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Breaking the stalemate: contribution of the goal of net zero/carbon neutrality to achieving success in Paris and beyond

Ny-Alesund Symposium, 26 – 28th May 2014

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Recap from day 1…

- **AR5 Conclusions**
  - **Of the 4 IPCC scenario, only RCP 2.6 keeps us below 2 deg C**
  - **This means a net zero GHG/carbon neutral world starting now**
  - **It difficult but do-able**
  - **It costs less than the costs of inaction**
  - **Climate inaction and delay will hit the vulnerable the hardest but no-one escapes impacts**
- **The New Economy**
  - **Must be carbon neutral & based on: increased energy/resource efficiency, resilience, smarter public & fiscal policy, carbon pricing, new metrics that value natural capital and provide social safety nets for the poorest**
  - **Climate mitigation is pro-poor – it generates health benefits, jobs, smarter cities**
  - **Need deep innovation, structural change in energy, food, agriculture and land use to deliver double green revolution but these need long term policy certainty which we don't have right now**
- **Stalemate Because…**
  - **Science, politics and economics must align & be pulling in same direction. Currently not aligned but are converging**
  - **We need international action and agreements to accelerate domestic paradigm shifts to achieve 2 degree compatible outcomes – countries must have ownership of solutions that fit their circumstances (peaking of emissions for different countries)**
  - **Paris isn't just about governments but also business, cities, citizens, civil society taking action & responsibility**

Moving Beyond stalemate

Question: What should success in climate change look like by 2020?

Answer: Net zero, climate resilient development is irreversibly embedded globally in the realm of politics, economics and society through:

- **Political systems: treaties, national & municipal laws and regulations reflect & help us achieve RCP 2.6 (net zero/carbon neutral world)**
- **Economic systems: all enterprises & companies have *time bound targets* to be net zero (going beyond projects or initiatives)**
- **Social systems: emitting carbon is no longer seen as "cool" or even necessary to support economic development. Development & peaking are de-linked. GHG regulation/carbon pricing is seen as a social necessity to protect public health, national security and to drive innovation to support the new climate economy based on efficiency, resilience, social safety nets**

Can net zero help move us to success?

- **So what is net zero?**
- **Why is it a good idea?**
- **Where did it come from and who supports it?**
- **How can it be embedded in politics, the economy and society? Some concrete ideas for:**
  - **2015 agreement & national contributions/legislation processes provide once in a lifetime opportunity to align science and politics in the right direction!**
  - **UNSG's Climate Summit – one off global moment to engage leaders and global public about the social unacceptability of BAU and to ask business/finance community to raise their game too beyond incremental one-off actions to embrace actions that align with 2 degree compatible pathways**

What is net zero?

- **Term is interchangeable with carbon neutrality**
- **Definition: a commitment to taking action to reduce GHG emissions to zero *and then* offsetting any remaining emission by an equivalent amount – implies a phase out of fossil fuel emissions *accompanied* by zero net emissions from deforestation/agriculture and land use by mid-century – around 2050**
- **Why 2050? It's a date widely used as a temporal measure point or targets in many countries, in modelling and many studies**
- **2050 timeframe is consistent with AR5/science**
  - **RCP 2.6 scenario says 1 trillion tonne sets timeframe and need for early reductions asap**
  - **(see later slide for which sources need to reduce by when)**

