

Renewable Energy Deployment for Reaching a 2° C Climate Target

Tom Kober, Bob van der Zwaan, Hilke Rösler

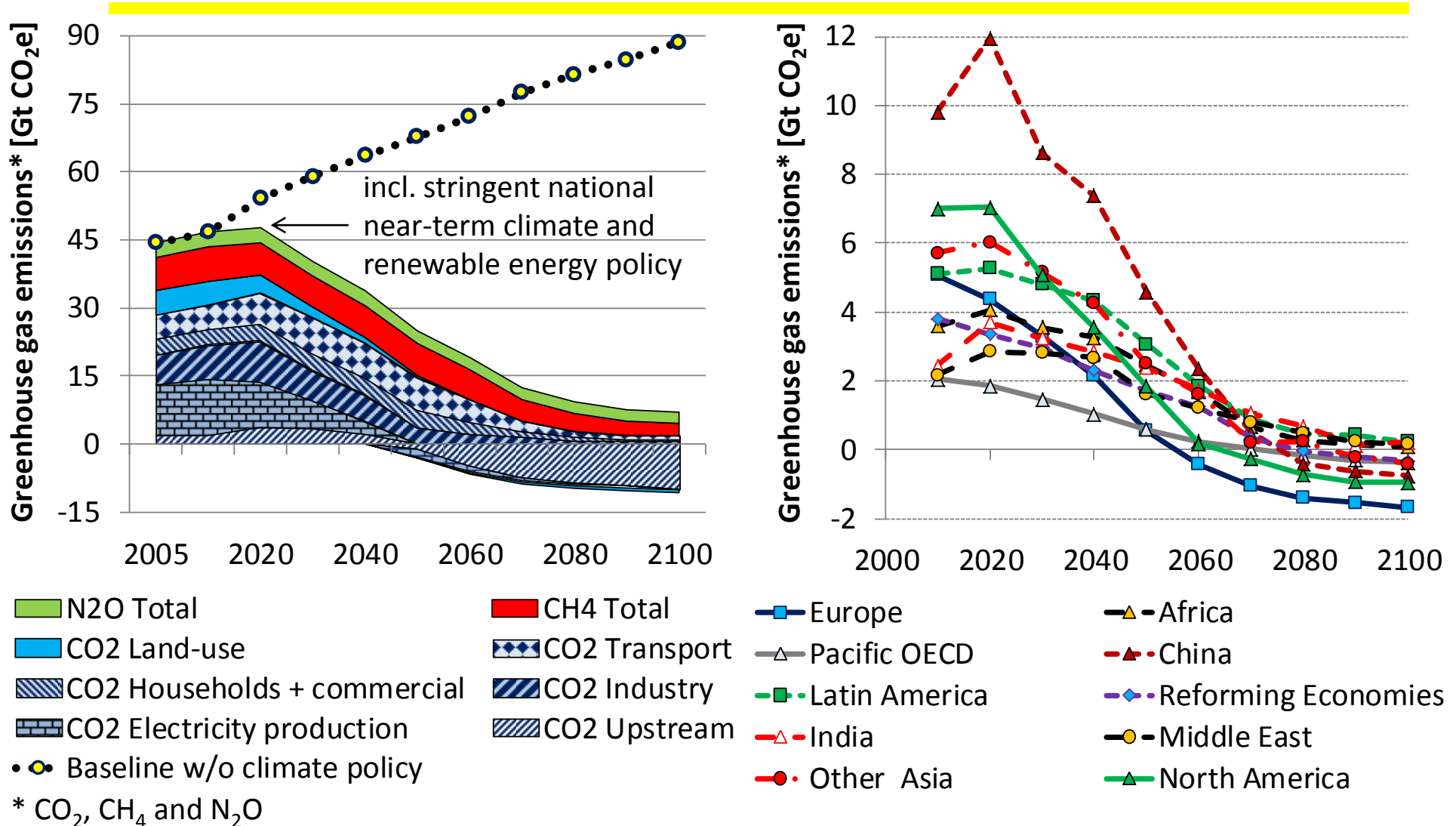
Paris
June 17th, 2013

TIAM-ECN model approach

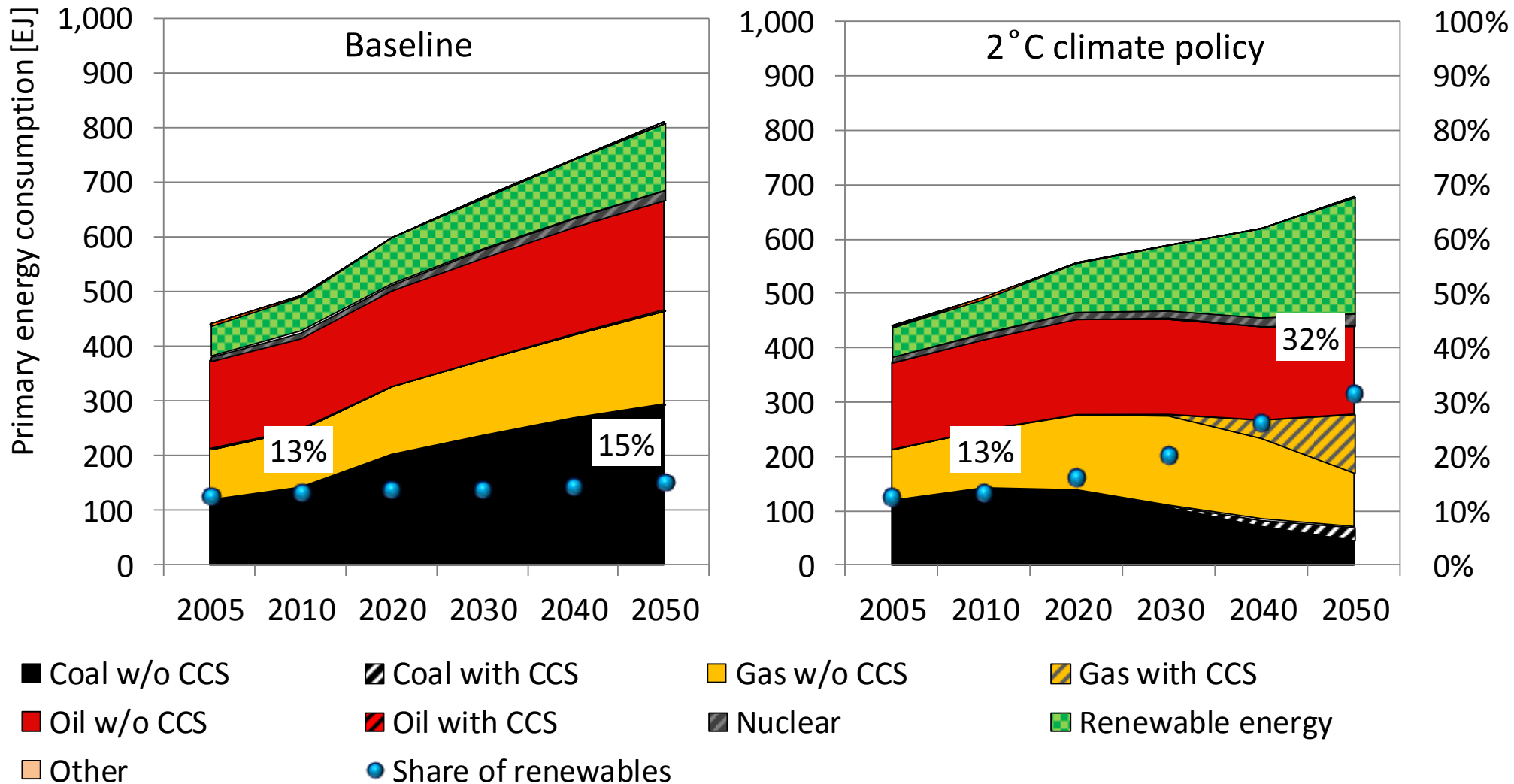
- Global energy system model
- 15 world regions
- Time horizon: 2005 – 2100 (10-year intervalls)
- 6 time slices per year (day/night and seasonal)
- Supply and demand sectors, representing (renewable) energy conversion pathways and climate change mitigation measures
- Endogenous trade of energy (incl. biomass), emission certificates and captured CO₂

