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Applied Systems Analysis
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science for global insight

Eurasian Energy Perspectives in the Global Context

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Methodology for Assessing Effects of Regional Economic
Integration Workshop, IIASA – 6-7 March 2014



IIASA, International Institute for Applied Systems Analysis



Astronaut Sunita Williams



Regina

Winnipeg



Bakken

Duluth

Bismarck

Fargo

Rapid City

Minneapolis
St. Paul

Unconventional Gas
~900-2900 PgC

N. Gas
~190-240 PgC

Oil
~180-280 PgC

Unconv. Oil
~300-400 PgC

Biomass
~430-460 PgC

Cumulative Emissions for 2°C Stabilization



~500 PgC

Gas Hydrates
~28,000 PgC

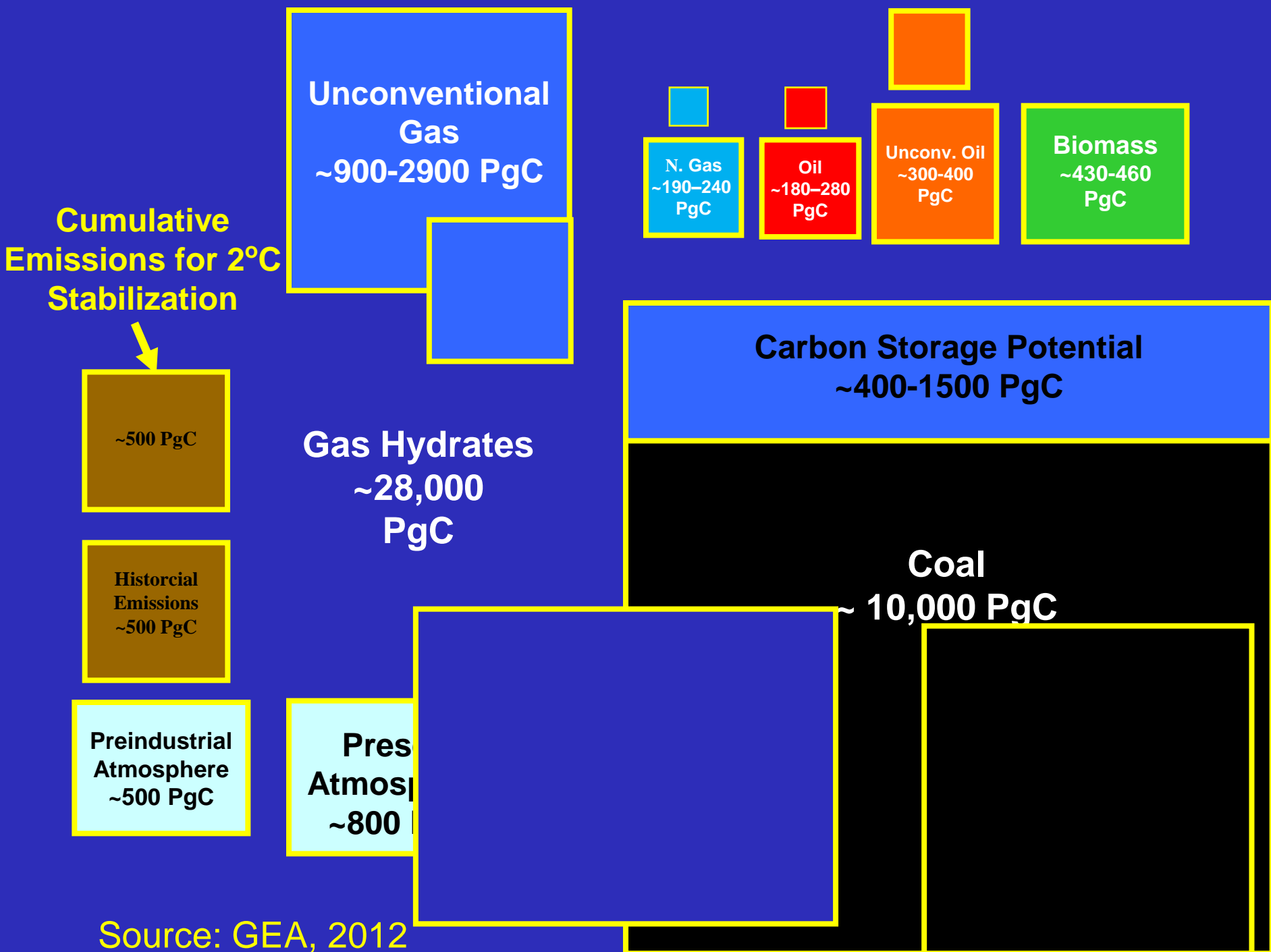
Historical Emissions
~500 PgC

Preindustrial Atmosphere
~500 PgC

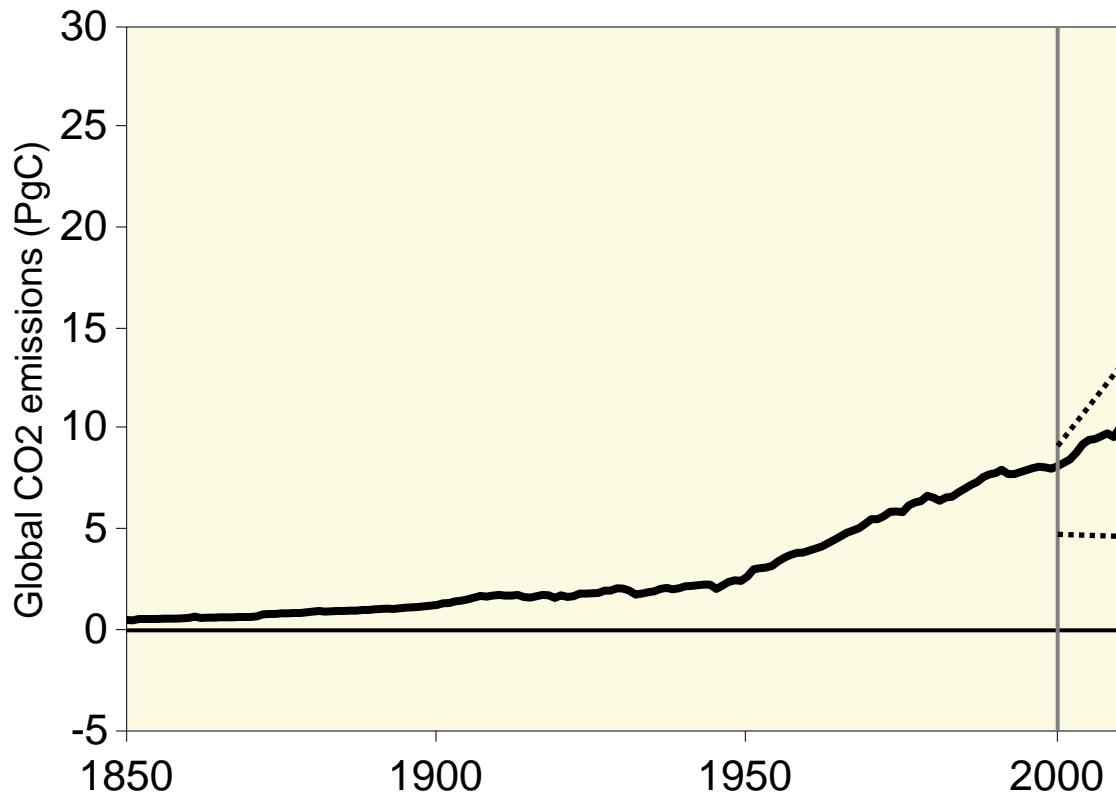
Present Atmosphere
~800 PgC

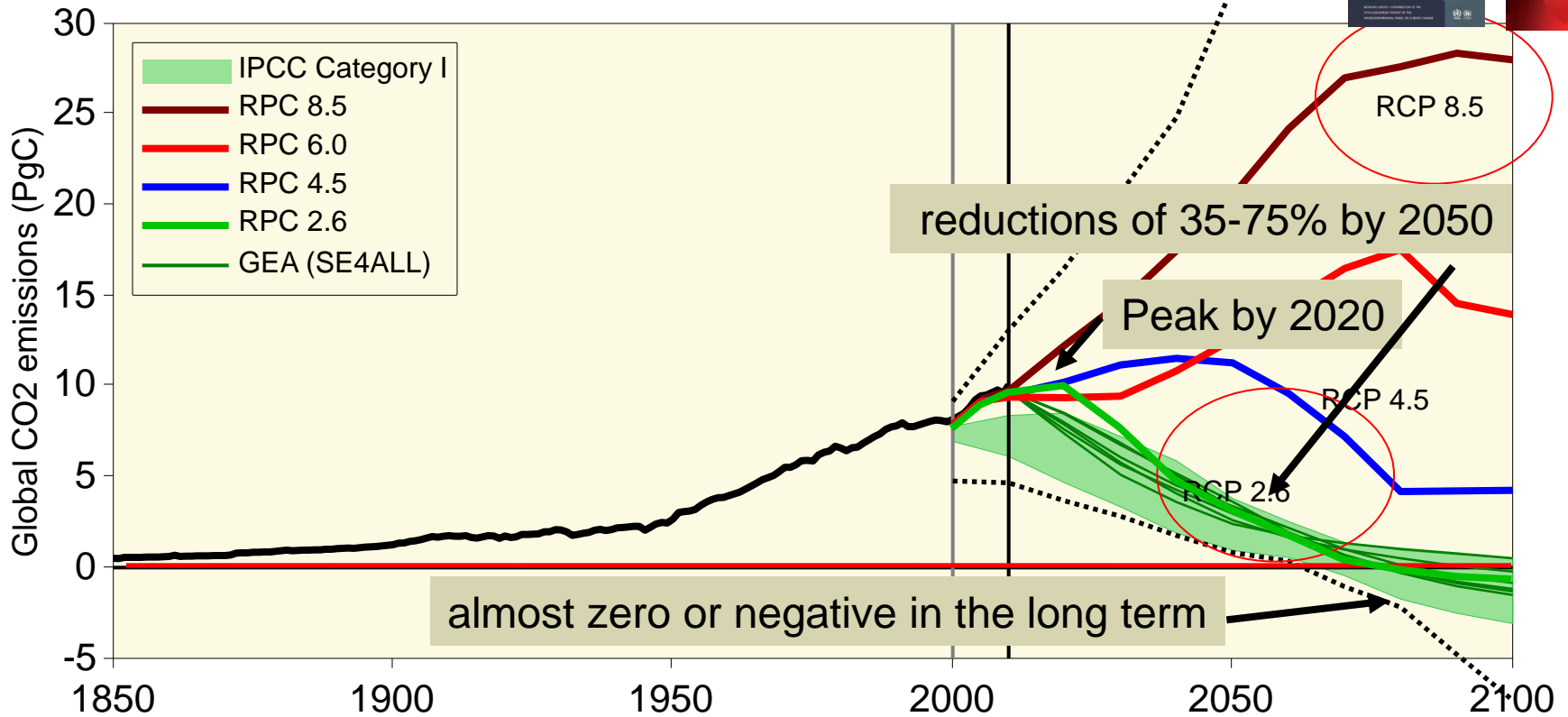
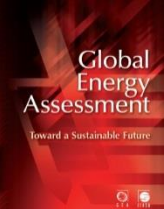
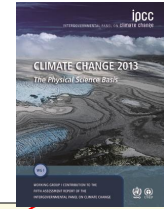
Carbon Storage Potential
~400-1500 PgC

