International Institute for Applied Systems Analysis
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science for global insight

The World in 2050: Achieving Sustainable Development Goals

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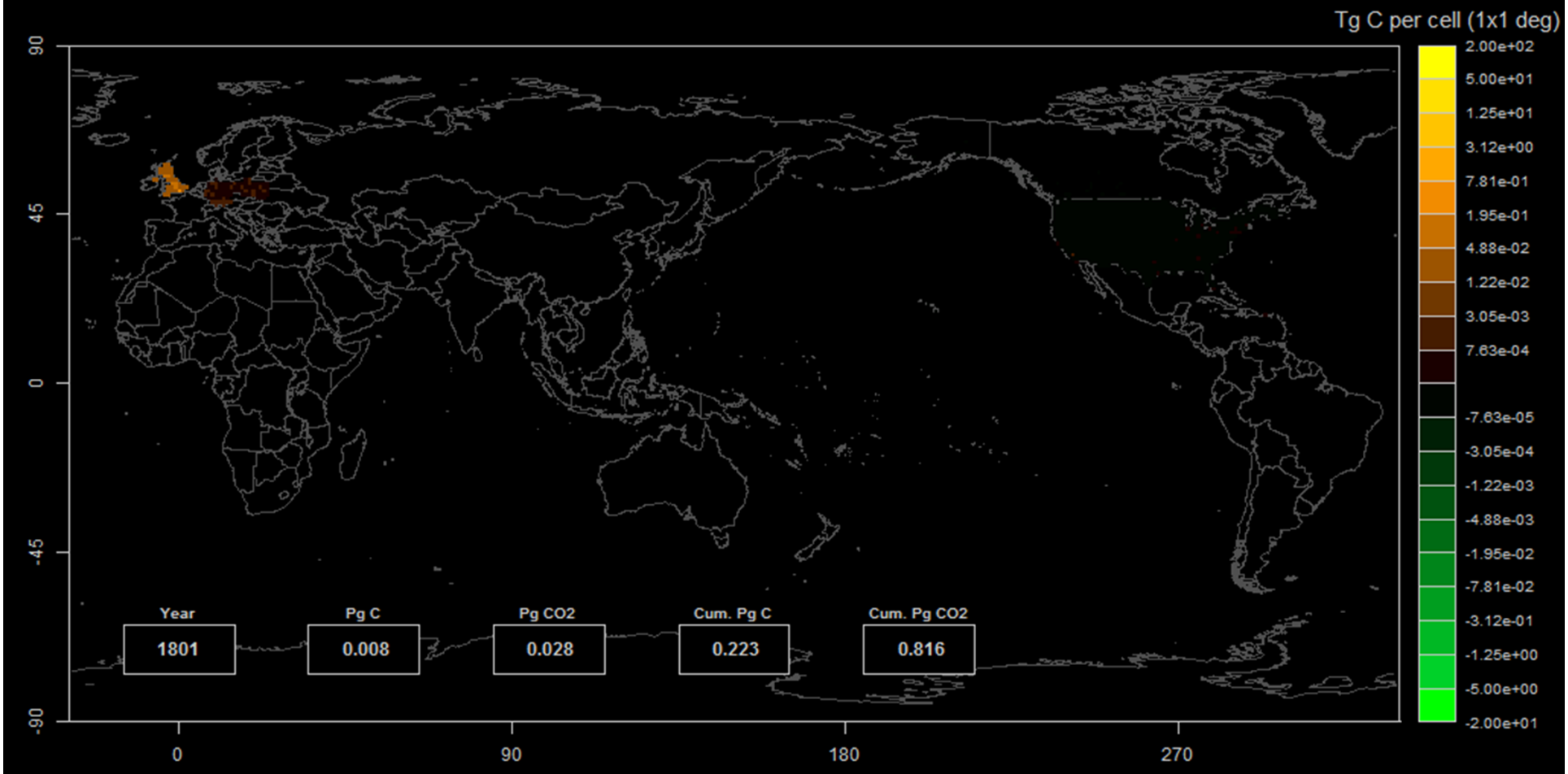
The Road from Paris: INDCs & Sustainable Development, – 10 February 2016