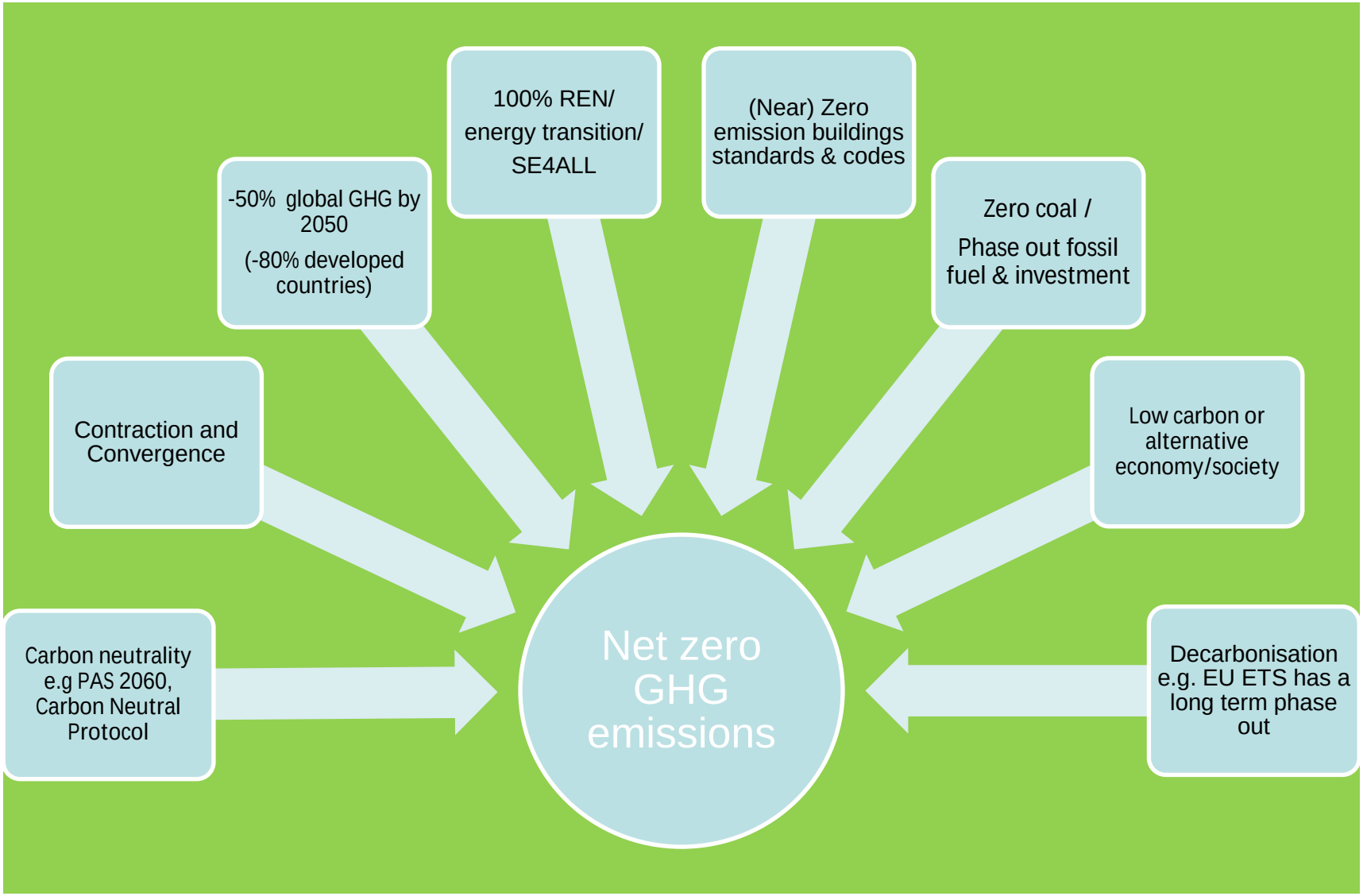
Why it's a good idea

- **Net zero is an easy to understand, game changing concept! It supports paradigm shifts, help change mind sets beyond incremental behaviour and helps embed decarbonisation as a social norm – this is critical for long term perspective as action will need to get deeper and faster over time**
- **Complements 2 deg goal. *Net zero and 2deg C are two sides of the same coin*. One side tells you what to avoid and the other what to do emissions wise to keep below 2 deg C.**
- **Creates a "magnetic north pole" to help align nationally determined contributions by governments and actions by business and civil society**
- **Gives policy certainty by setting the overall long term, collective, direction of travel which complements shorter term national targets & specific initiatives (e.g. ICIs)**
- **Increases transparency and can help all chart global progress – otherwise how will we know which pathway we on?**
- **Any one can adopt & implement it any time: countries, cities, companies, civil society, sectors, citizens…many already have!**
- **Importantly – it becomes the implicit basis for analysis and policy making – even if never formally adopted – so a win-win all round!**

Where did come from? Who supports it?