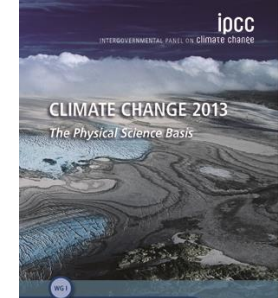
Coal
~ 10,000 PgC



Source: GEA, 2012





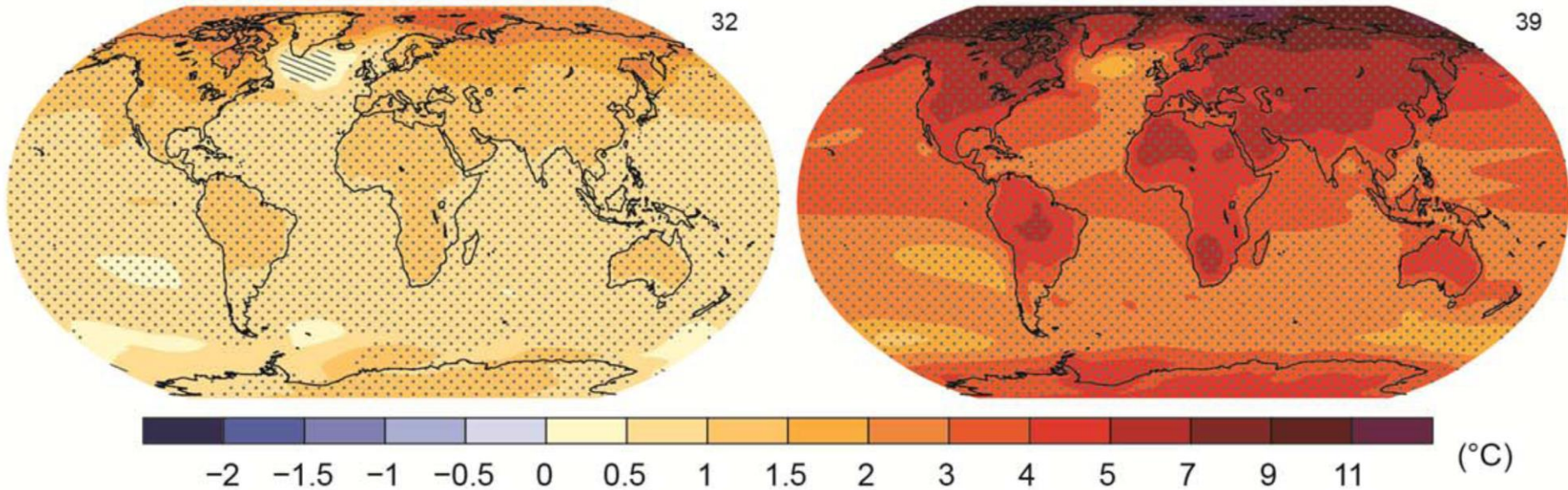


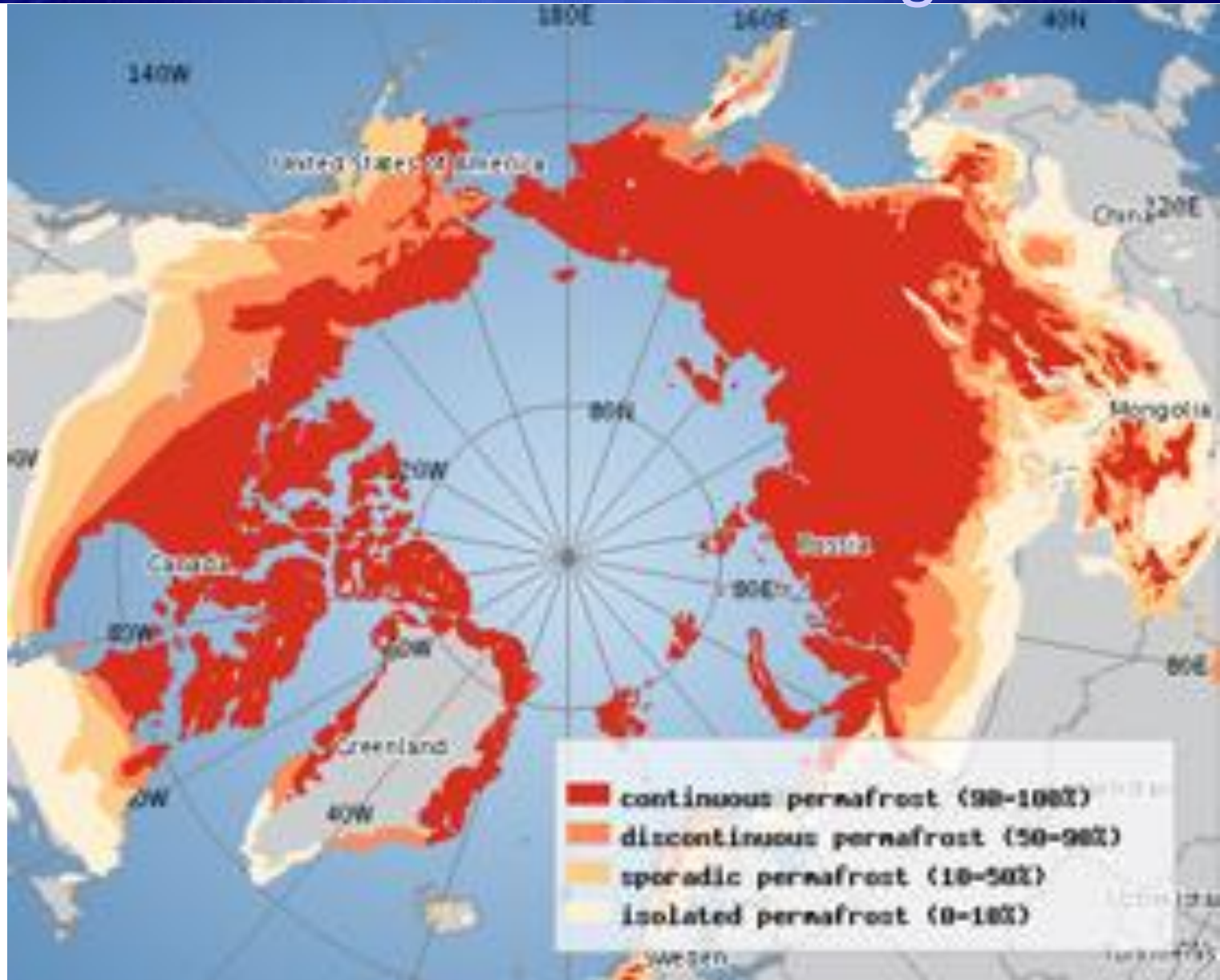
RCP 2.6

RCP 8.5

(a)

Change in average surface temperature (1986–2005 to 2081–2100)



