

IPCC WG III Perspectives On Needs For Socio-economic Scenarios

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- WG III Needs & the Scenario Process:
Possible Links & Steps

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AR5 WG III Outline

I: Introduction

1. Introductory Chapter

II: Framing Issues

2. Integrated Risk and Uncertainty Assessment of Climate Change Response Policies

3. Social, Economic and Ethical Concepts and Methods

4. Sustainable Development and Equity

III: Pathways for Mitigating Climate Change

5. Drivers, Trends and Mitigation

6. Assessing Transformation Pathways

7. Energy Systems

8. Transport

9. Buildings

10. Industry

11. Agriculture, Forestry and Other Land Use (AFOLU)

12. Human Settlements, Infrastructure and Spatial Planning

IV: Assessment of Policies, Institutions and Finance

13. International Cooperation: Agreements and Instruments

14. Regional Development and Cooperation

15. National and Sub-national Policies and Institutions

16. Cross-cutting Investment and Finance Issues

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Chp 6: Assessing Transformation Pathways

Scenarios are the backbone of consistency between WG II and WG III.

IV: Assessment of Policies, Institutions and Finance

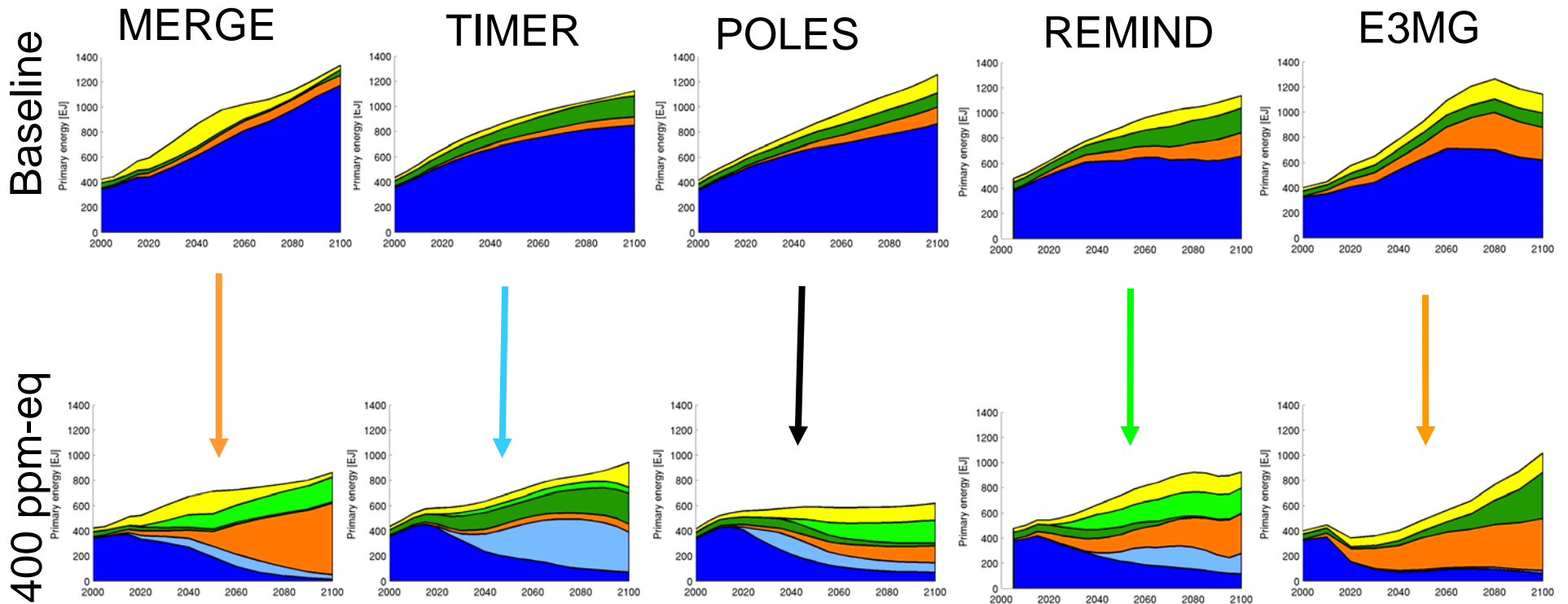
13. International Cooperation: Agreements and Instruments

14. Regional Development and Cooperation

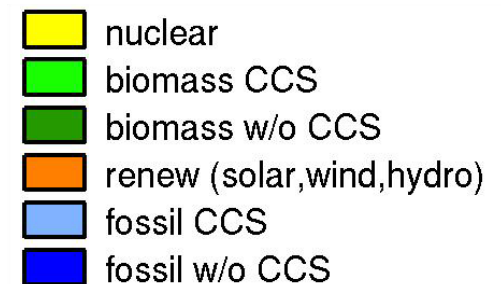
15. National and Sub-national Policies and Institutions

16. Cross-cutting Investment and Finance Issues

Example: Assessing Transformation Pathways

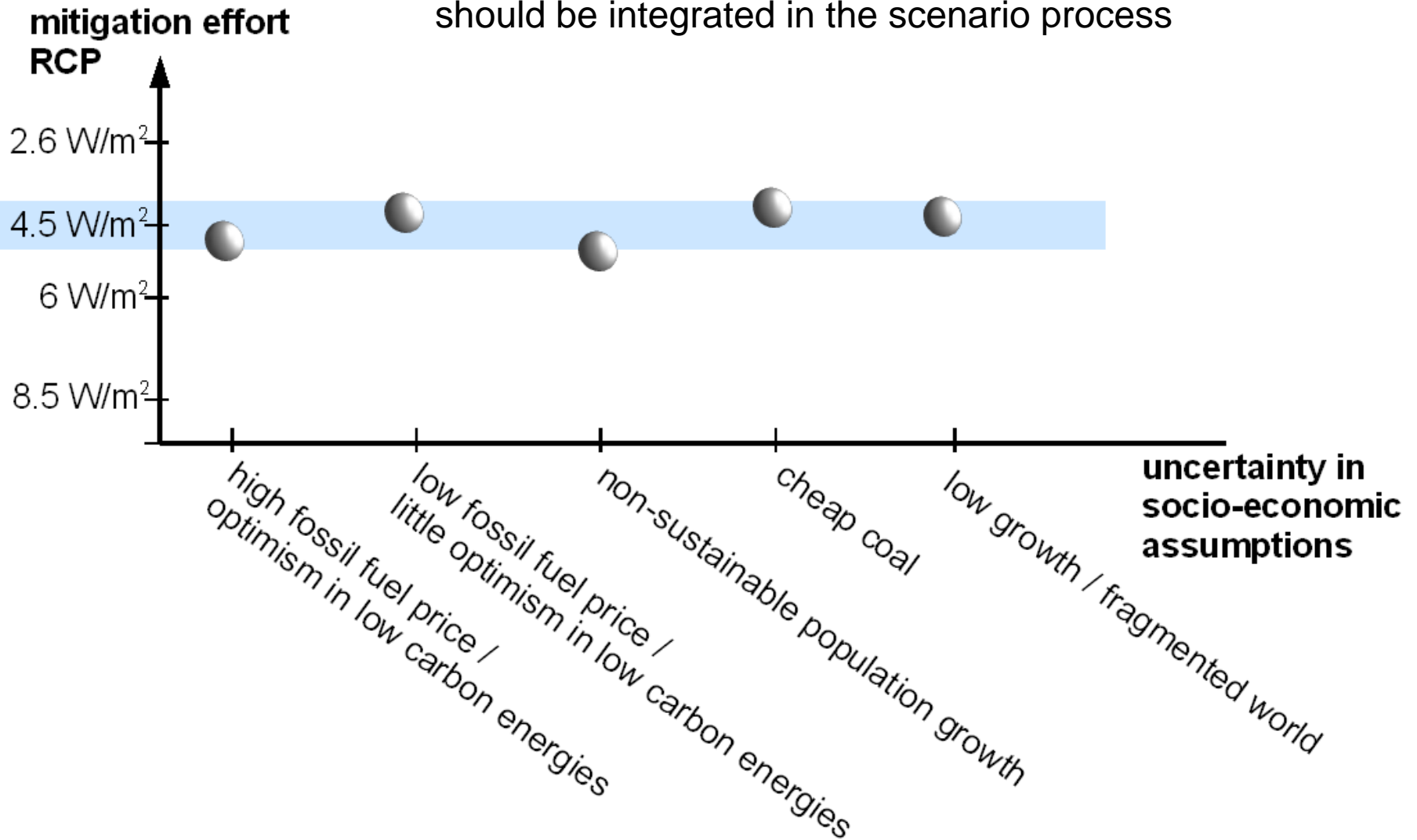


- Transformation Pathway = Baseline + Mitigation Scenario Edenhofer et al. (2010)
- Several ways achieve the transformation
- Make unintended side effects explicit:
 - CCS leakage
 - Food crisis due to large-scale biomass use
 - Nuclear waste
 - ...