-
- Analysis conducted within LIMITS EU-FP 7 project
www.ecn.nl/units/ps/themes/energy-and-emission-scenarios/global-european-projections/limits

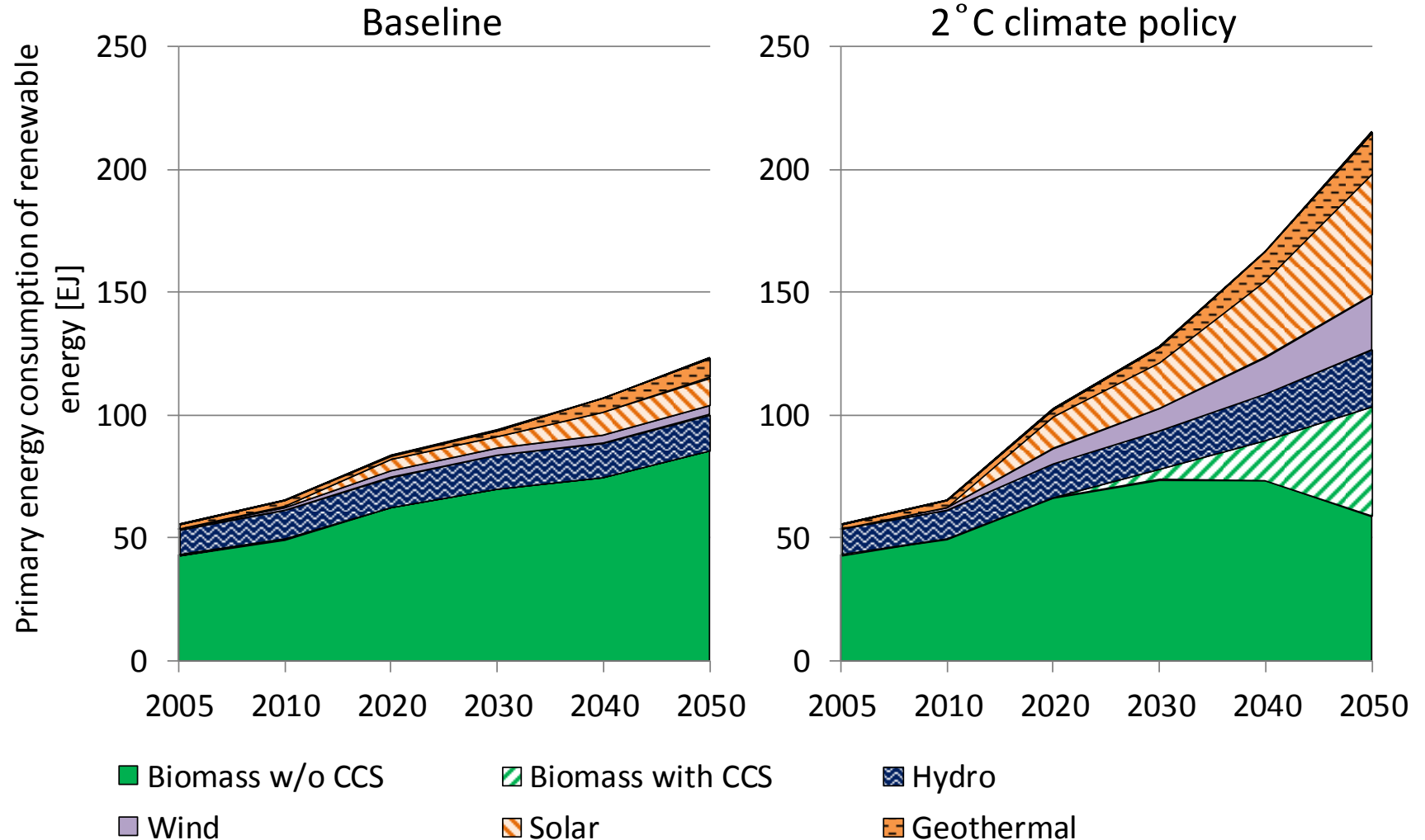
Global GHG emissions for reaching a 2°C climate stabilisation