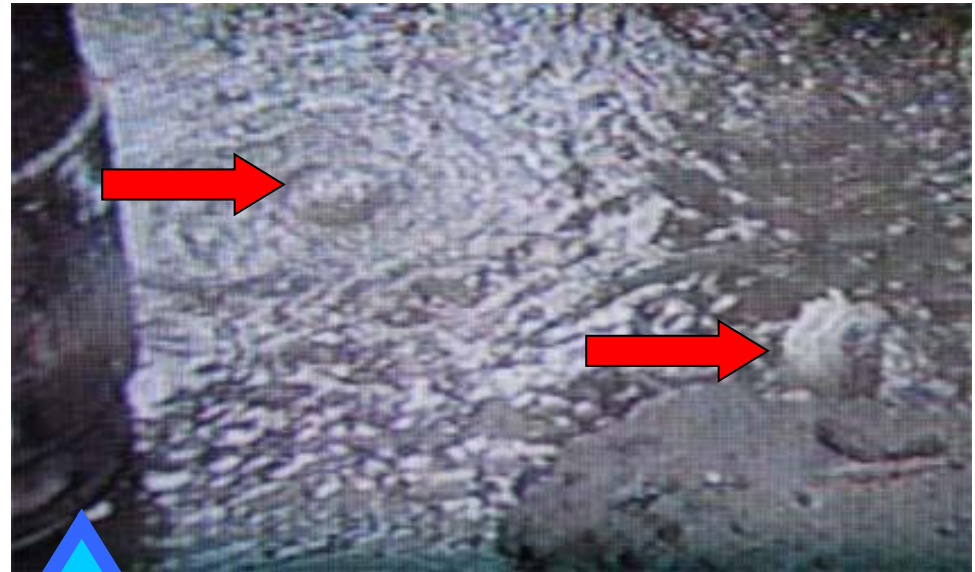


Gas blowouts from permafrost in West Siberia

Fire when drilling monitoring well



Permafrost gas bubbling around production well

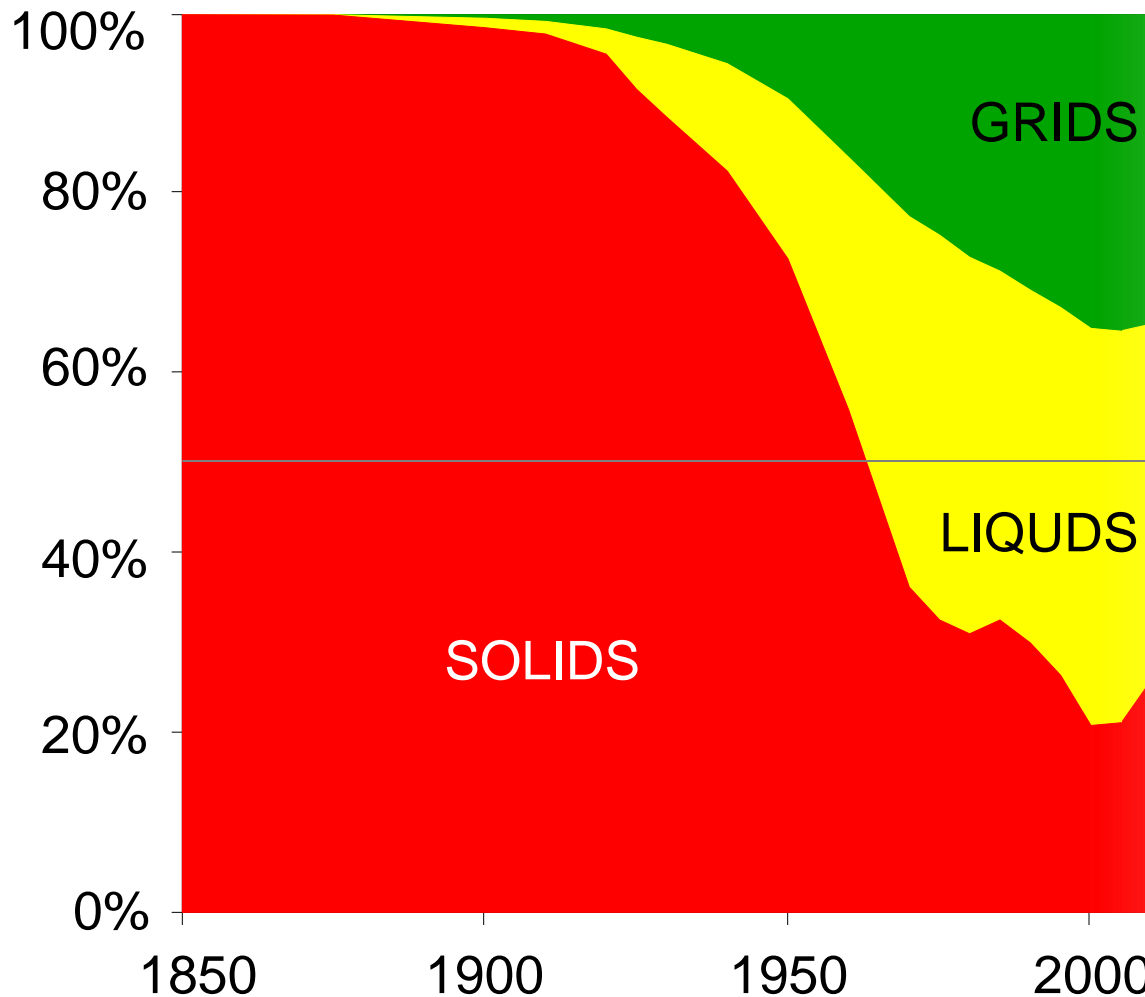
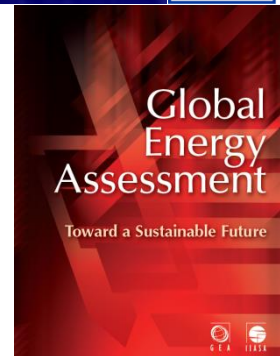