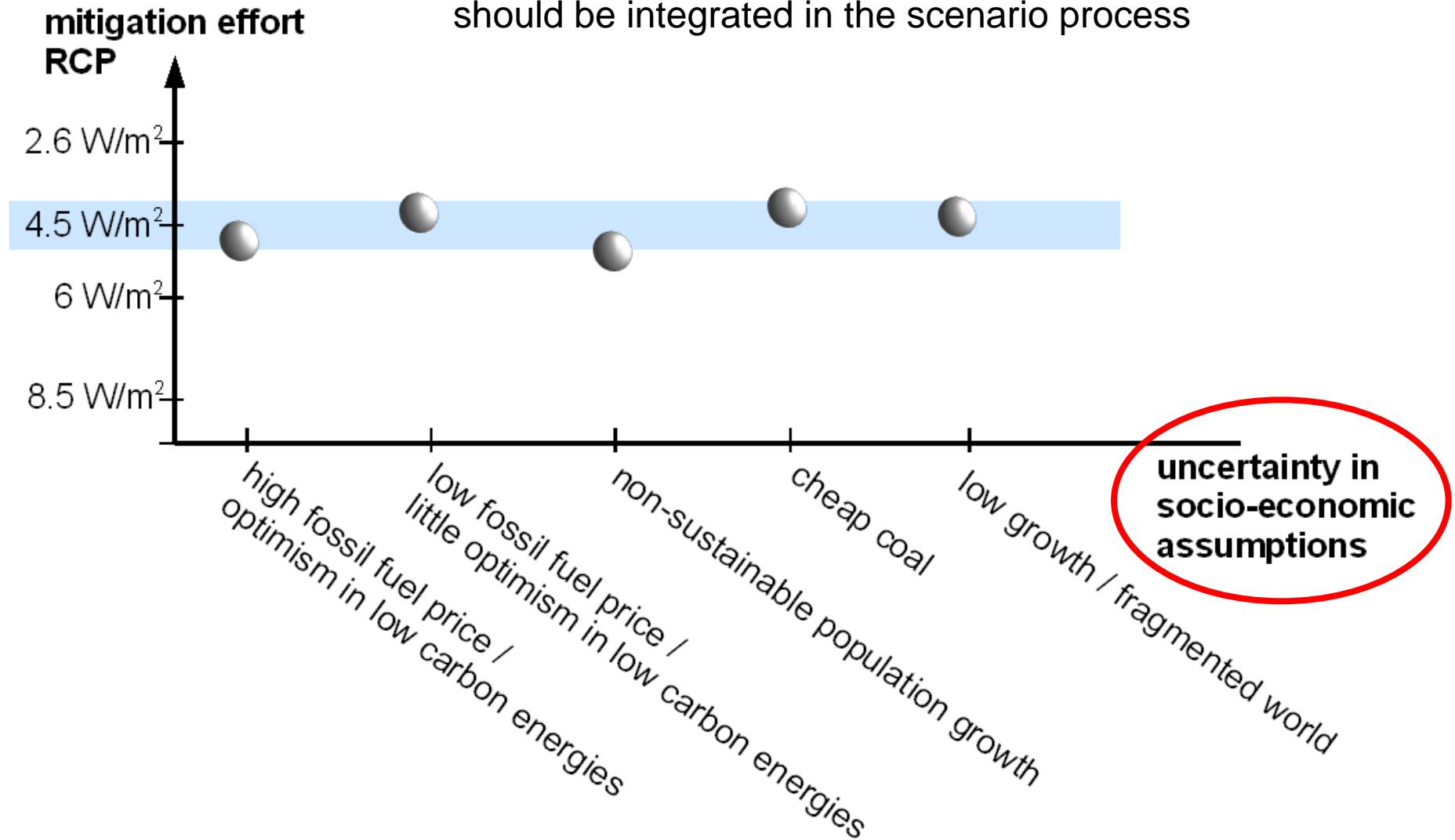
WG III Scenario Philosophy

Idea for the conceptualization of scenarios, which should be integrated in the scenario process



WG III Scenario Philosophy

Idea for the conceptualization of scenarios, which should be integrated in the scenario process