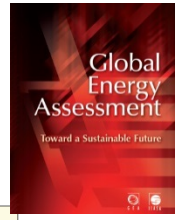
23 IIASA NATIONAL MEMBER ORGANIZATIONS

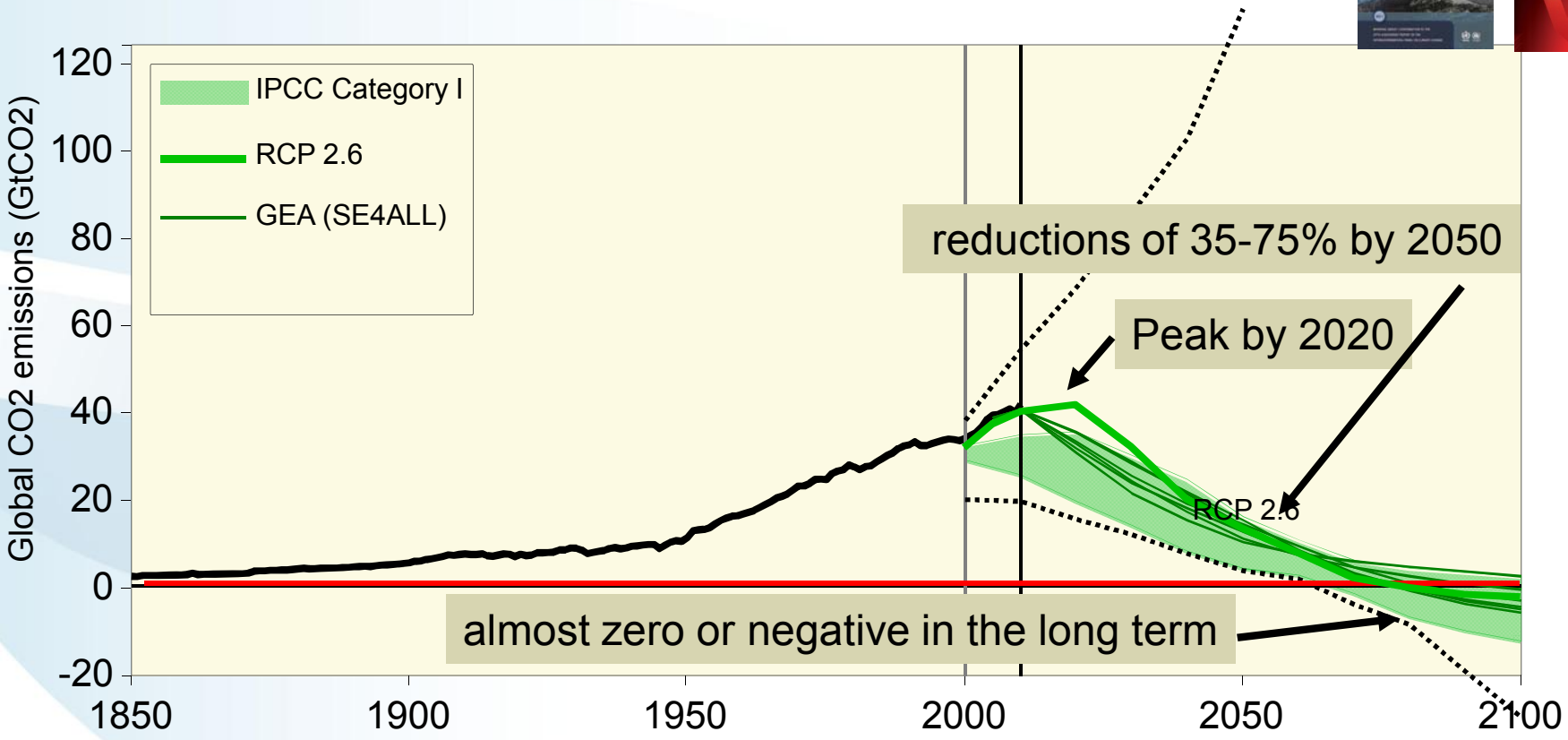
- **International, independent, interdisciplinary science**
- **research & big-data on major global problems**
- **Solution & policy oriented, integrated systems analysis**