- **Scientists: IPCC AR5 –Consistent with AR5/science – 1 trillion tonne budget and need for early reductions asap. AR5 moving from not just focusing on temperature threshold (2 deg C lens) but also incorporating *an emissions lens* – two lenses better than one! Budgets and pathways are easier for policy makers to understand than focusing on temperature limits, concentrations levels (750, 550, 450, 350 ppmv) – these do no make much sense to most people**
- **Policy makers: focusing on what you can measure and control (GHG emissions) is better than focusing on things you cannot (temperature limits and concentration levels)**
- **Pioneer countries & thought leaders: radical ideas for total decarbonisation that create a cleaner and fairer world with access to modern energy for all**
- **Support for net zero/carbon neutrality is widespread – a good idea has many parents!**

Where did net zero come from?



Current carbon neutrality/net zero champions






The Trillion Tonne Communiqué

The Elders Independent global leaders working together for peace and human rights.

CARBON NEUTRAL
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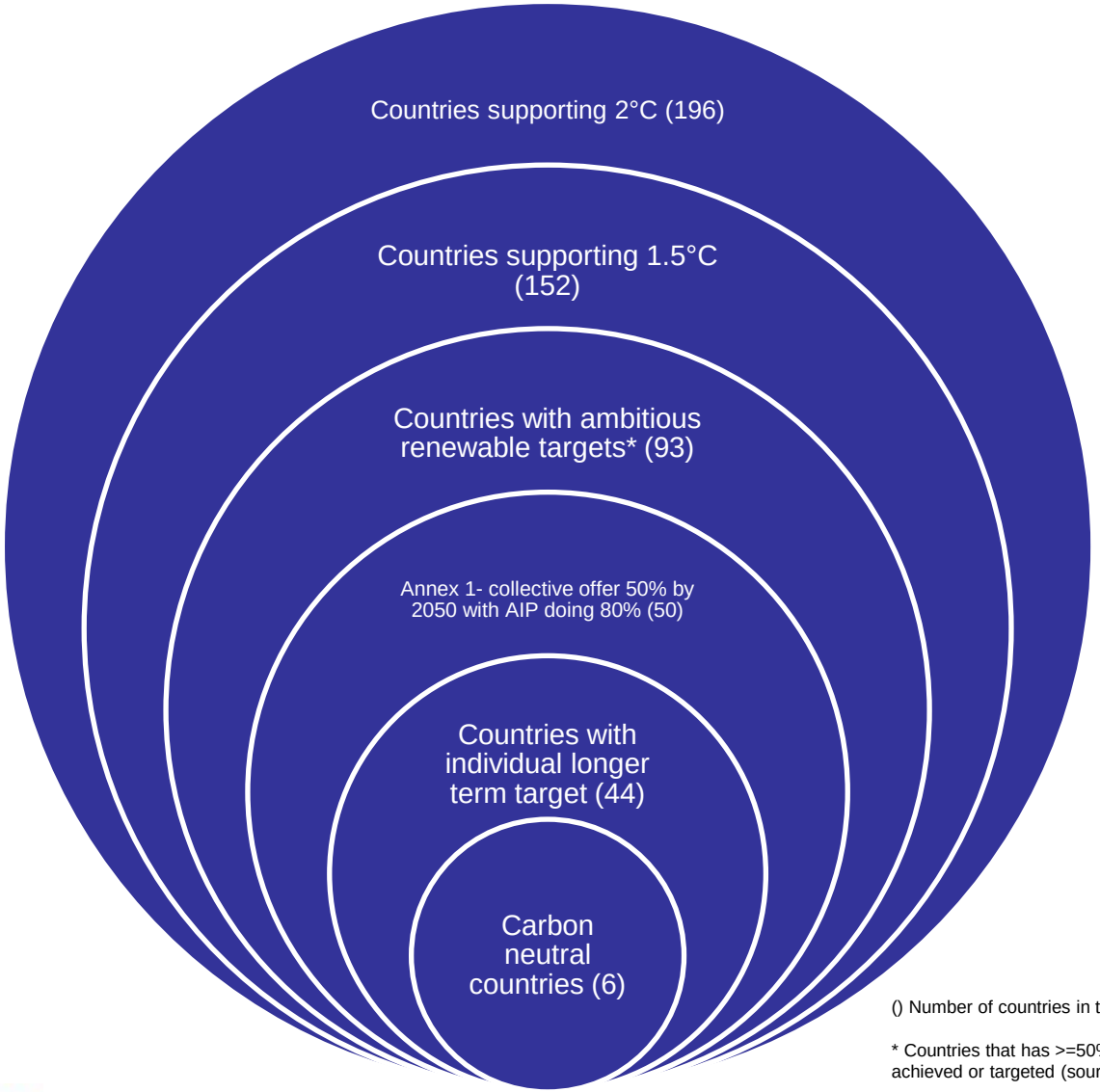
Verco · Kingfisher · SKANSKA · acciona · Anglian Water Group · Novelis · Lloyds Banking Group · Pottinger · sky · Unilever