Socio-economic assumptions should be self-consistent

WG III Scenario Philosophy

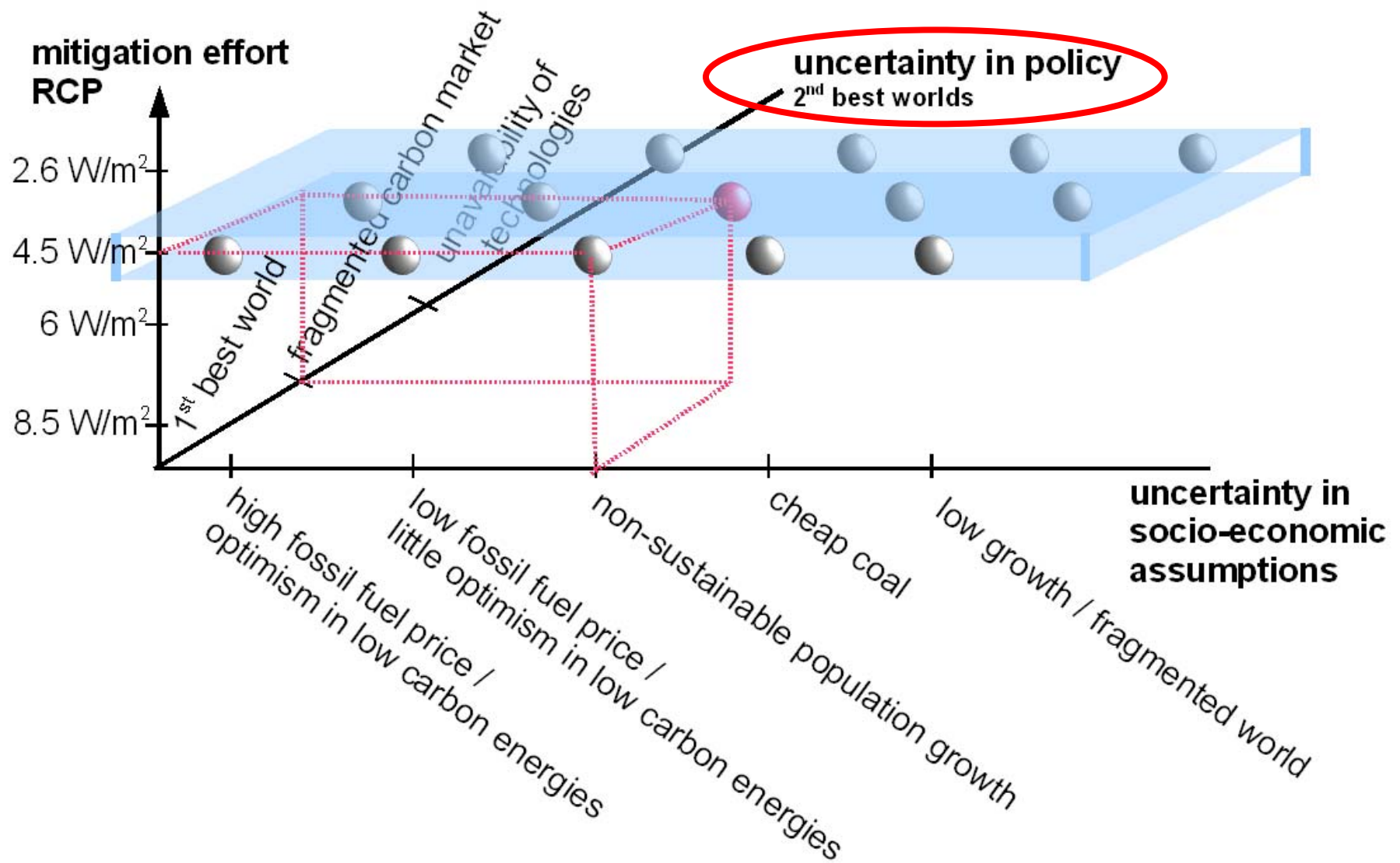


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Scenario Process



**Establish coherence
through scenario
process**

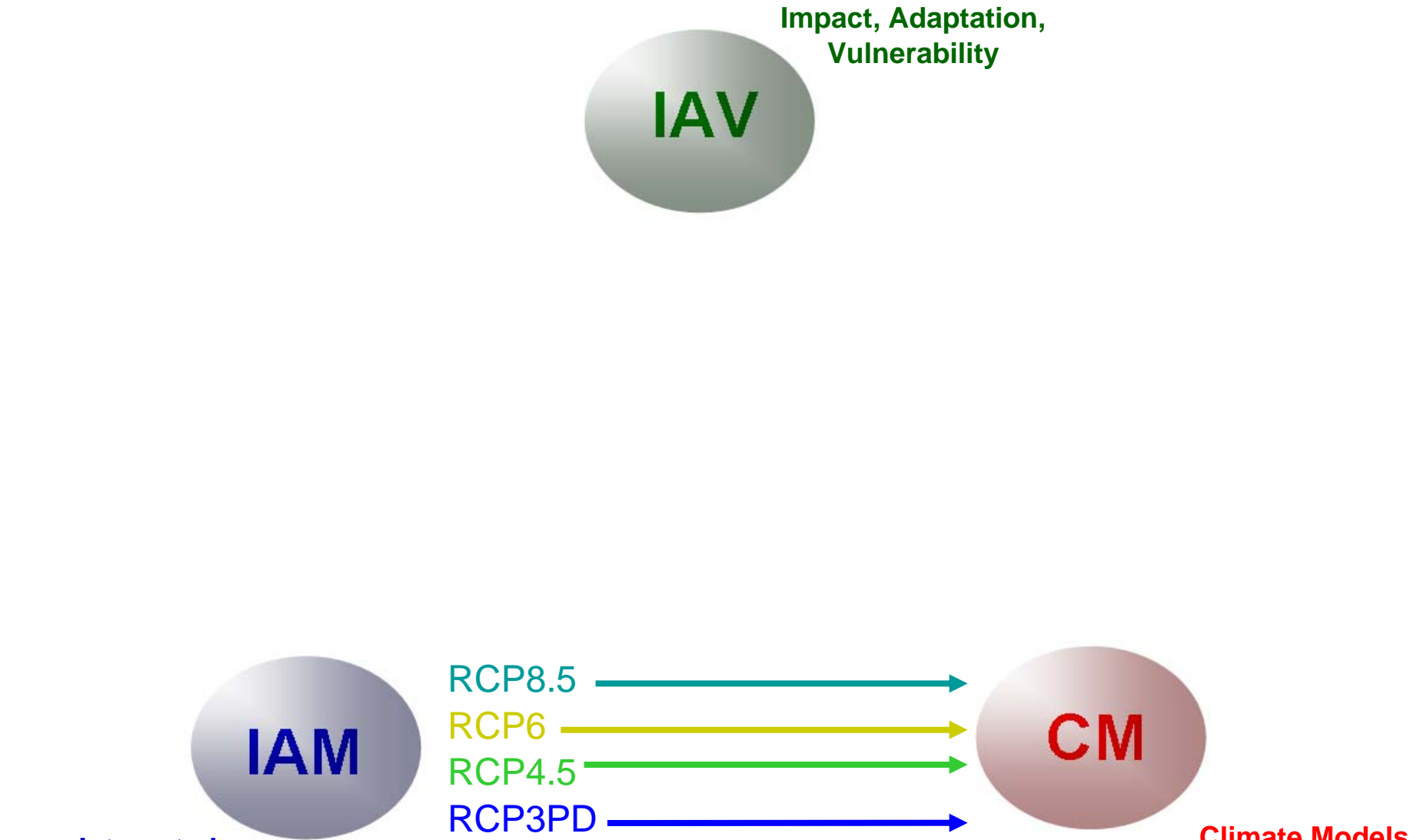


**Integrated
Assessment Models**



Climate Models

Scenario Process

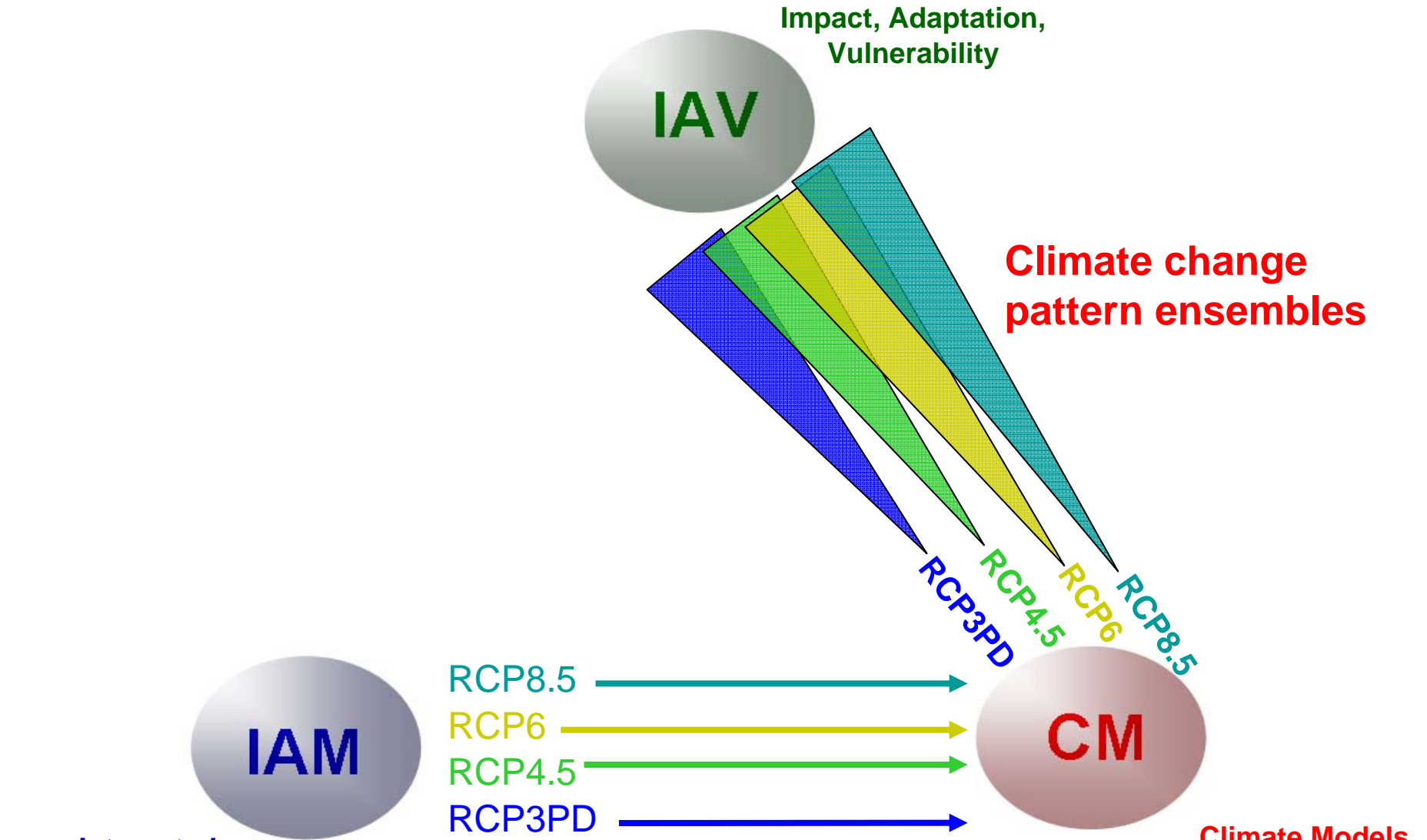


Integrated Assessment Models

RCPs

Climate Models