Global CO_2 Emissions



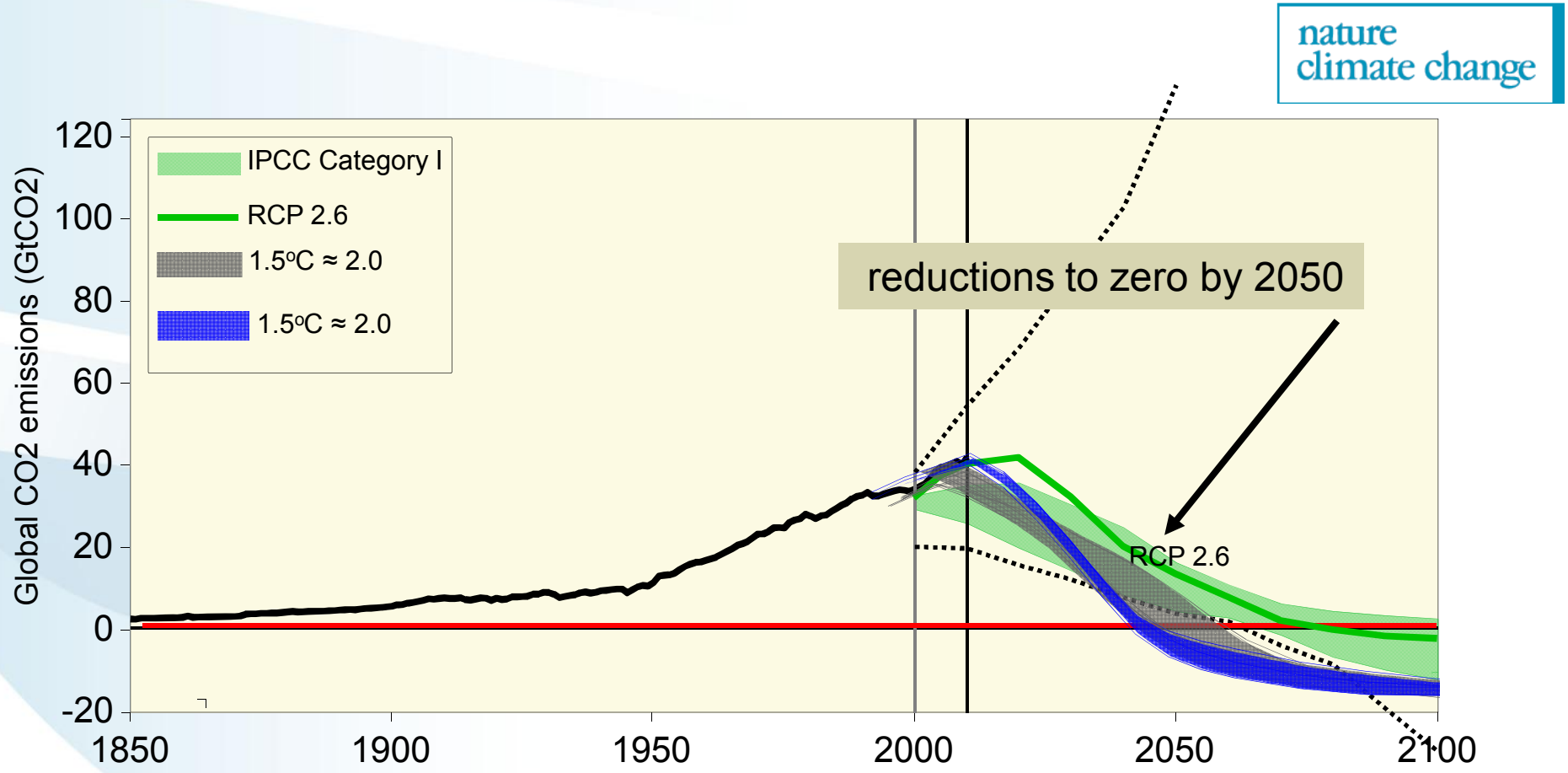
Global CO2 Emissions





Source: GEA, 2012; IPCC, 2014

Global CO2 Emissions



The Key Energy Challenges

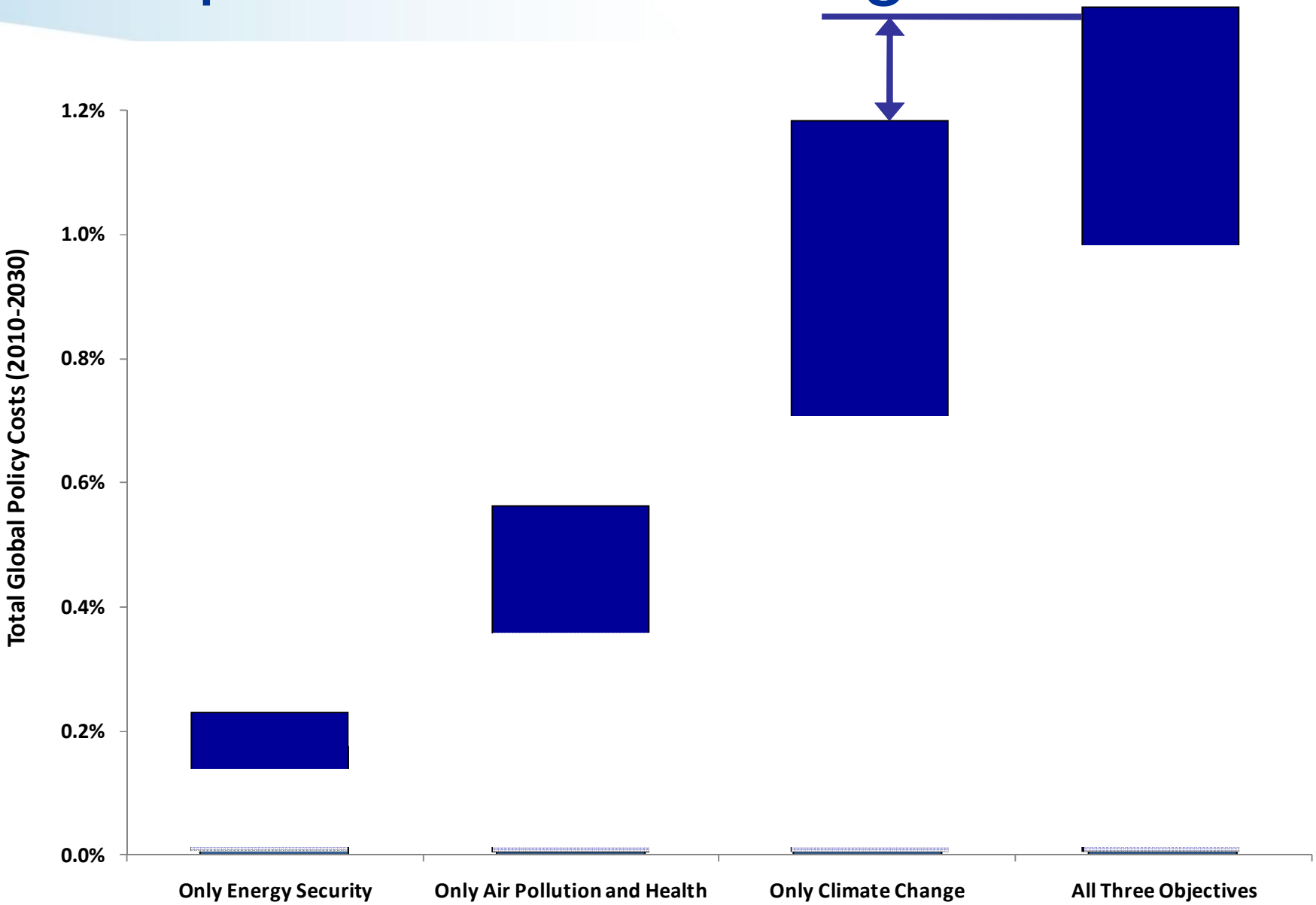
Energy Access

Climate Change

Energy Security

Air Pollution
Health Impacts

Multiple Benefits of Integrated Policies



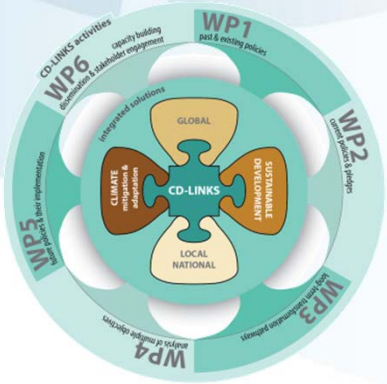
SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS

IIASA Research