More carbon neutrality/net zero champions emerging daily!

Why The U.S. Military Is Pursuing Energy Efficiency, Renewables And Net-Zero Energy Initiatives

Source:http://thinkprogress.org/climate/2013/04/04/1749741/why-the-us-military-is-pursuing-energy-efficiency-renewables-and-net-zero-energy-initiatives

Support among UNFCCC Parties



() Number of countries in this category

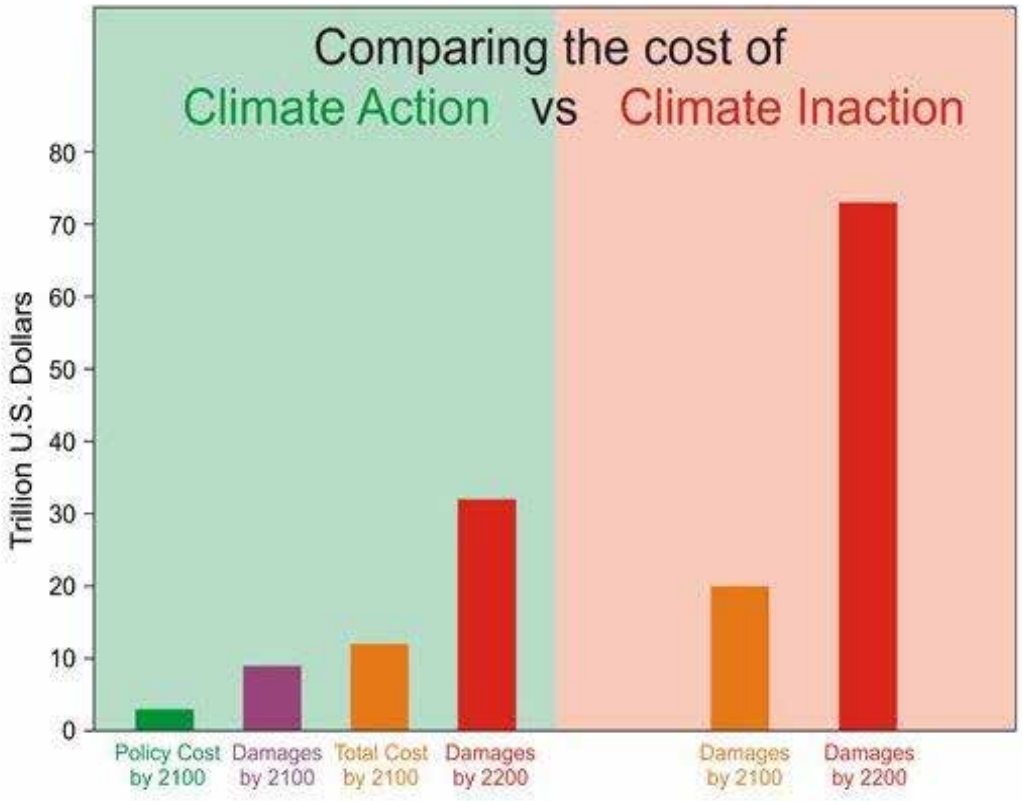
* Countries that has >=50% total energy/ >=40% electricity achieved or targeted (source: REN21, 2013)