Gas production well column

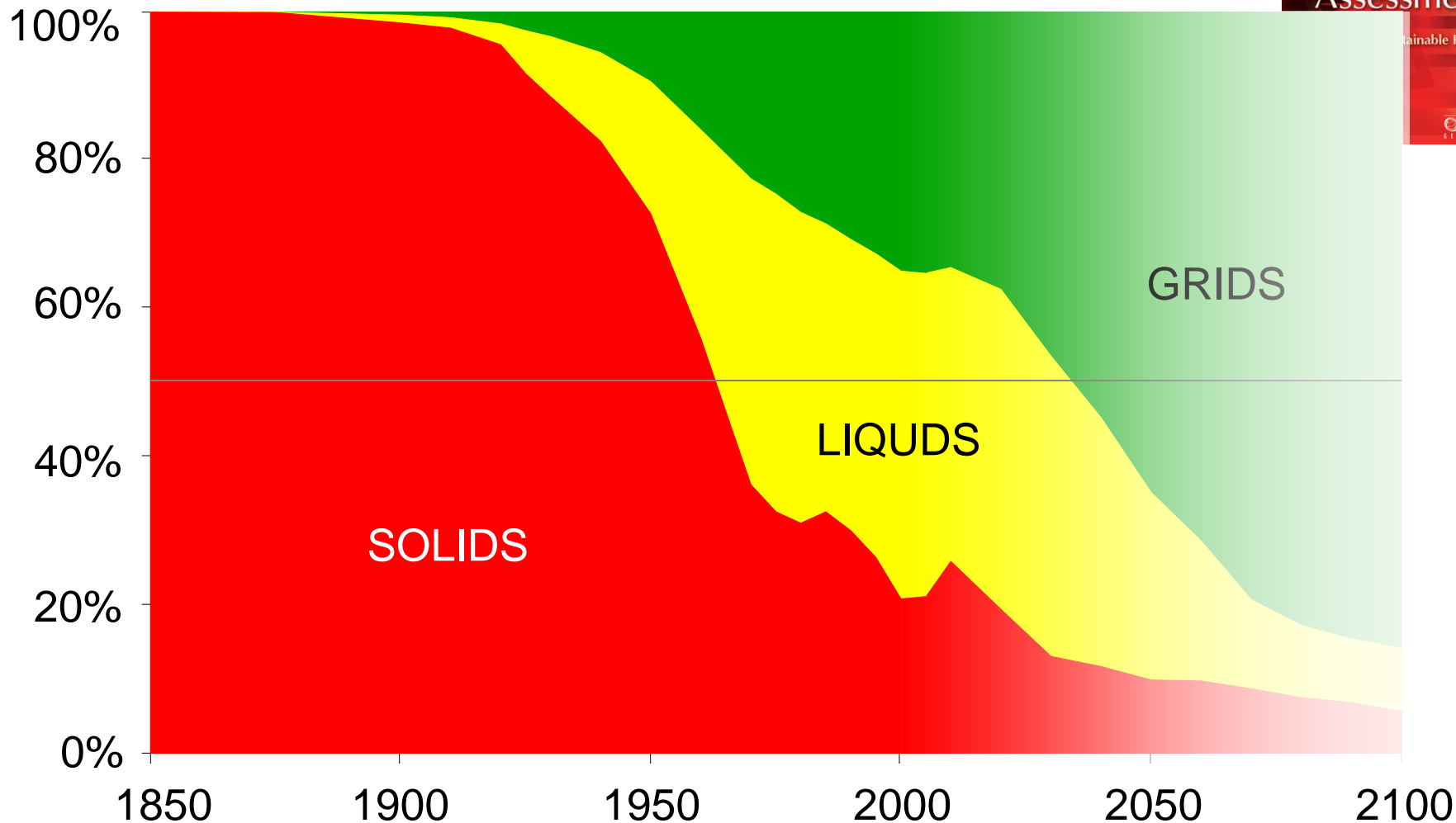
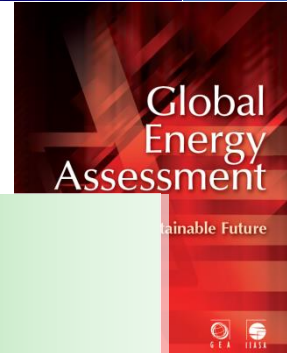
GAS TORCH FROM SHALLOW PERMAFROST AT WELL 62-P-2 (BOVANENKOVO FIELD, YAMAL PENINSULA) FROM DEPTH 64 M WHEN TESTING