"Science must be at the heart of this process so as to help achieve synergies and avoid conflicts among the 17 SDGs."

nature



IIASA Partnerships

SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

The World In 2050 Initiative

Stockholm Resilience Centre
Sustainability Science for Biosphere Stewardship

IIASA

THE EARTH INSTITUTE
COLUMBIA UNIVERSITY

Nexus Solutions Partnership

gef

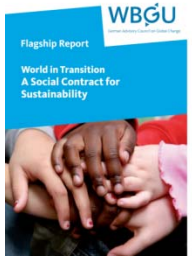
IIASA

UNIDO

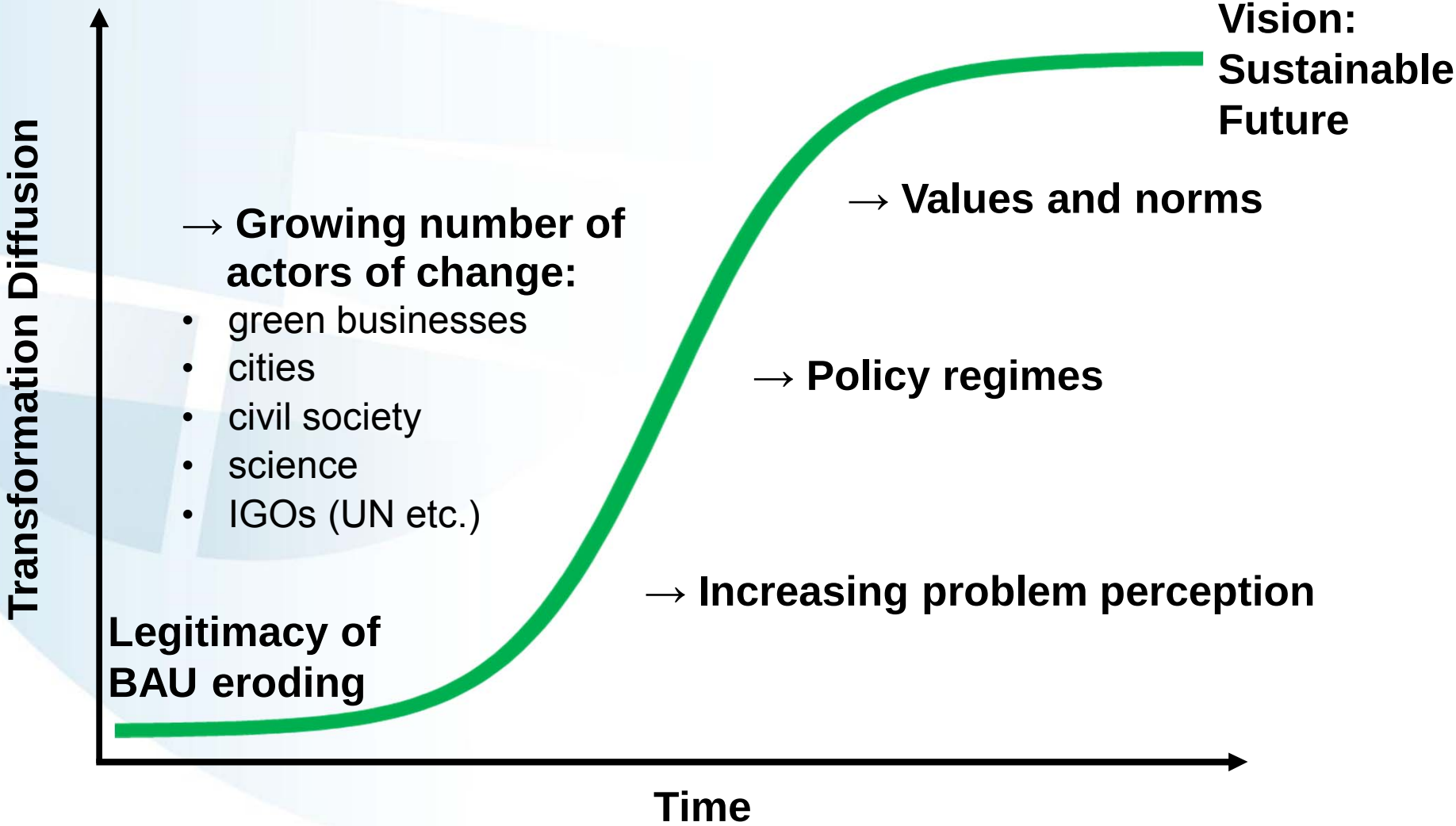
The World in 2050 (TWI2050)

