Welcome to IIASA Side Event

Co-benefits from transformational change toward decarbonization and sustainable development pathways

IIASA
International Institute for Applied Systems Analysis

www.iiasa.ac.at
A Global Research Institute

- established in 1972 as a scientific bridge between East and West
- now embarking on the new research strategy for the next decade with
  - Emphasis on policy relevance
  - Innovation in systems analysis
  - Focus on a few global problems
Research for a Changing World

Source: IIASA
Global Population Density

B1: Pop. density, 2000
people / sq. km
- 0 - 1
- 1 - 10
- 10 - 100
- 100 - 500
- 500 - 1000
- 1000 - 5000
- >5000
Global Arable Land
Energy and Food Land Conflicts
The Global Energy Assessment

IIASA
International Institute for Applied Systems Analysis
and its international partners present the

www.GlobalEnergyAssessment.org
Initiated in 2006 and involves >300 CLAs and LAs and >200 anonymous reviewers

Peer-review coordinated by Review Editors is complete - ongoing responses and revisions.

Final report (Cambridge Univ. Press) in May 2011 followed by vigorous dissemination
Sponsoring Organizations

**International Organizations**
- GEF
- IIASA
- UNDESA
- UNDP
- UNEP
- UNIDO
- ESMAP (World Bank)

**Governments/Agencies**
- Austria - multi-year
- European Union
- Germany
- Italy
- Norway
- Sweden - multi-year
- USA (EPA, DoE)

**Industry groups**
- First Solar
- Petrobras
- WBCSD
- WEC

**Foundations**
- UN Foundation
- Climate Works Foundation
- Global Environment & Technology Foundation
Access to energy and ecosystem services (a prerequisite for MDGs & wellbeing)

Transformation of toward decarbonization and climate change mitigation

Sustained energy investments are needed and would result in multiple co-benefits
The Natomo Family
6:30am March 27, 1993 Kouakourou, Mali

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Mapping Energy Access

Final energy access (non-commercial share) in relation to population density

![Map of energy access with population density]

Billions of people:
- Abject poverty: 1.3
- Poor: 0.6
- Less poor: 1.4
- Middle class: 1.4
- Rich: 1.2

Source: Gruebler et al, 2009
Carbon Reservoirs

Atmosphere 850 GtC

- Biomass: ~500 GtC
- Soils: ~1,500 GtC
- Unconventional Gas: ~1,000 GtC
- Natural Gas: ~250 GtC
- Oil: ~250 GtC
- Unconventional Oil: ~1,150 GtC
- Coal: 12,000 GtC

Unconventional Hydrocarbons: 15,000 to 40,000 GtC
Required desert area for the sustainable supply of electricity

World  300 x 300 km²
EU-25   150 x 150 km²
Germany 50 x 50 km²
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Co-Benefits of Energy Investments

Based on IIASA-GEA: Riahi et al, 2010

Sustainable energy expenditures:

Investments:
- Access
- Efficiency
- Infrastructure
- CCS
- Nuclear
- Renewables

Other costs