Scenario Process

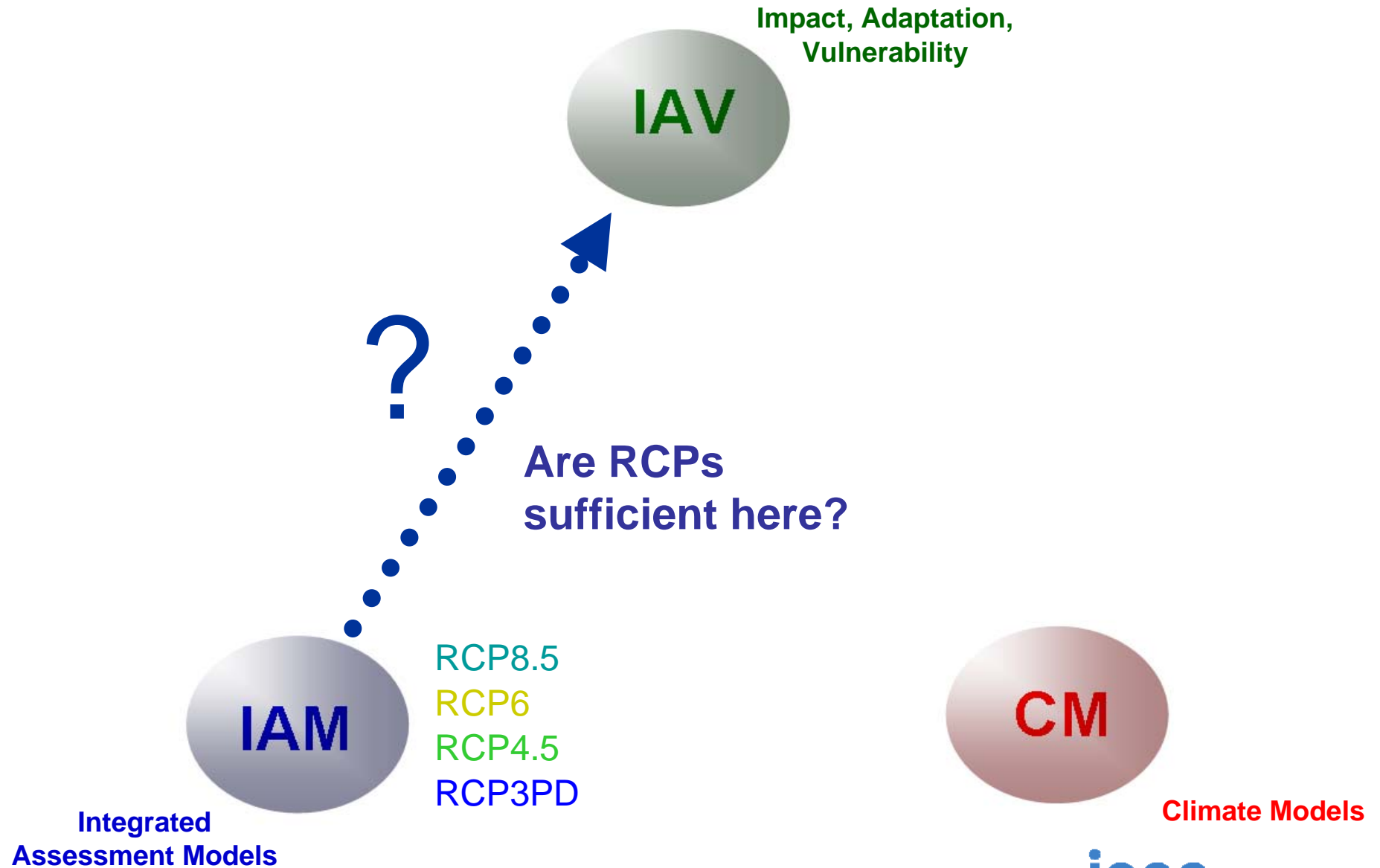


Integrated Assessment Models

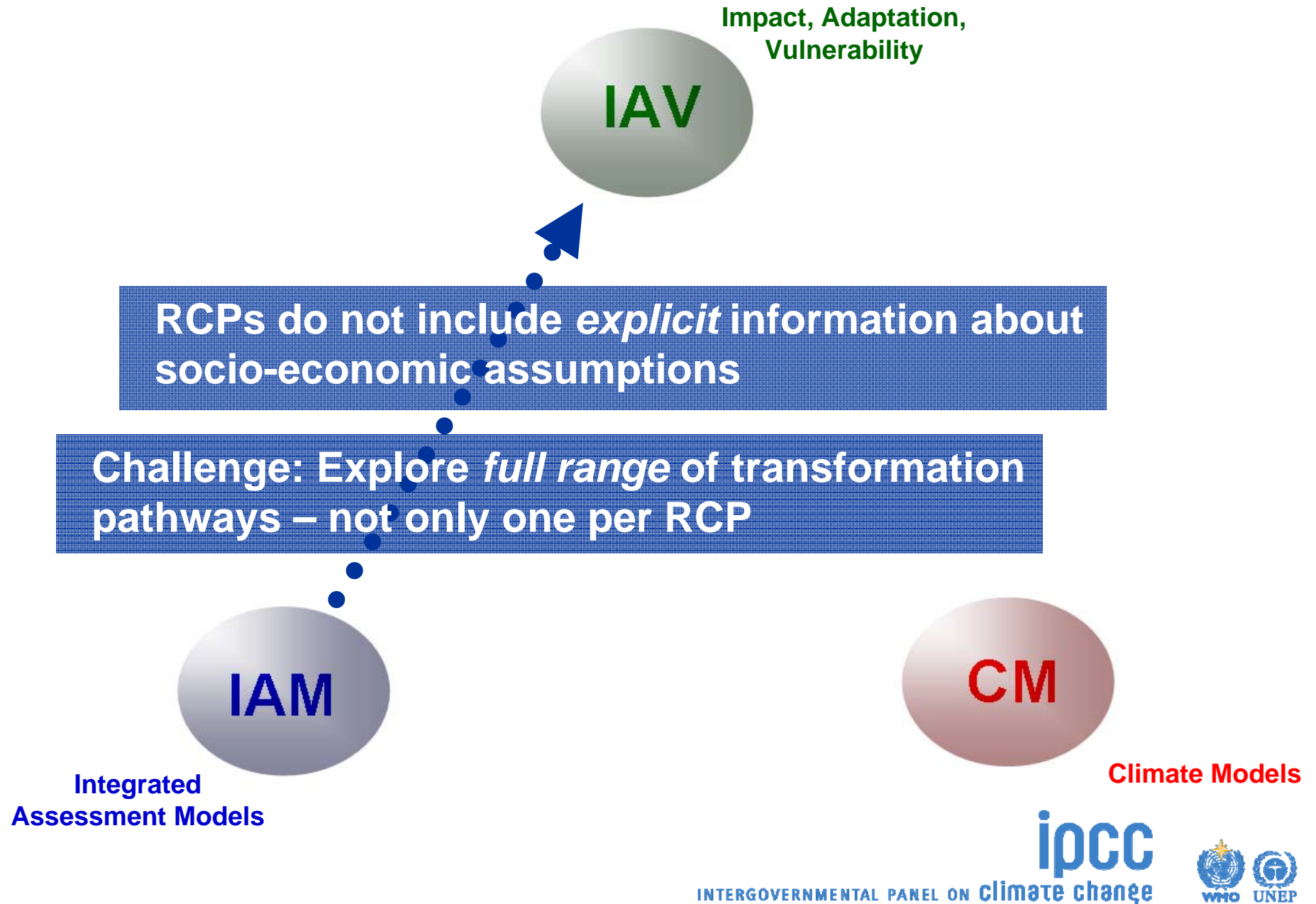
RCPs

Climate Models

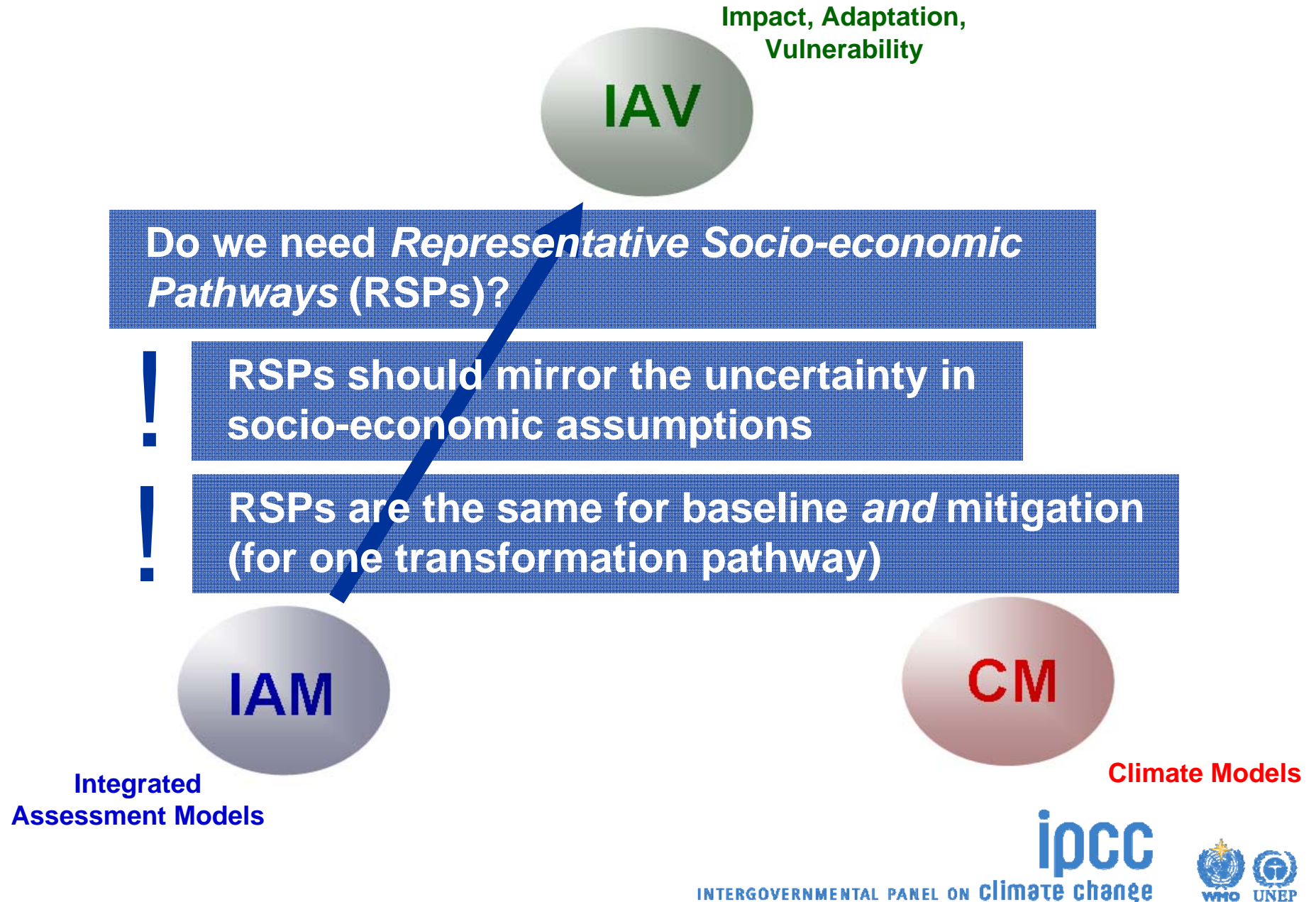
Scenario Process



Scenario Process



Scenario Process



Integrated
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Climate Models

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8 Steps to Enlightenment



Step 1: Identify Drivers