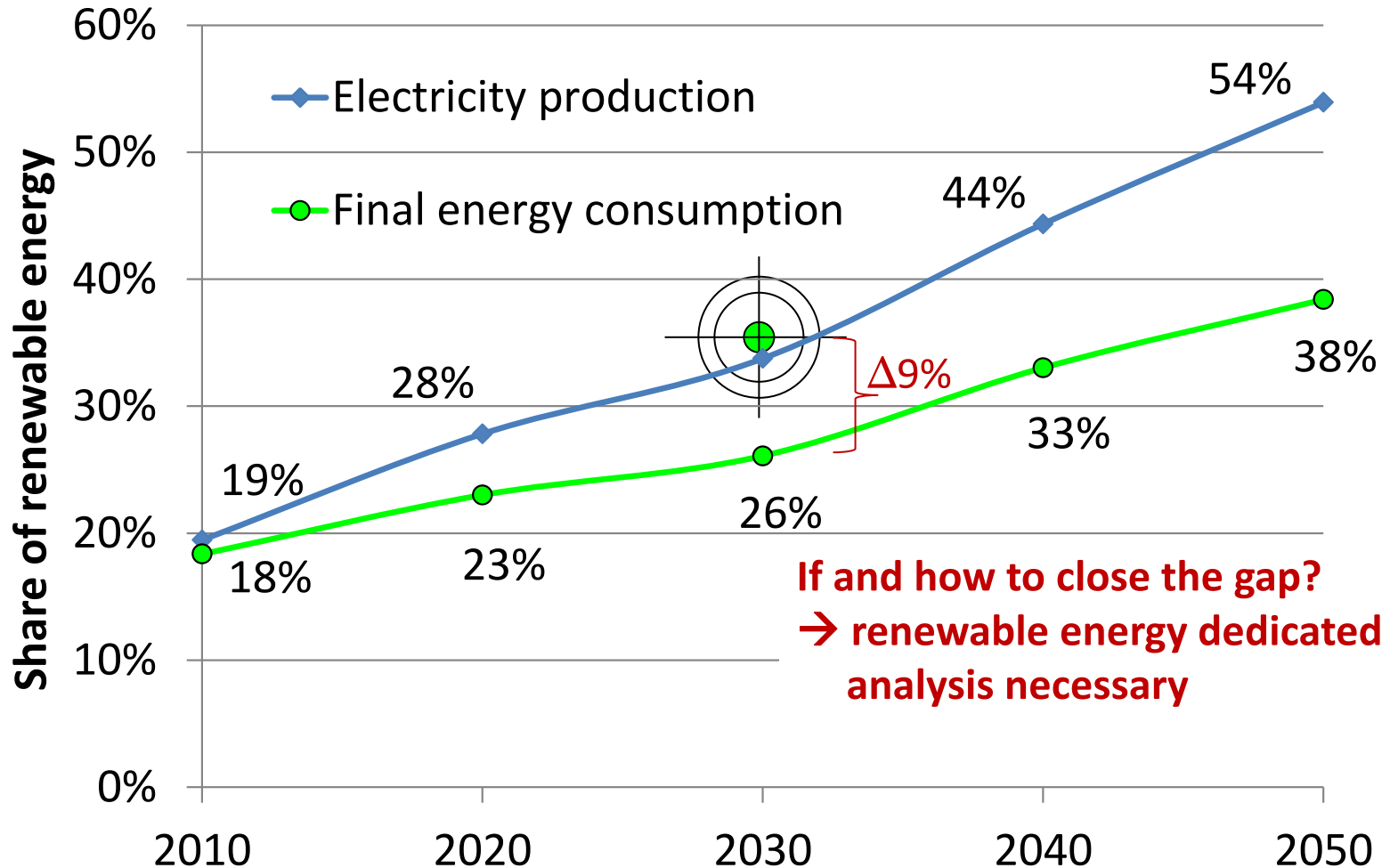
Global primary energy consumption



