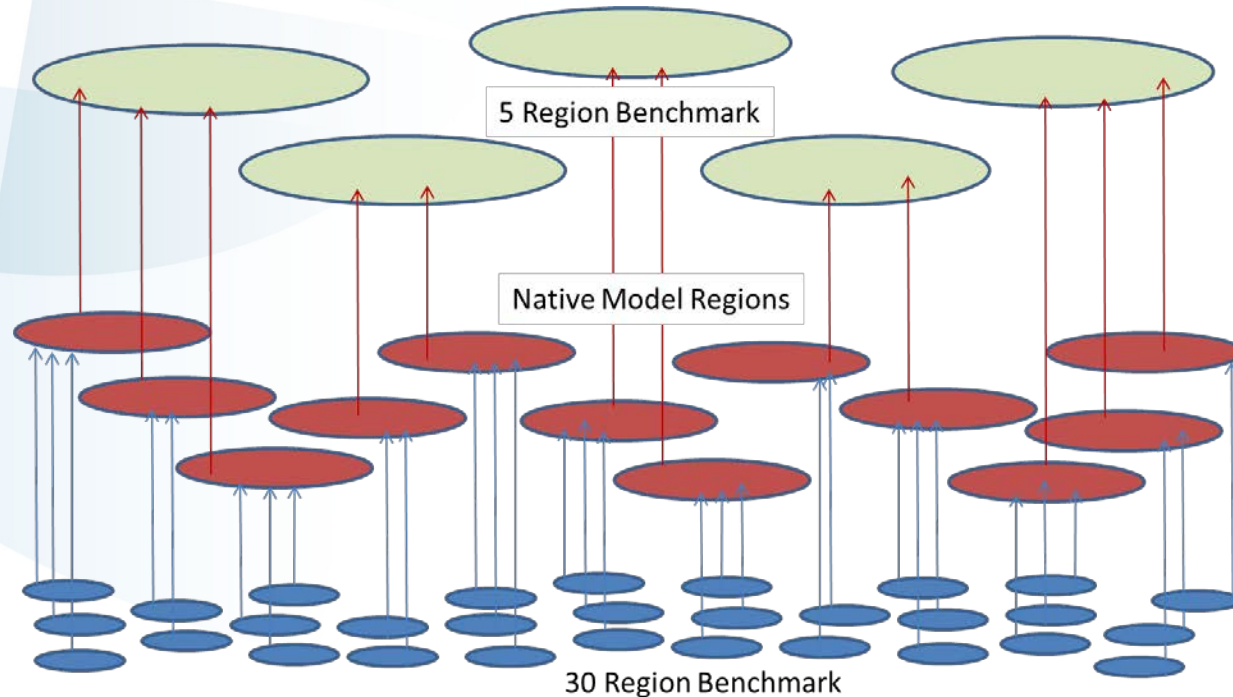
- Global energy-economy and integrated assessment models (IAMs) have made different choices of native model regions.
  - How many regions in the model?
  - Which countries are included in which model regions?
- Classic example: Where to put Turkey?
  - In some models Europe
  - In other models Ref-Econ, Mid-East, or Rest of World
  - Quickly growing country => regional choice has an impact
- Objective of subgroup: *to facilitate better harmonization of regional information across IAMs in the future.*

# How to achieve a more harmonized treatment of regional information?

General concept: Establish benchmark region sets (with e.g.  $k = 5, 10, 20, m = 30, \dots$  regions)

Native region setting ( $n$  regions,  $k < n < m$ ) could be chosen so that

- input on high res  $m$ -benchmark set maps to model regions
- model output maps to low res  $k$ -benchmark set.



# Harmonized model documentation

# EU FP7 Project: ADVANCE

## Documentation

- Objective: comparable documentation for a larger set of models with two levels of detail
  - Reference cards: mostly tables with predefined categories (2-3 pages)
  - (Moderated) Wiki: harmonized outline with guidance on information that should be covered (~30 pages)
  - Appendices (optional)
    - Mathematical formulation
    - Input data

## Publication

- Moderated Wiki format (incl. versioning, allows continuous updating), hosted by UCL

# Model Documentation

- ADVANCE project developed model documentation Wiki:  
<https://wiki.ucl.ac.uk/display/ADVIAM>
- Documentation available for 10 models
- Public review: 15 July – 15 October 2015
  - IAM community (via IAMC listserv)
  - Other networks (e.g., GTAP, ETSAP community)
  - Stakeholders, incl. government agencies (e.g., US EPA, DG Climate)
  - Individual researchers familiar with IAMs

# Review comments: Content and Structure

## Content

- Provide information on model parameterization in different dimensions (e.g., technologies, efficiency, resources)
- Require information on data sources
- Elevate “water” to be a topic of its own (currently under “other commodities”)

## Structure

- Provide a ‘template’ model to improve comparability across models (ask modeling groups how they deviate from template)



# Review comments: Implementation

## Implementation

- Improve navigation (e.g. have documentation on one page with subtitles)
- Allow comparison across models (for both reference cards and documentation)
- Some pages provide inadequate description
- Facilitate updates (specification, spatial, sectoral aggregation)

# Some takeaways...

- Adjust structure to reflect more recent developments (and establish process for future updates)
- More rigorous template to improve comparability?
- Establish a review process?
- Integrate “structural” documentation with parametric assumptions – joint activity between data and diagnostics SWGs
- Move to a more flexible platform

**Thank you!**

More time on Wednesday morning during  
the SWG meetings...