demographic development



social trends



economic trends



technological trends



regional heterogeneous trends



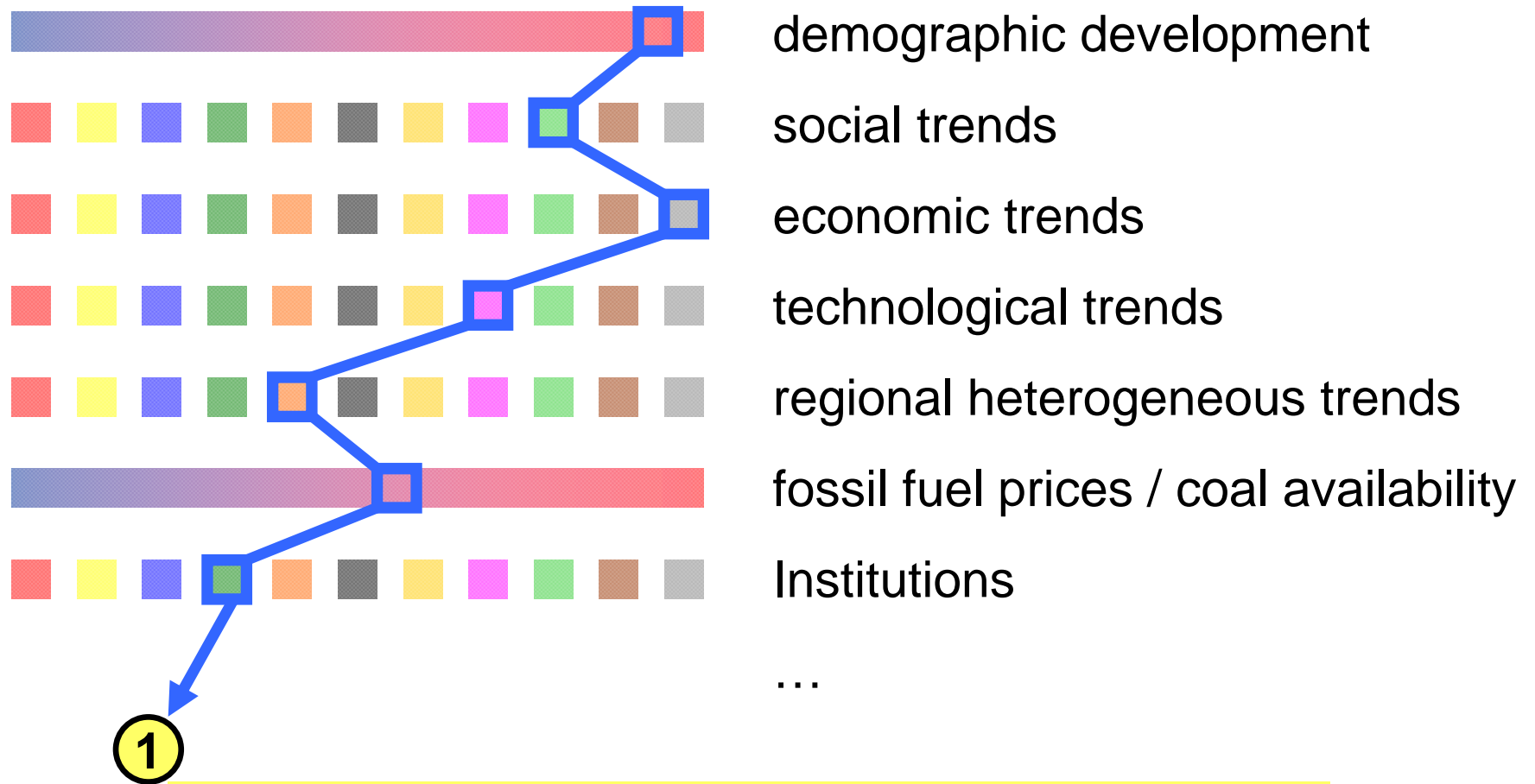
fossil fuel prices / coal availability



Institutions

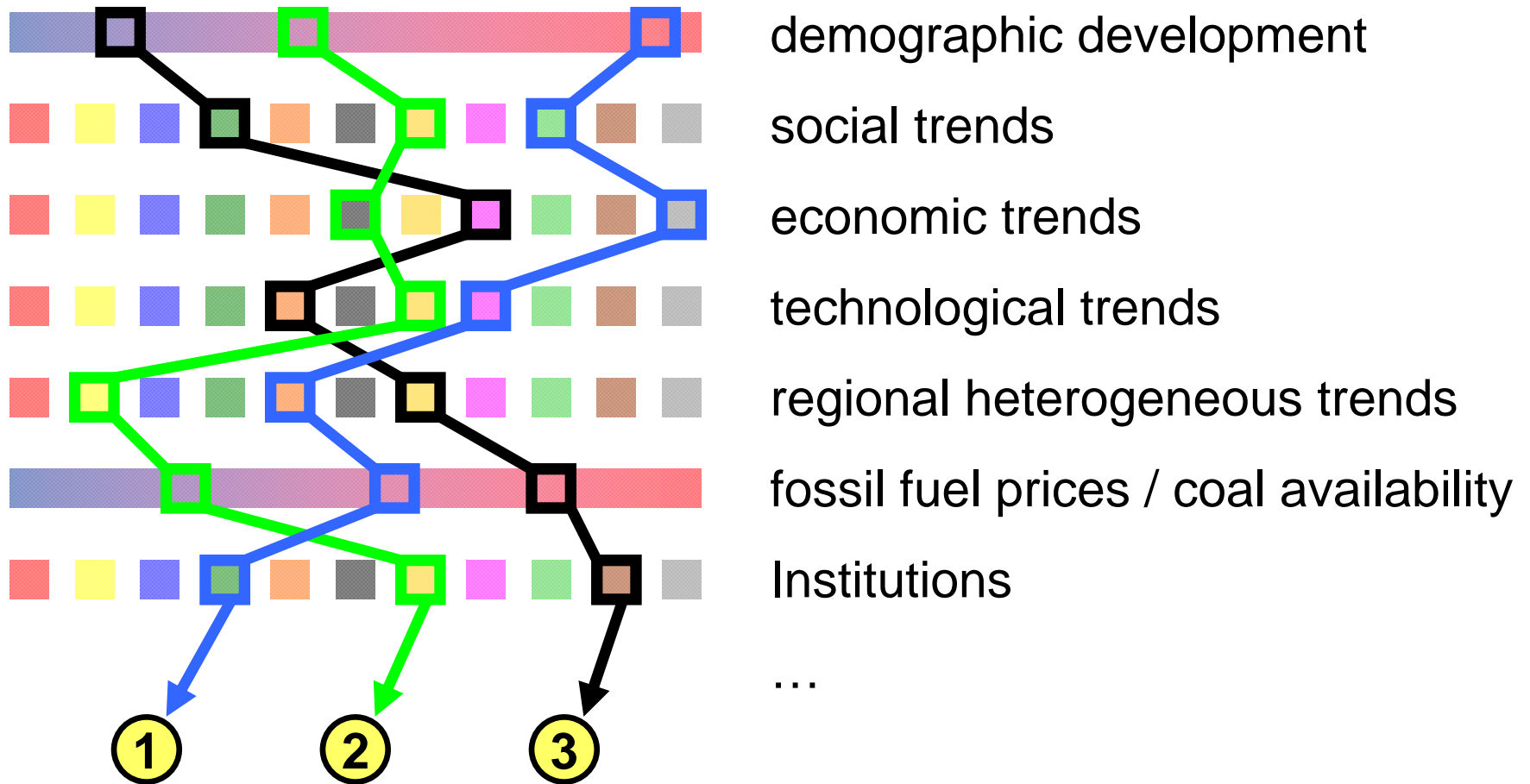
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Step 2: Driver Parameterization Defines RSPs



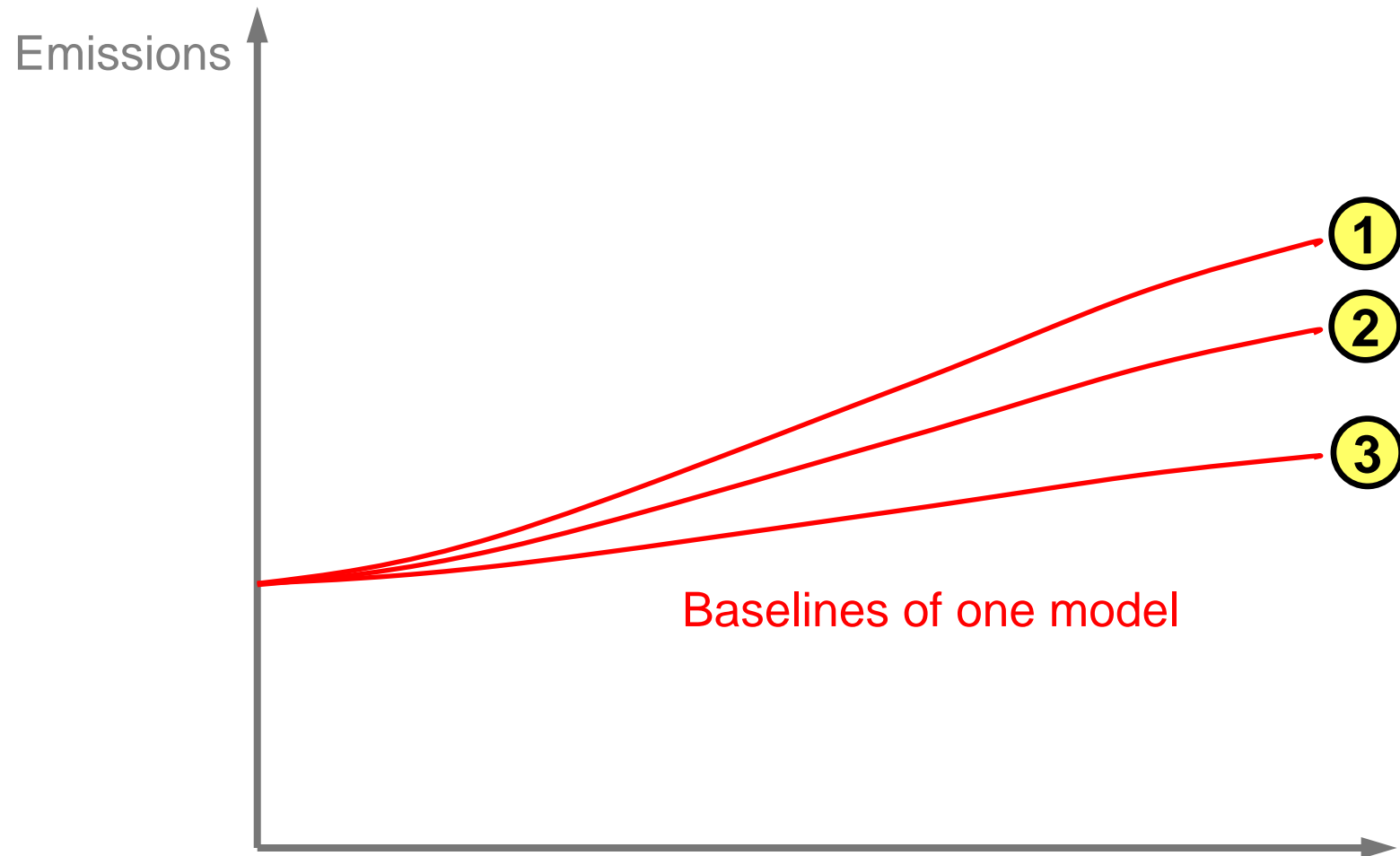
Representative Socio-economic Pathway (RSP)