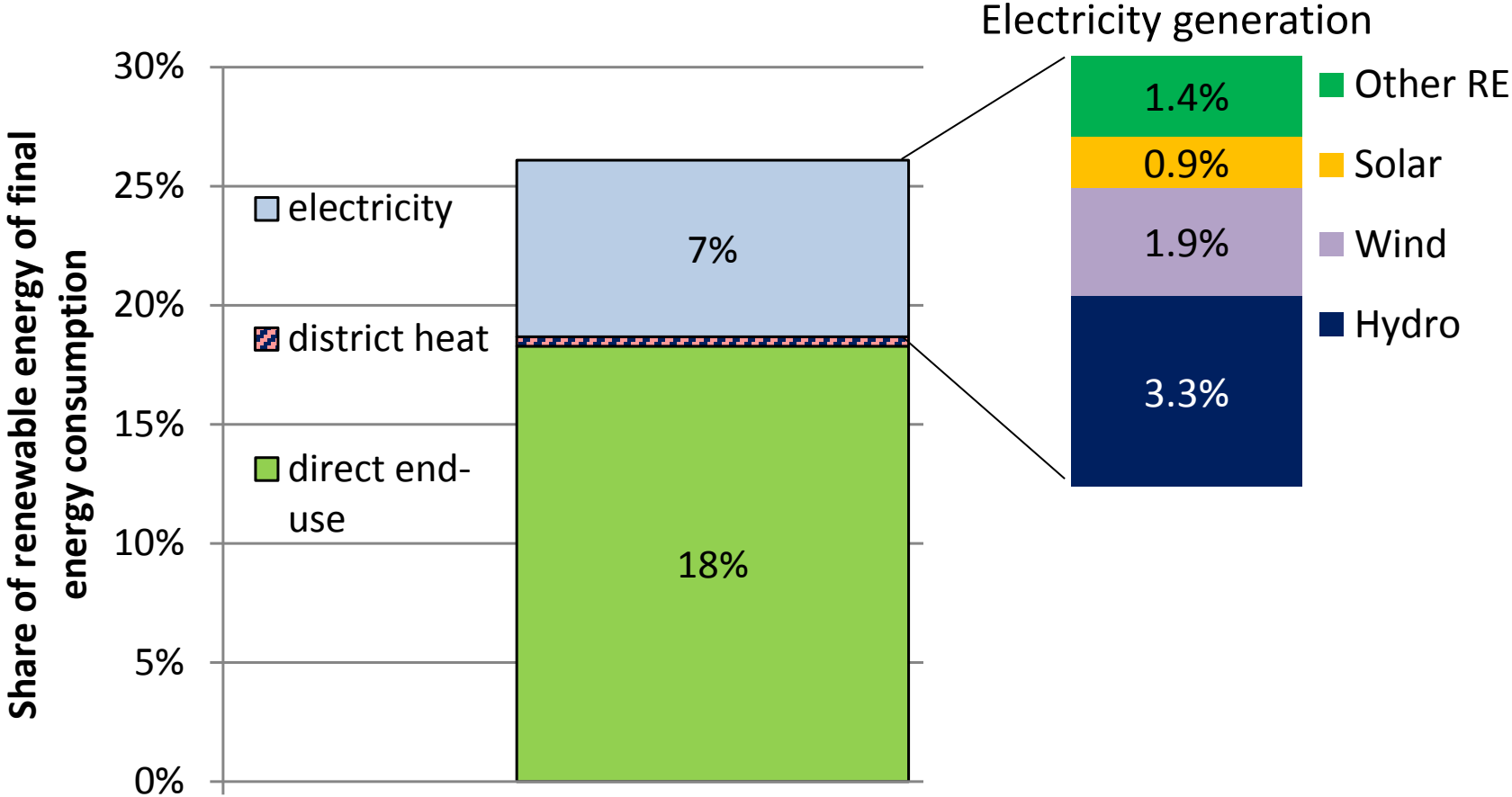
Global primary energy consumption of renewable energy