- How to achieve global development within a safe and just operating space
- “Safe space” of interaction among SDGs: sustainability narratives and integrated models
- Sustainable Development Pathway based on existing literature e.g. SSP1, GEA, DDPP
- Multiple-benefits and tradeoffs of transformation toward the “safe space” and how to achieve sustainable futures

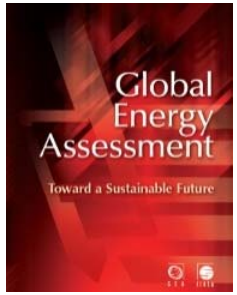
Sustainability Transformation

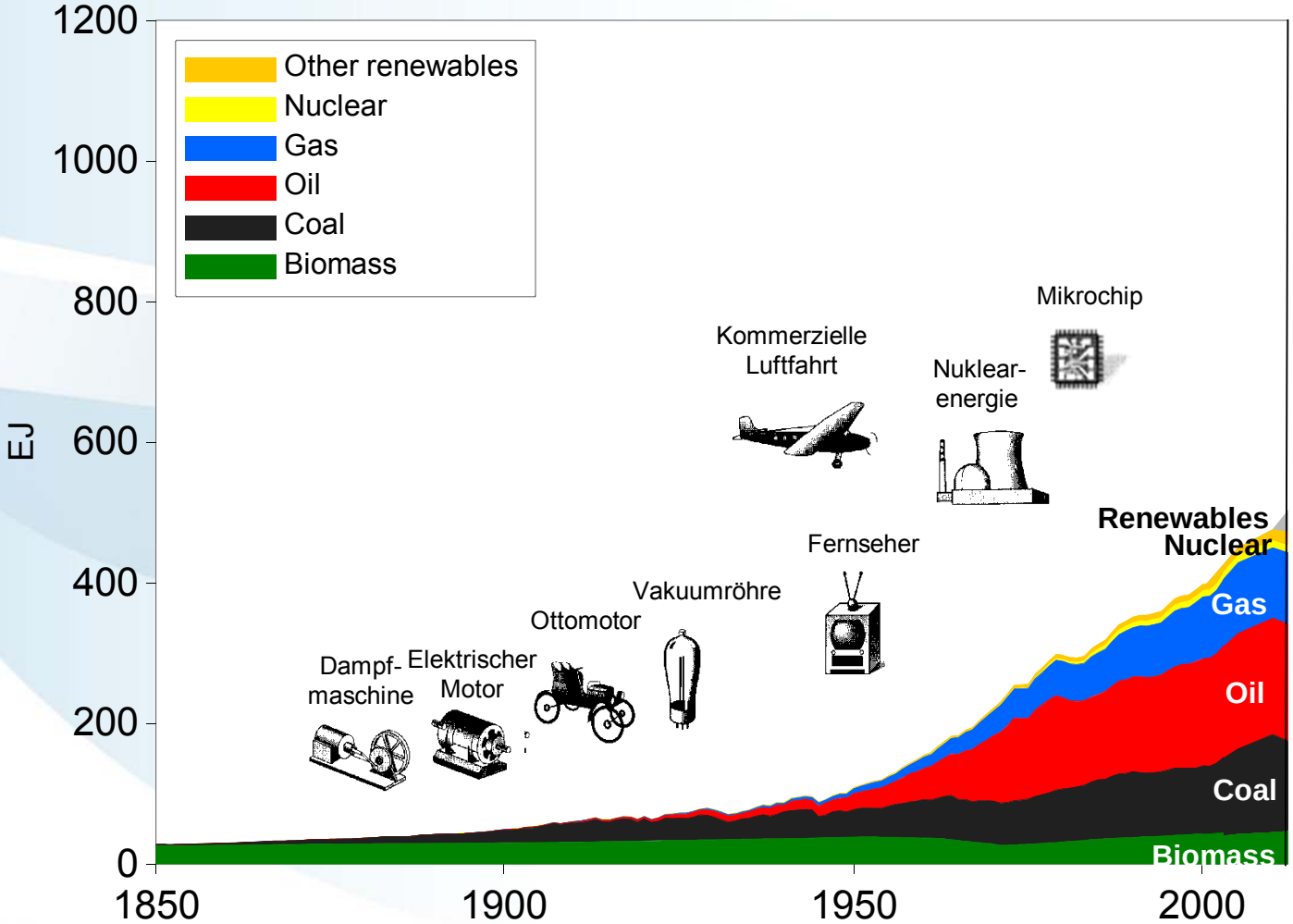


"Doing More with Less" within Planetary Boundaries

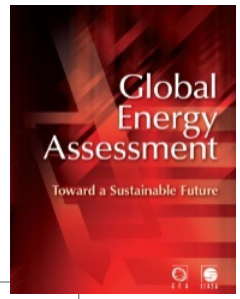


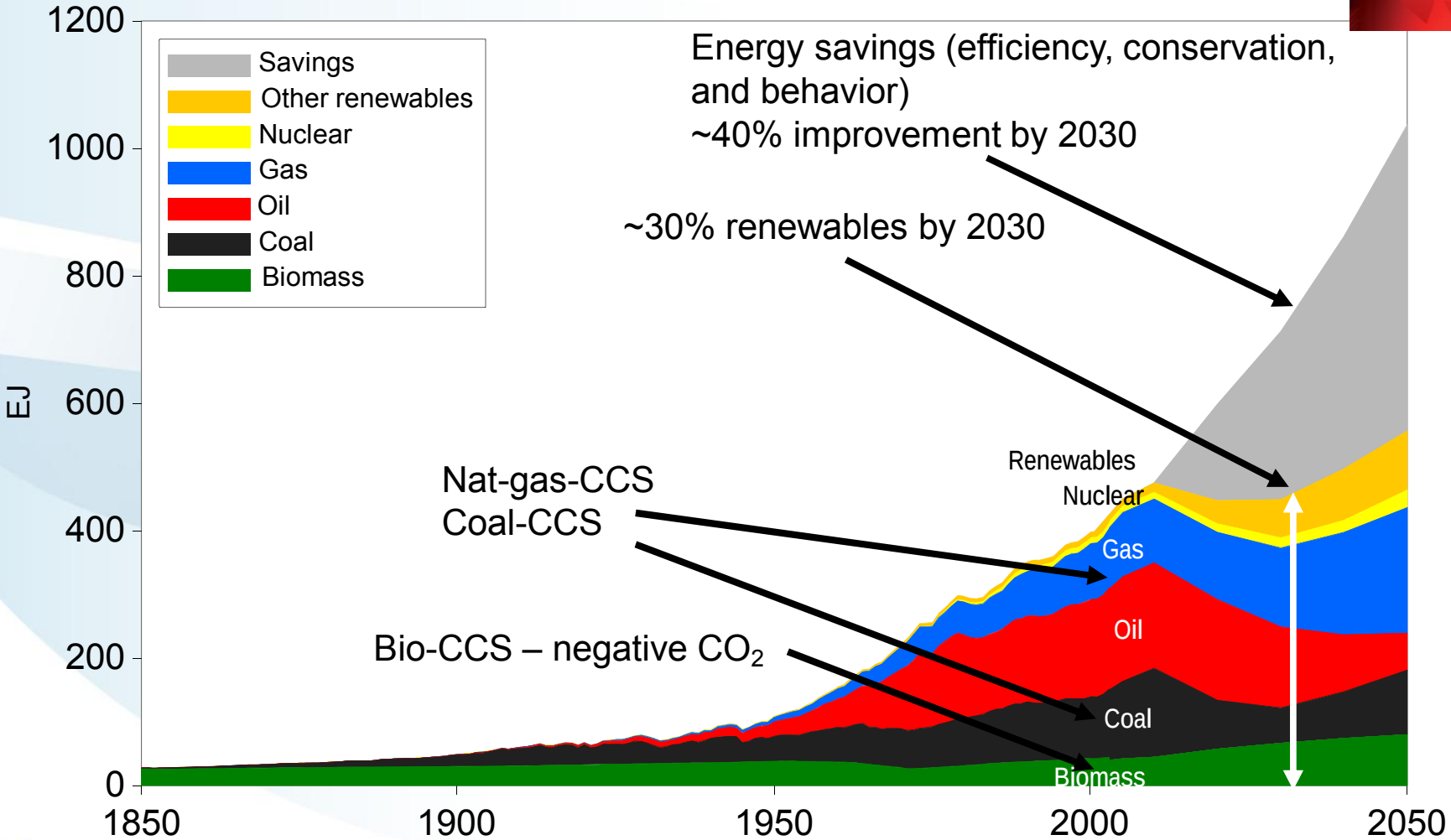
Global Primary Energy
Historical Evolution





