Inequality in Energy and Climate (Lack of Access)

Nebojsa Nakicevic
Deputy Director General and Deputy CEO
International Institute for Applied Systems Analysis
Full Professor of Energy Economics
Vienna University of Technology

Alpbach-Laxenburg Reflection Group
European Alpbach Forum – 26 August 2014
Two Faces of the Anthropocene

Astronaut Sunita Williams
Two Faces of the Anthropocene

>3 billion without access to clean cooking
1.5 billion without access to electricity
The Key Energy Challenges

Energy Access

Climate Change

Energy Security

Air Pollution Health Impacts
Global Technology Access

Lorenz Curves

Source: Grubler et al, 2012
Mobile Phones Charging

Source: Modi, 2011
Electrification

Source: Pachauri et al, 2012
Global Primary Energy

Energy savings (efficiency, conservation, and behavior)
~40% improvement by 2030
~30% renewables by 2030

Source: Riahi et al, 2012

Nakicenovic

Limited Bioenergy
Bio-CCS – “negative CO₂

Nat-gas-CCS
Coal-CCS

Renewables
Nuclear

Gas
Oil
Coal
Biomass

Savings
Other renewables
Nuclear
Gas
Oil
Coal
Biomass
Supply Technologies Cost Trends

Source: Grubler et al, 2012
**Energy Policy Costs (% GDP)**

- **Only Energy Security**: 0.0%
- **Only Air Pollution and Health**: 0.2%
- **Only Climate Change**: 0.4%
- **All Three Objectives**: 0.6%

**Added costs of ES and PH are comparatively low when CC is taken as an entry point.**

Source: McCollum, Krey, Riahi, 2012