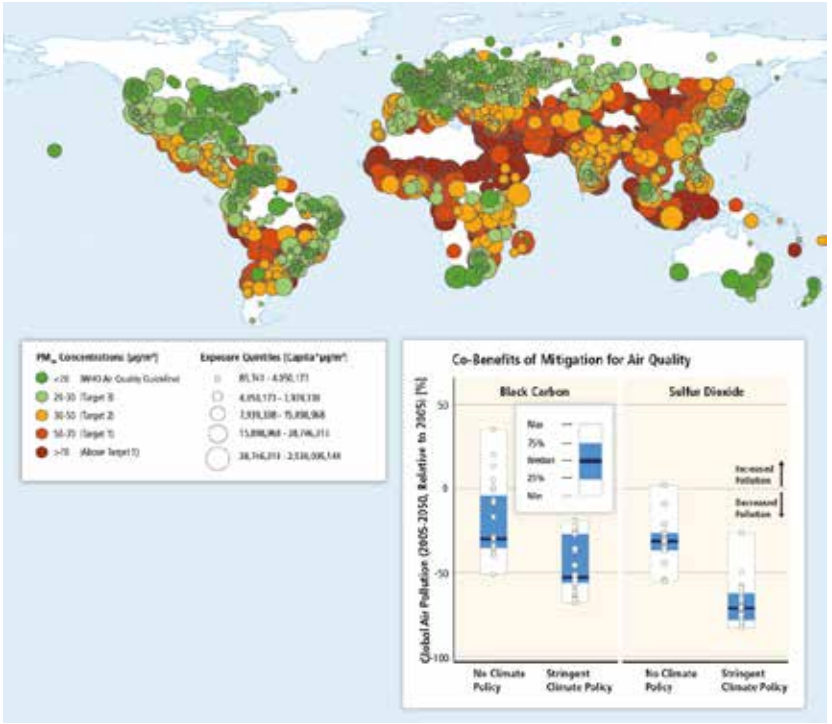
Source; Ecofys

Feasibility and Costs of Phase Out

- **Is phase out technically feasible? RCP 2.6 sources/speed of different sources**
- **What are the costs of the phase out? - 5 % figure from IDDRI/ECOFYS paper and what does the IPCC say about costs of RCP 2.6**
- **Benefits of action/in action**
- **Equity and who bears costs of action/in action**