Step 2: Driver Parameterization Defines RSPs

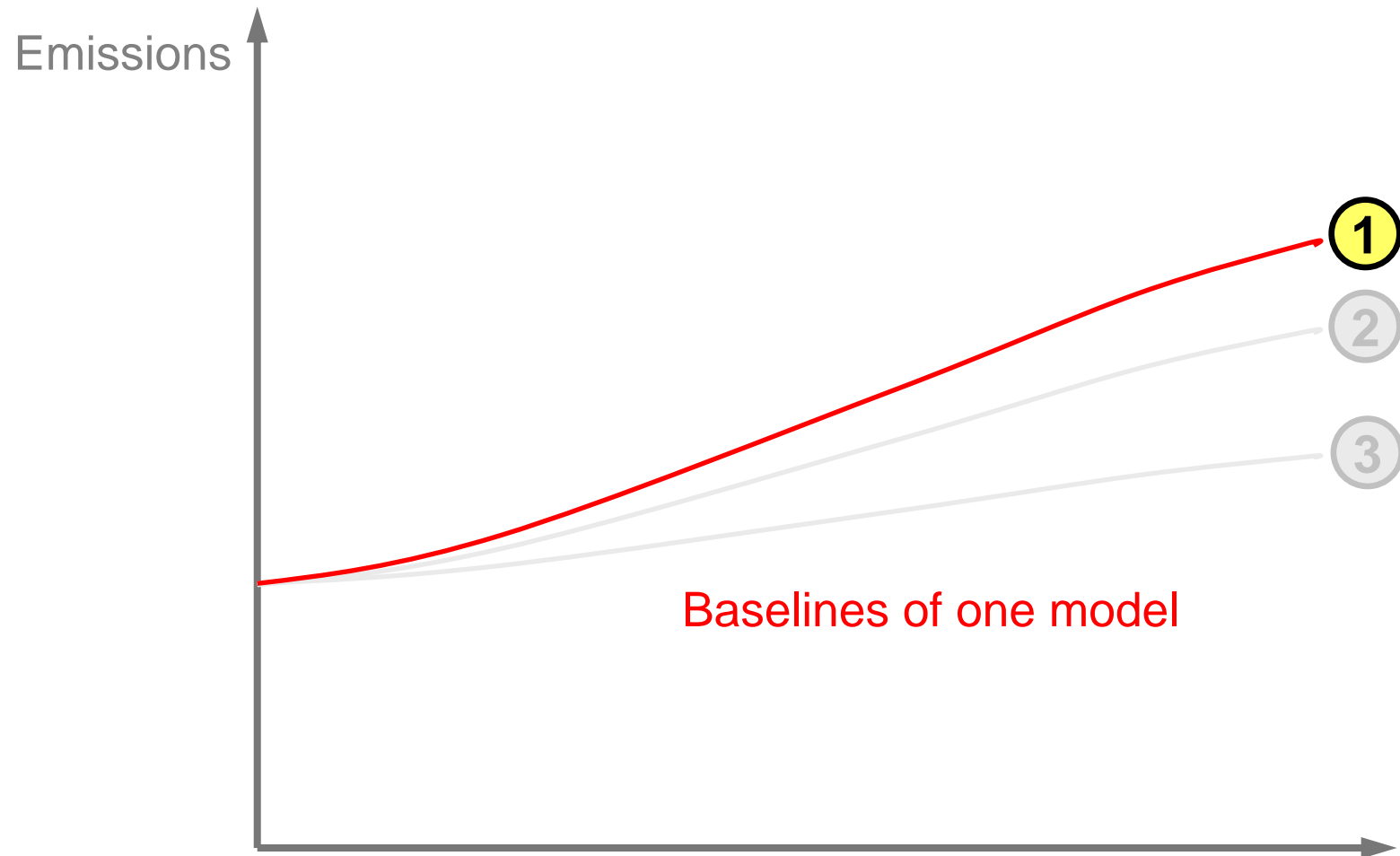


RSPs do not include an assumption about the future emission trends - this is a model outcome.

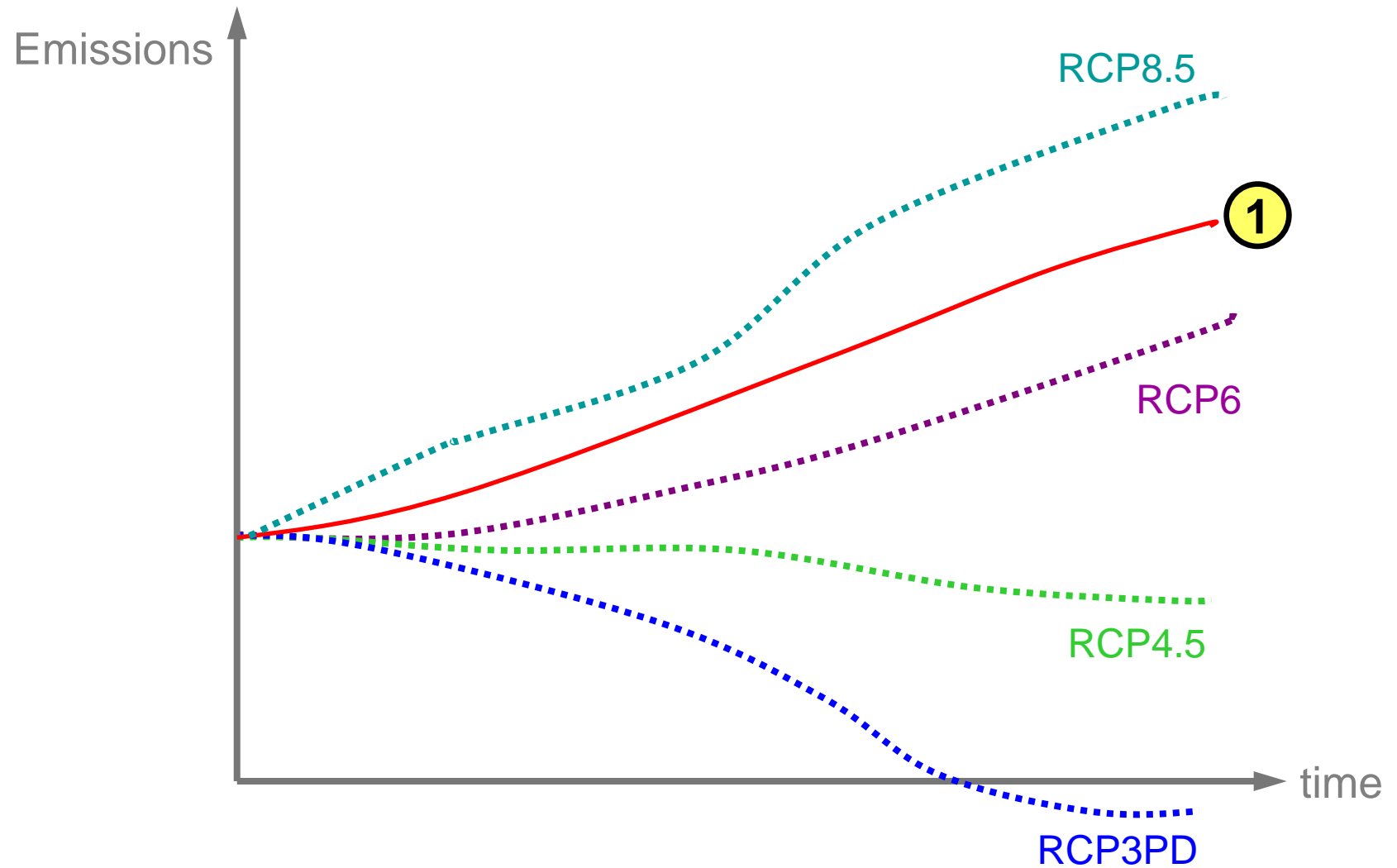
Step 3: Baseline Runs for Each of the 3 RSPs



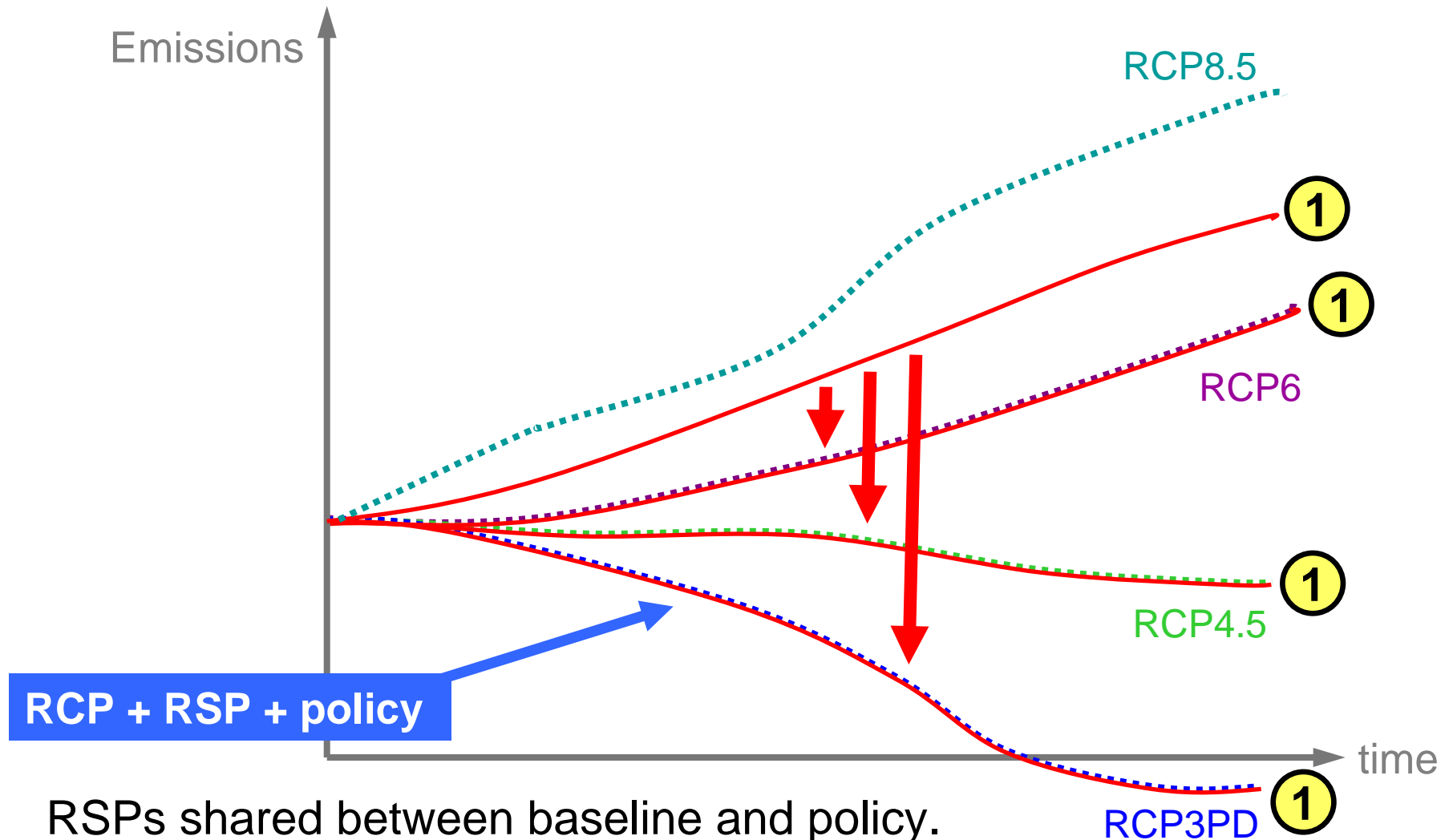
Step 3: Baseline Runs for Each of the 3 RSPs