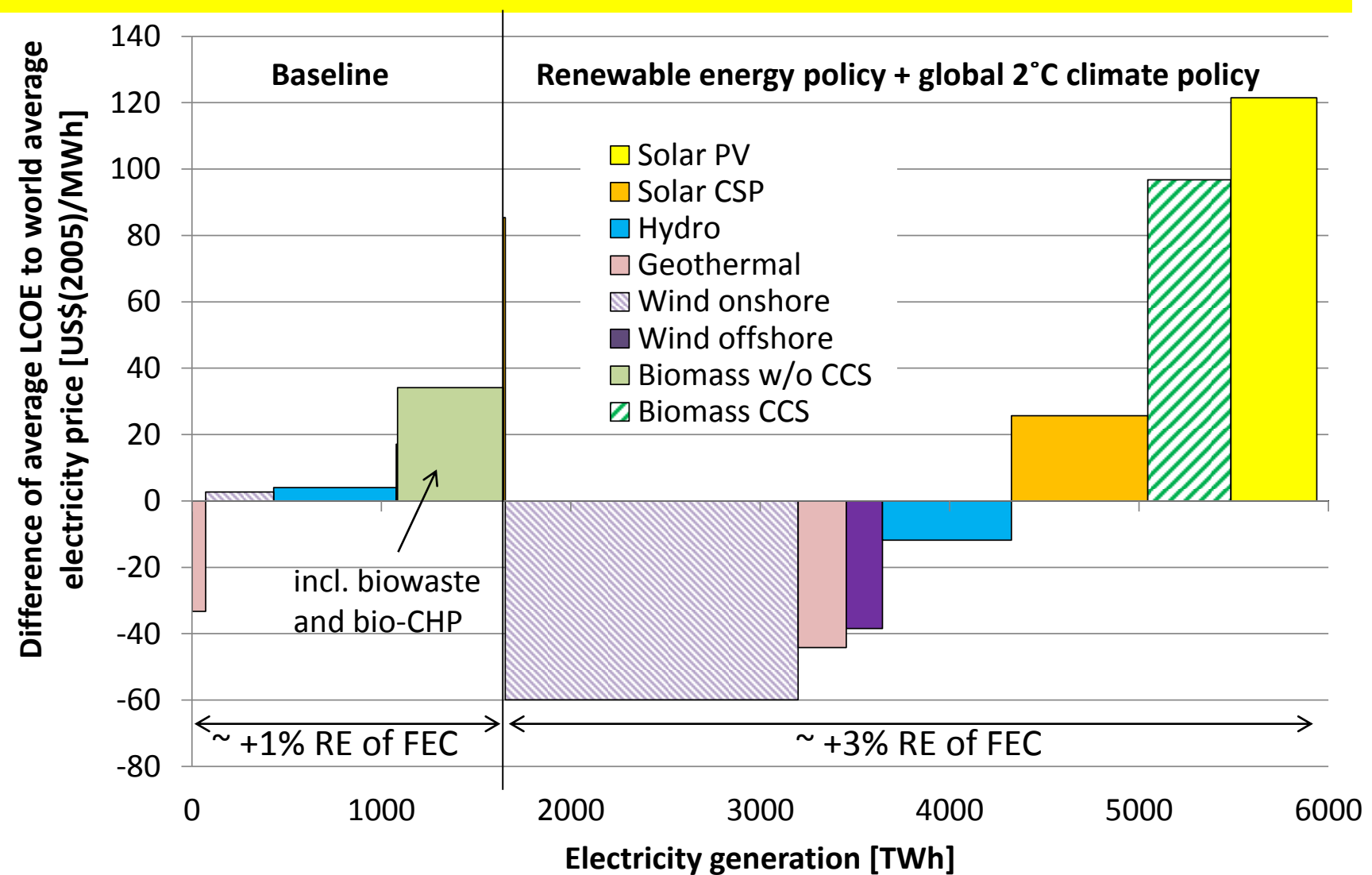
Share of renewable energy under climate policy environment



Decomposition of renewable energy share of FEC in 2030



Preliminary global cost-supply-curve for RE-based electricity (2030)



Conclusions

- Renewable energy plays an important role for reaching the global climate stabilisation target of 2°C
 - If non-renewable GHG reduction measures (e.g. CCS) are available, a doubling of today's share of renewable energy of FEC by 2030 from economic point of view may not be necessary
 - RE policy and climate policy esp. spur deployment of wind energy
 - Role of biomass changes with tightening climate targets (decarbonising transport sector)
-
- Cost-supply-curves on global level possible; further regional details to be included
 - Further analysis dedicated to renewable energy and enhanced research (sensitivity tests for RE-FEC share) are desirable

Thank you!

Tom Kober

Policy Studies | Global Sustainability

T: +31 88 515 4105 | F: +31 224 56 83 38

Radarweg 60, 1043 NT Amsterdam, The Netherlands

kober@ecn.nl