Global Primary Energy
A Transformational Pathway

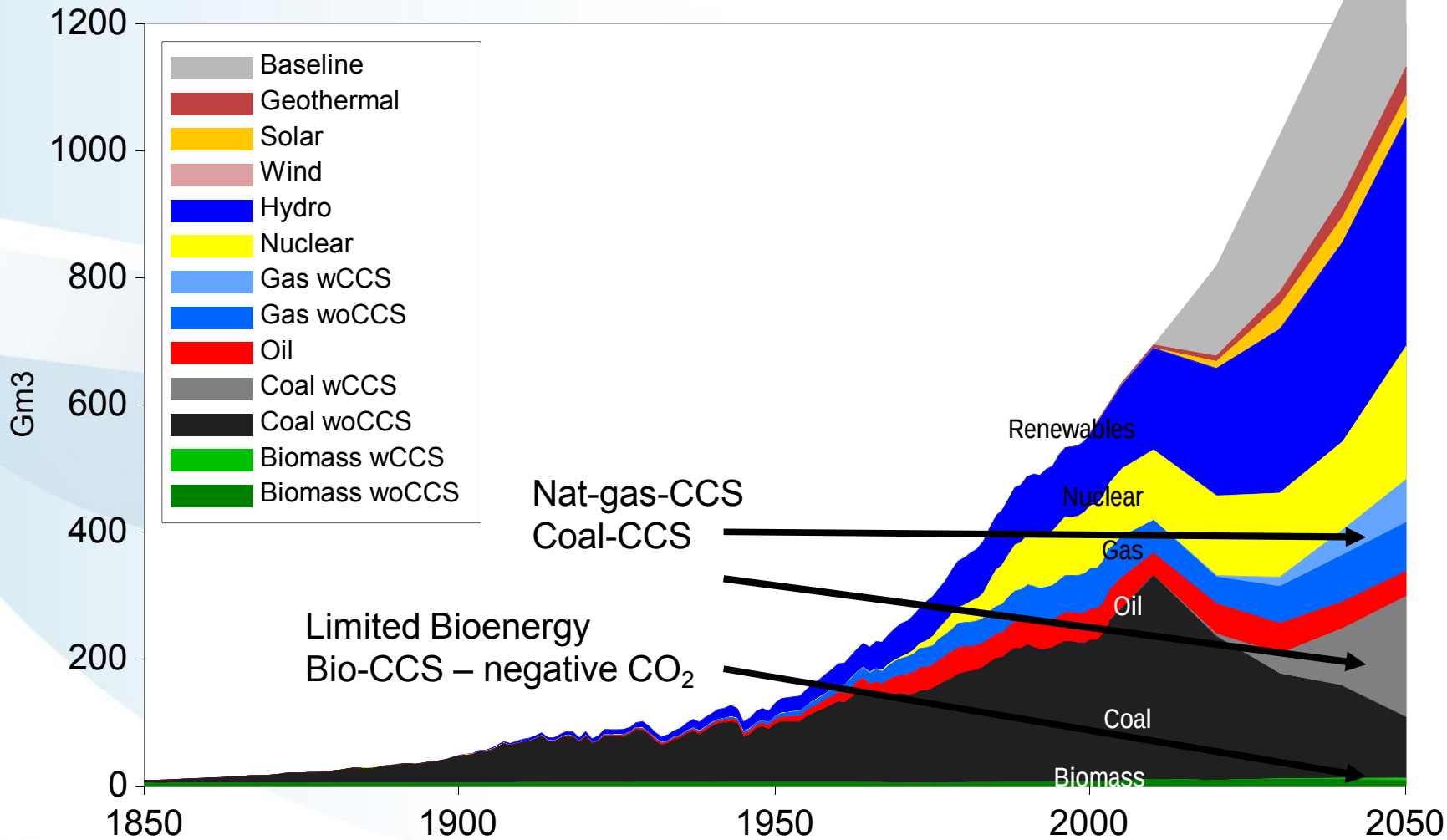




Source: Riahi et al, 2012

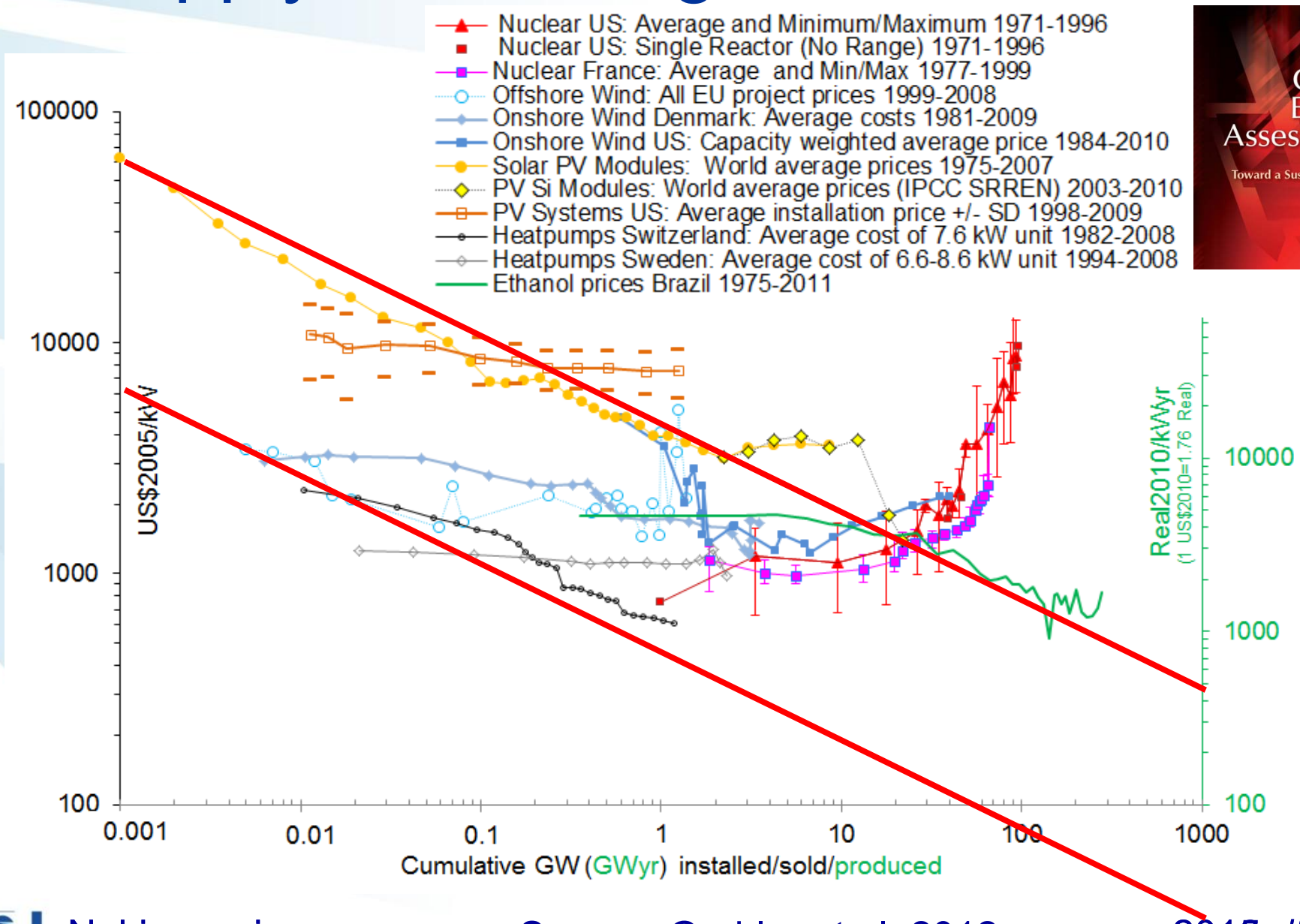
Global Water Withdrawals

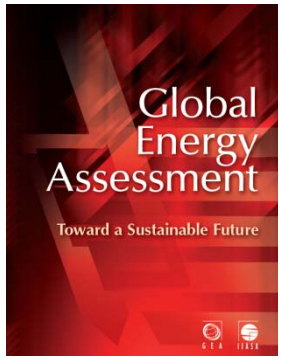
A Pathway with Full Portfolio



Source: Fricko et al, 2014

Supply Technologies Cost Trends

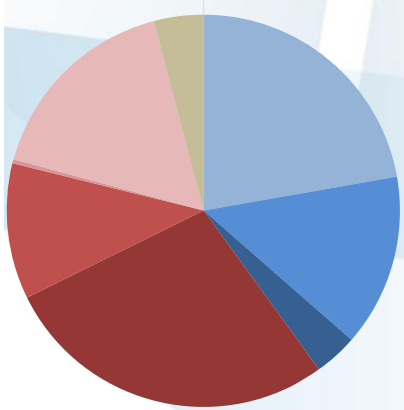