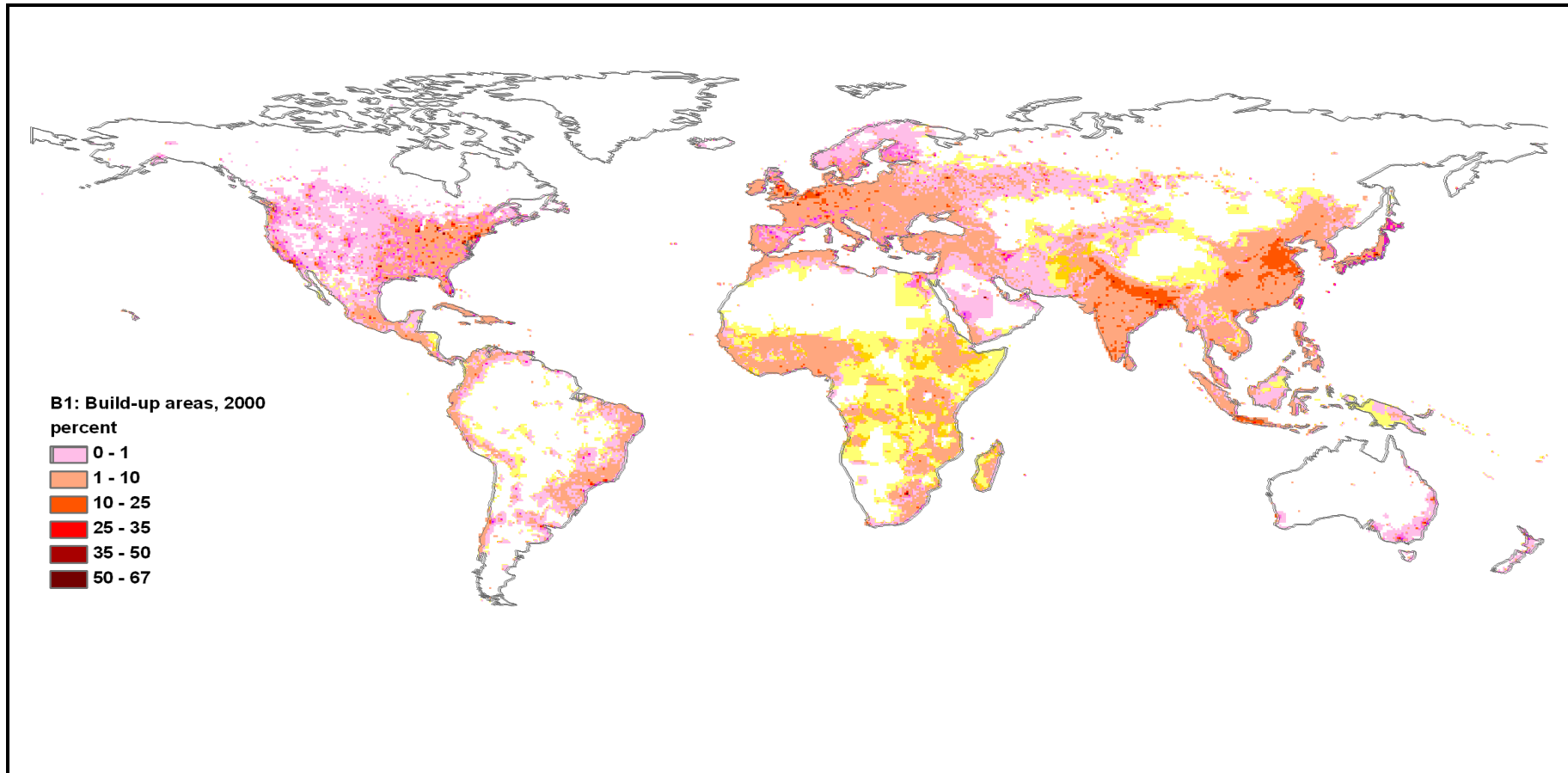


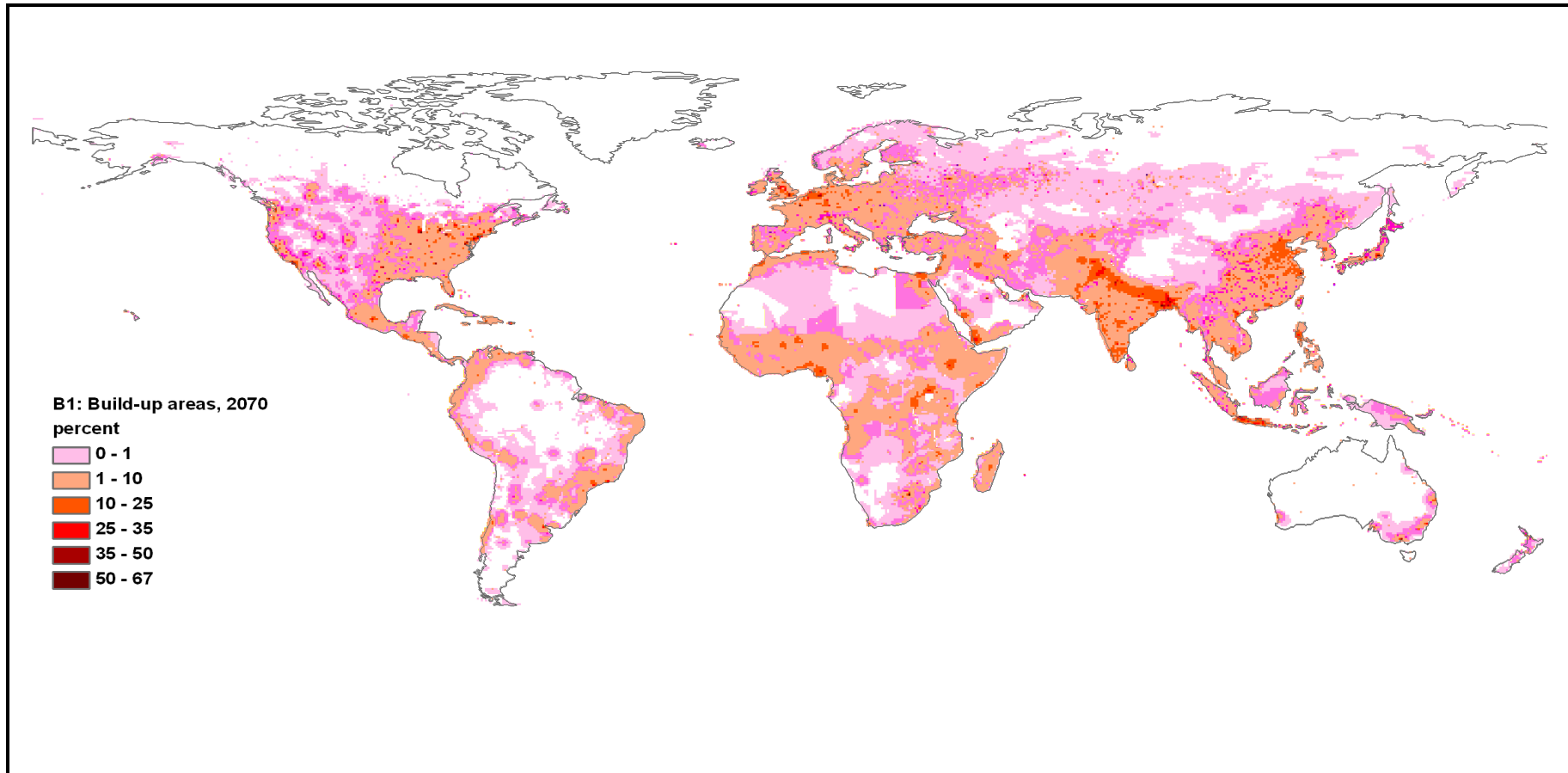
One of 41 GEA Pathways

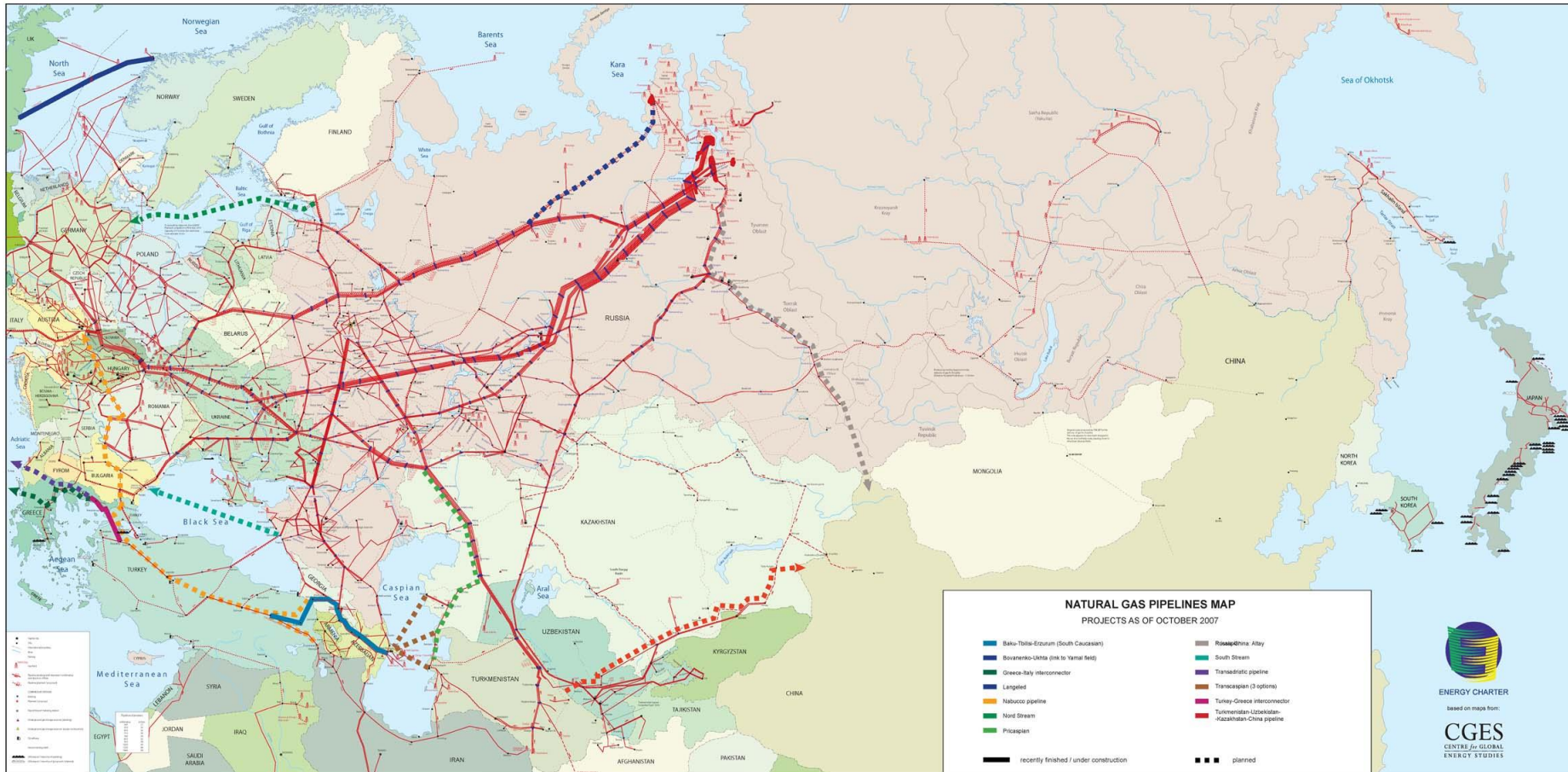


One of 41 GEA Pathways





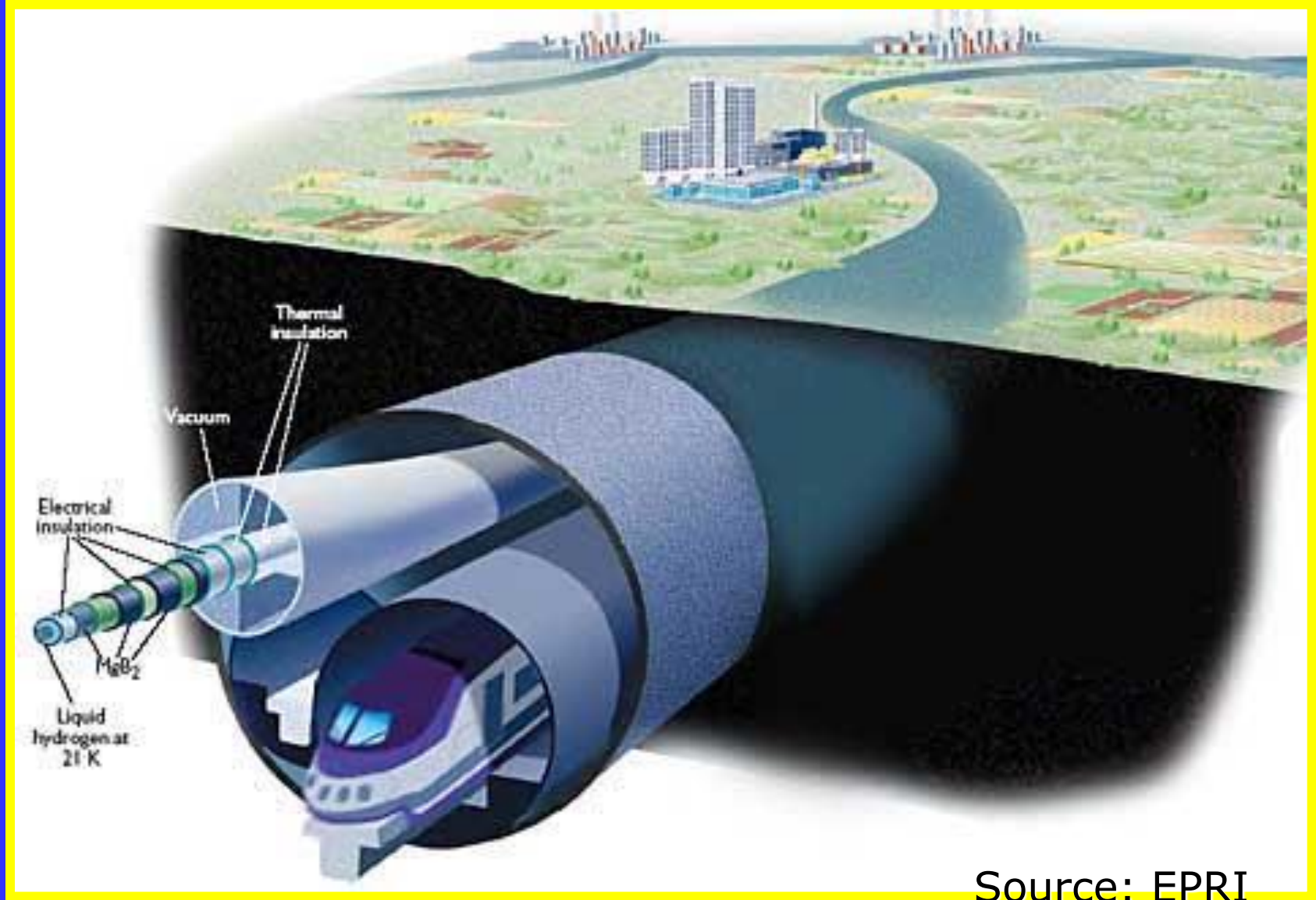




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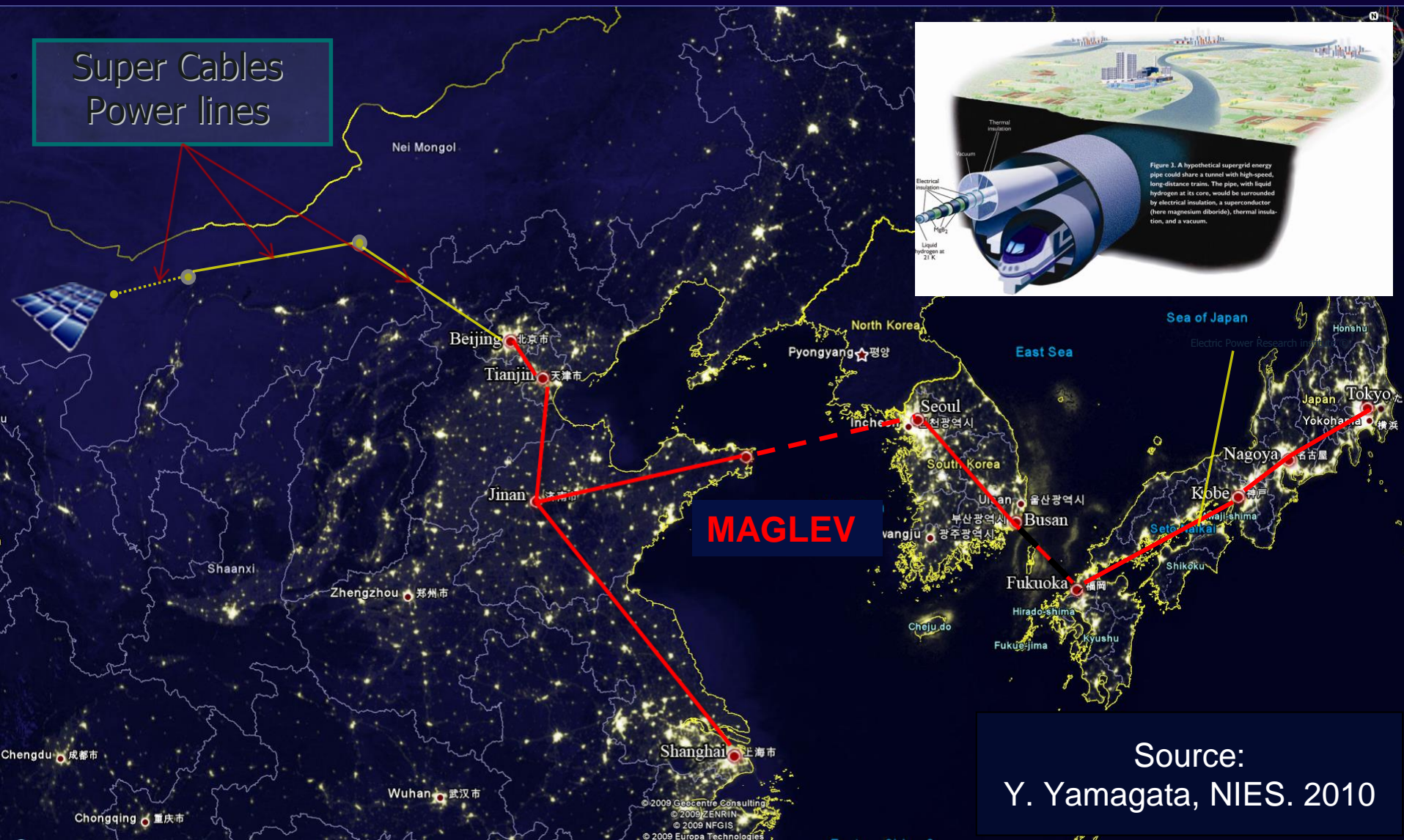