Step 4: Model Runs RCPs for RSP

1

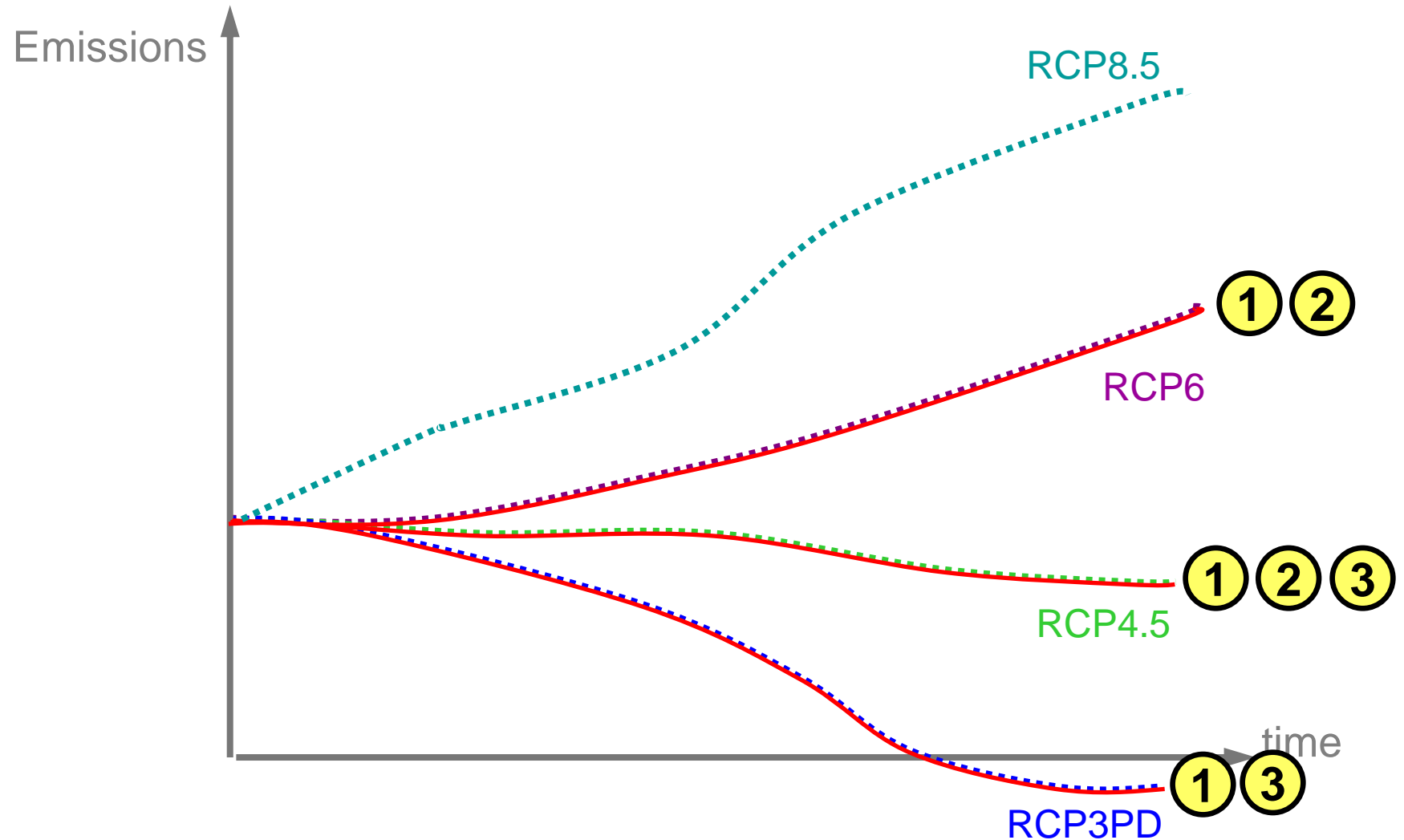
Step 5: Model Runs 4 RCPs for RSP ①



RSPs shared between baseline and policy.

RSPs not compatible to all RCPs.

Step 6: Each Model Runs 4 RCPs with all RSPs



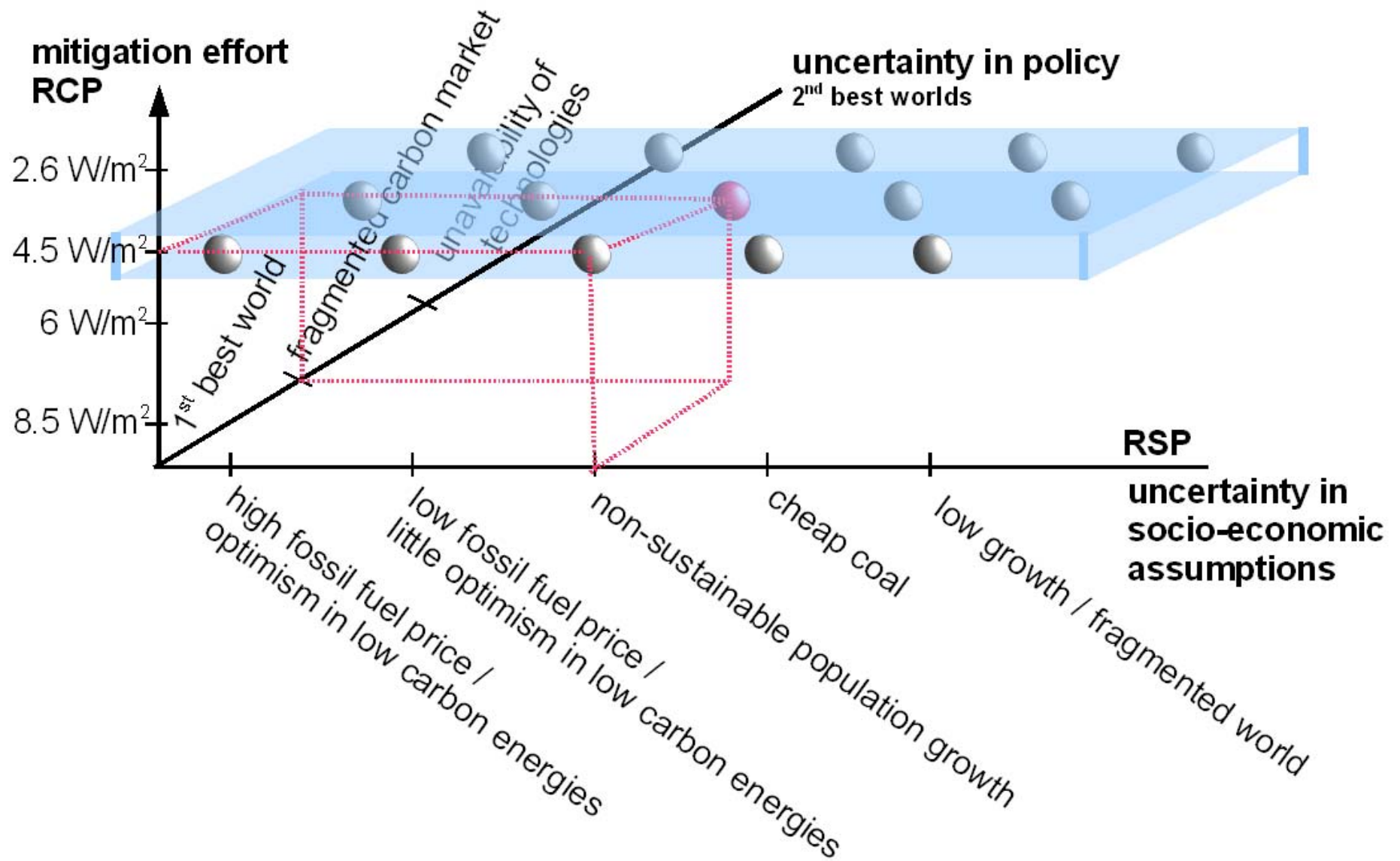
Research Question: Which RSP is compatible with which RCP?
 Which policies must be applied to reach a particular RCP? Which technologies are needed?

Step 7: Run Second Best Scenarios

Second best scenarios
for baseline & mitigation scenario:

- Limited availability of technologies (e.g. without CCS)
- Run extreme scenarios (e.g. very high nuclear, high use of bio-energy)
- Heterogeneous mitigation policies
- ...