Source: Grubler et al, 2012

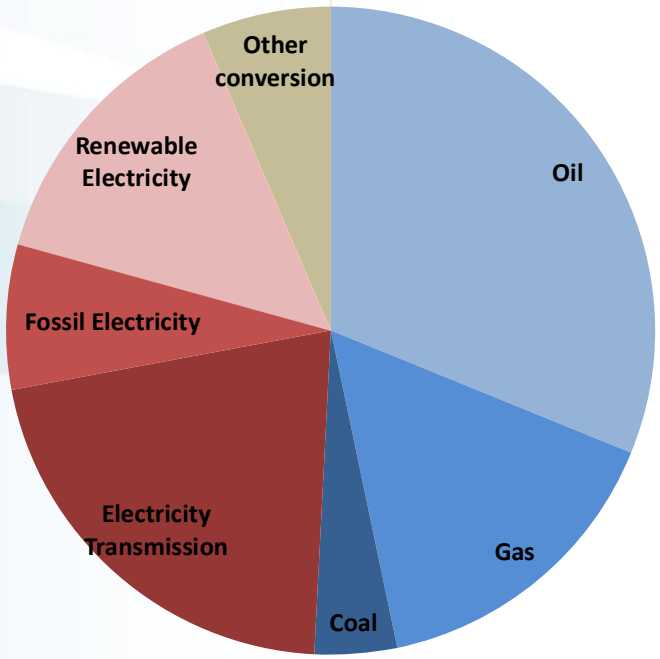
Investment Portfolios World

Today
(941bill.)

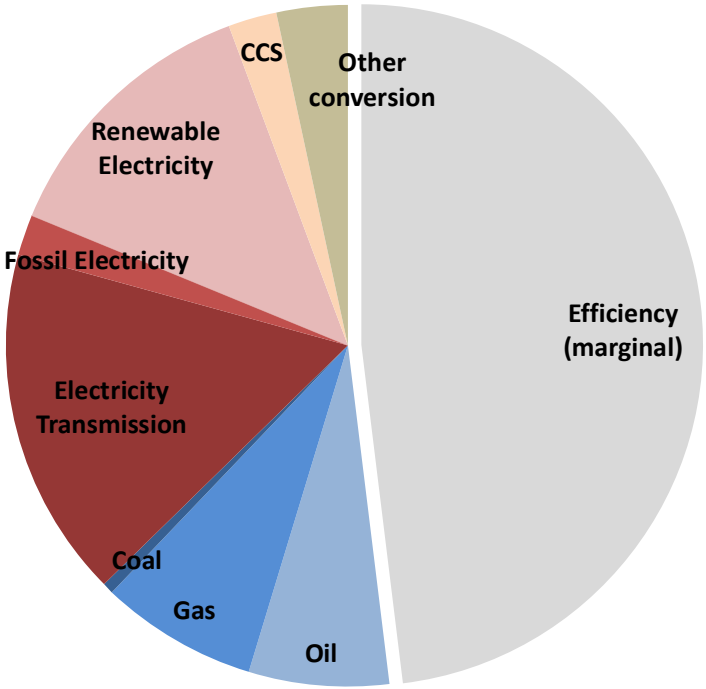


2005-2010

No Sustainability Policies
(2558 bill.)



GEA-Efficiency
(2849 bill.)



2050

Source: Riahi et al, 2012

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THANK YOU

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