Energy SuperGrid and MagLev Trains



Source: EPRI

Potential Synergies between New Energy and Transport Infrastructures: Asian "Supergrid"

Super Cables
Power lines



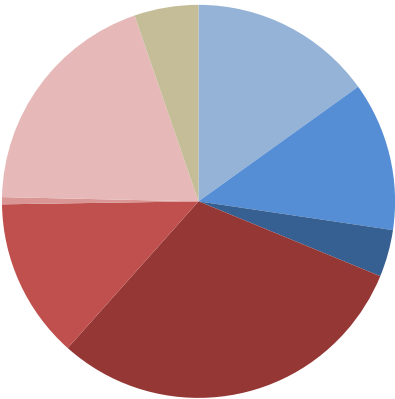
Source:
Y. Yamagata, NIES. 2010



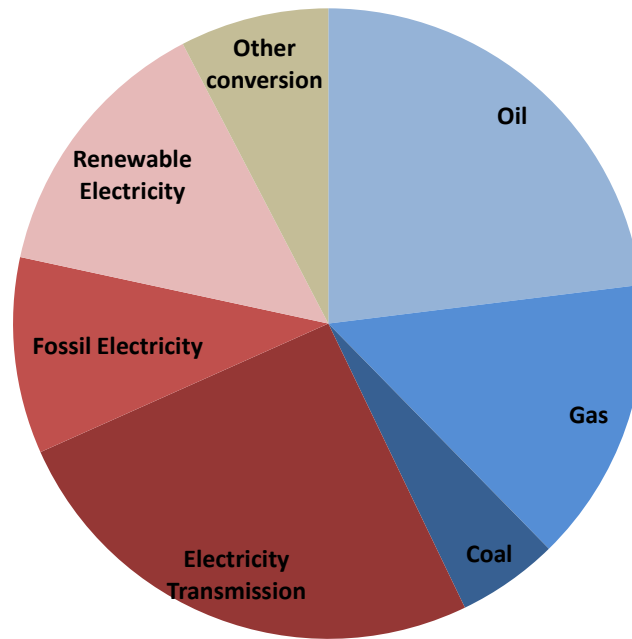