Step 8: Tell Policy Relevant Stories in 3D



8 Steps to Enlightenment



... will help developing consistent scenarios
for all IPCC Working Groups

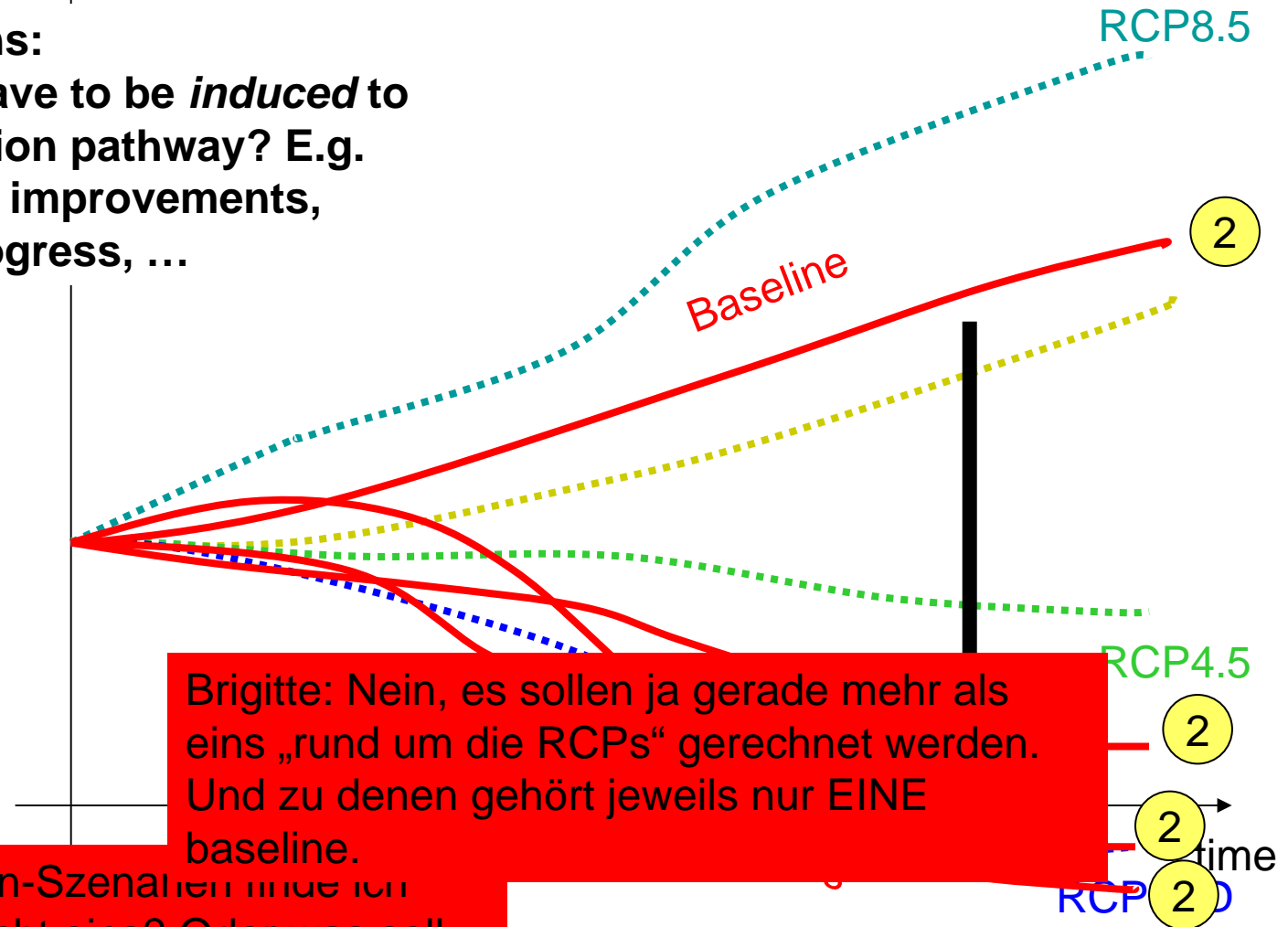
Supplementary Slides

Step 6: Assessing Further Transformation Pathways

Emissions ↑

Research Questions:

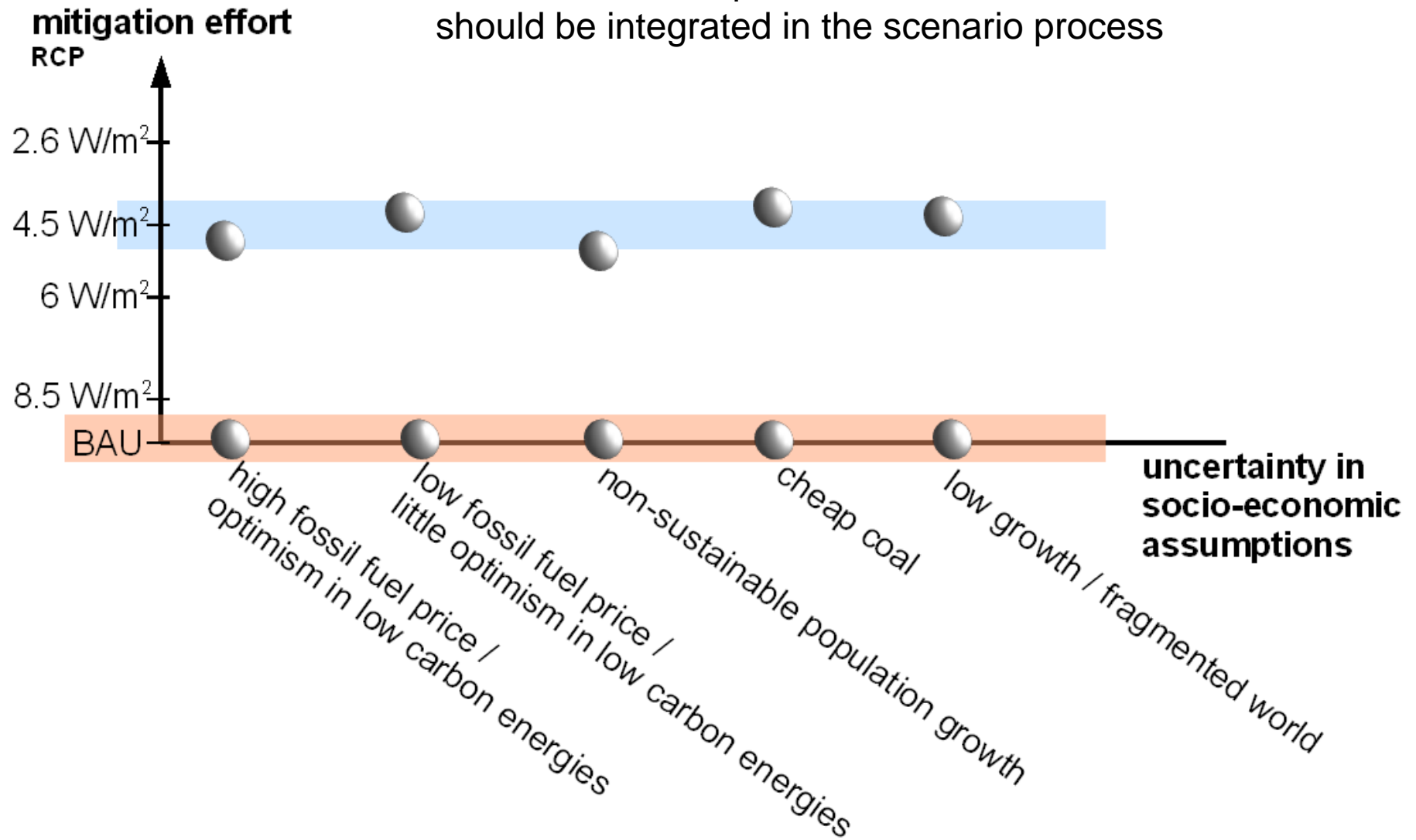
- Which policies have to be *induced* to achieve a mitigation pathway? E.g. energy efficiency improvements, technological progress, ...



Timm: Die 3 Mitigation-Szenarien finde ich verwirrend – reicht nicht eins? Oder was soll gezeigt werden?

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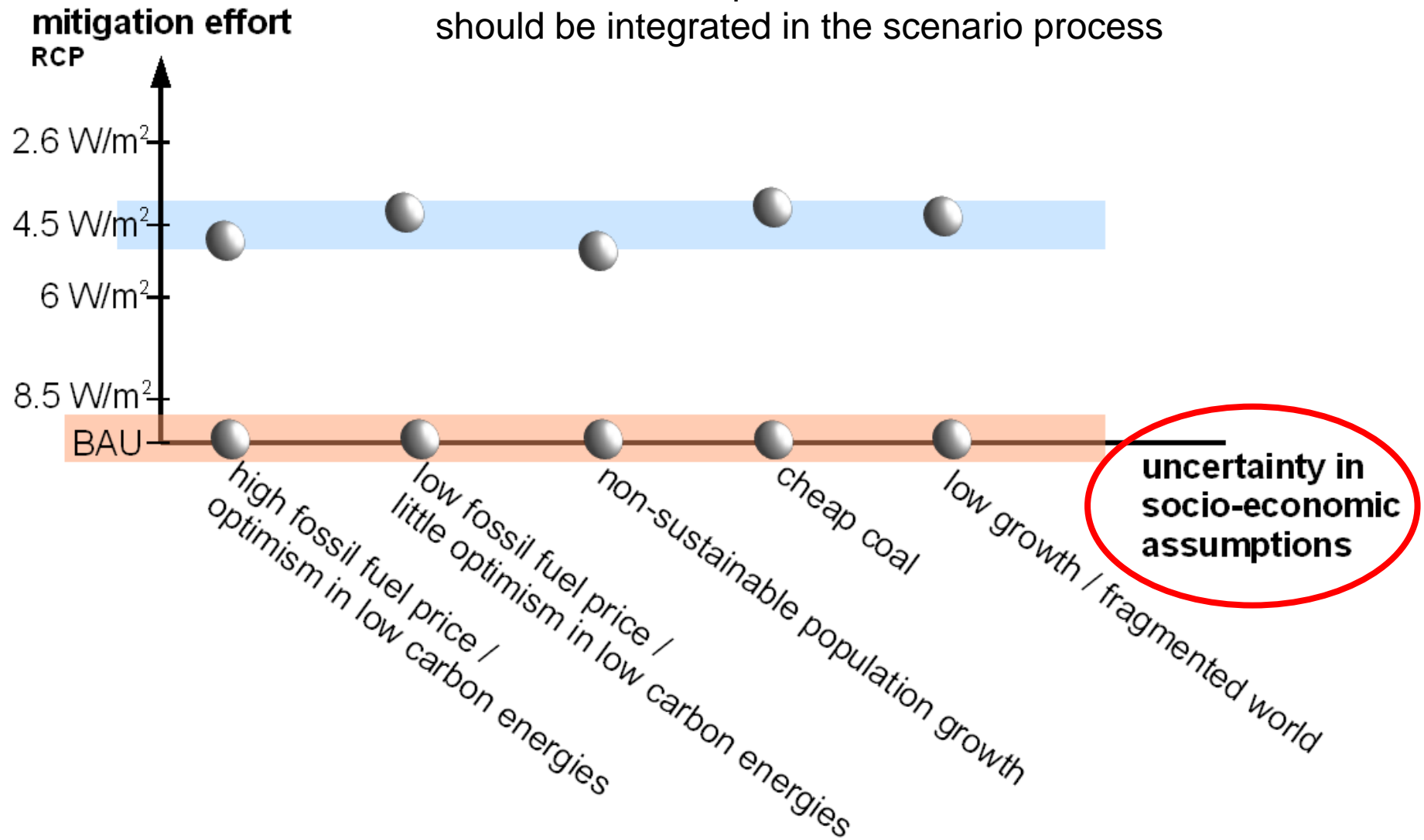
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