EURASIA

No Sustainability Policies (1314 bill.)

Today
(510 bill.)



2005-2010



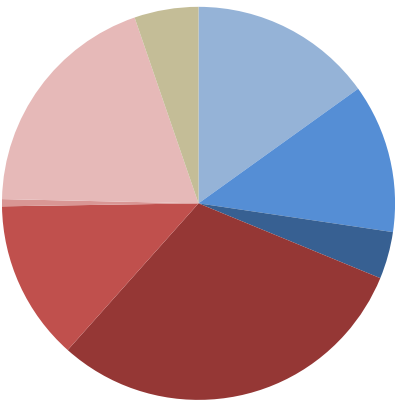
2050

EURASIA

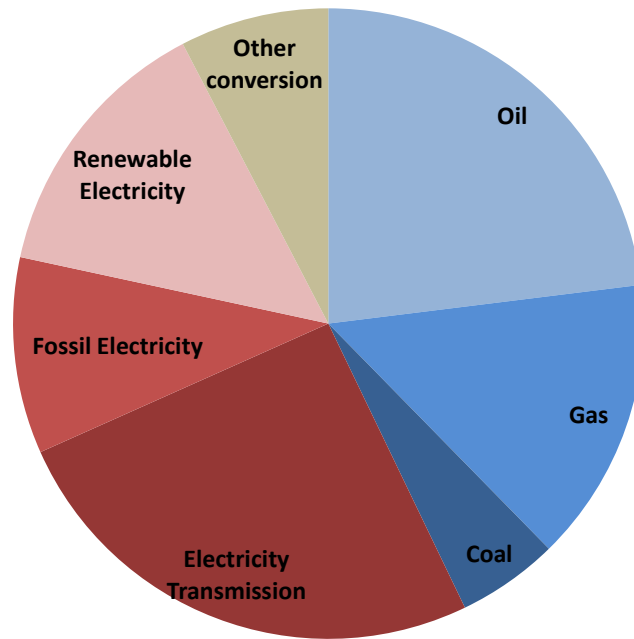
No Sustainability Policies (1314 bill.)

GEA-Efficiency (1542 bill.)

Today (510 bill.)



2005-2010



2050