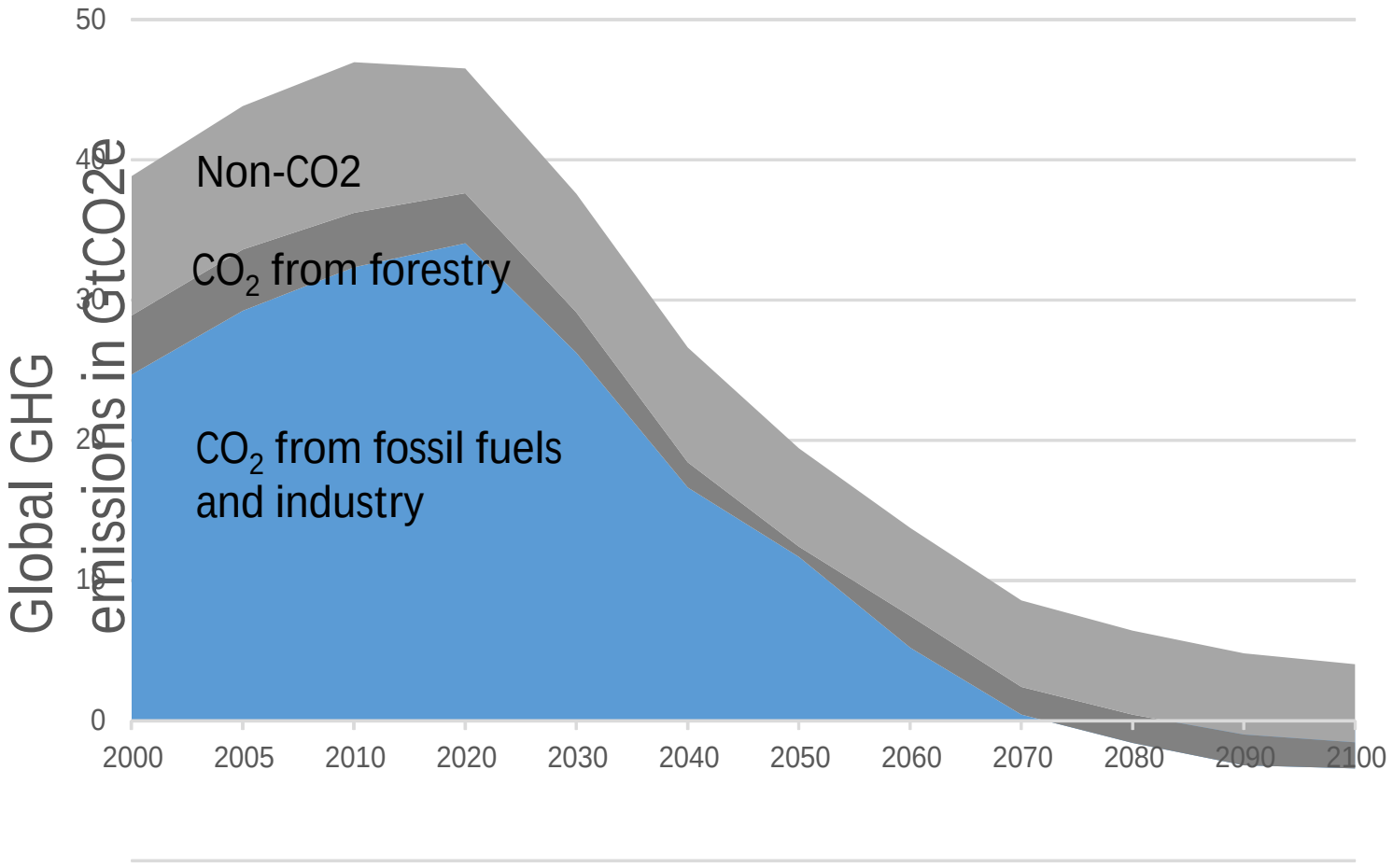
Impacts & injustice: costs of action vs inaction





: Source:21st Century Tech, 2014; IPCC, 2014

Is net zero out feasible?



Source: Ecofys own figure, based on marker scenario RCP 2.6 of the IPCC, from RCP scenario database http://tntcat.iiasa.ac.at:8787/RcpDb/dsd?Action=htmlpage&page=download

Source: Ecofys

Costs of net zero

- The direct net costs = investments and costs - potential savings (both in comparison to a business-as-usual scenario)
- Of the most recent low emissions scenarios, two attempt to quantify these total system 'policy costs':
  - the annual share of GDP spent on abatement: 1-5% until 2050 (v.s. current fossil fuels subsidies ~ 3% of GDP)
  - the carbon price required to achieve low emissions:>=~50 USD per tonne
- These do not show the full picture as indirect costs (e.g. environmental costs) and social benefits (e.g. increased health, well-being, energy security)
- Stern et al. suggested that costs of inaction (5–20% of global GDP annually), e.g. rising sea levels, higher risks of natural disasters, increased health risks, etc., could significantly outweigh emission mitigation costs

Source: Feasibility of GHG emissions phase-out by mid-century, Ecofys, 2013, http://www.ecofys.com/files/files/ecofys-2013-feasibility-ghg-phase-out-2050.pdf

Costs: AR5 WG 3

- **Reaching 450ppm CO_2eq entails consumption losses of 1.7% (1%-4%) by 2030, 3.4% (2% to 6%) by 2050 and 4.8% (3%-11%) by 2100 relative to baseline (which grows between 300% to 900% over the course of the century).**
- **This is equivalent to a reduction in consumption growth over the 21st century by about 0.06 (0.04-0.14) percentage points a year (relative to annualized consumption growth that is between 1.6% and 3% per year).**
- **Cost estimates exclude benefits of mitigation (reduced impacts from climate change). They also exclude other benefits (e.g. improvements for local air quality).**
- **Cost estimates are based on a series of assumptions.**

Source: IPCC, 2014

Backup slides

UNFCCC process does prompt climate legislation & strategies!

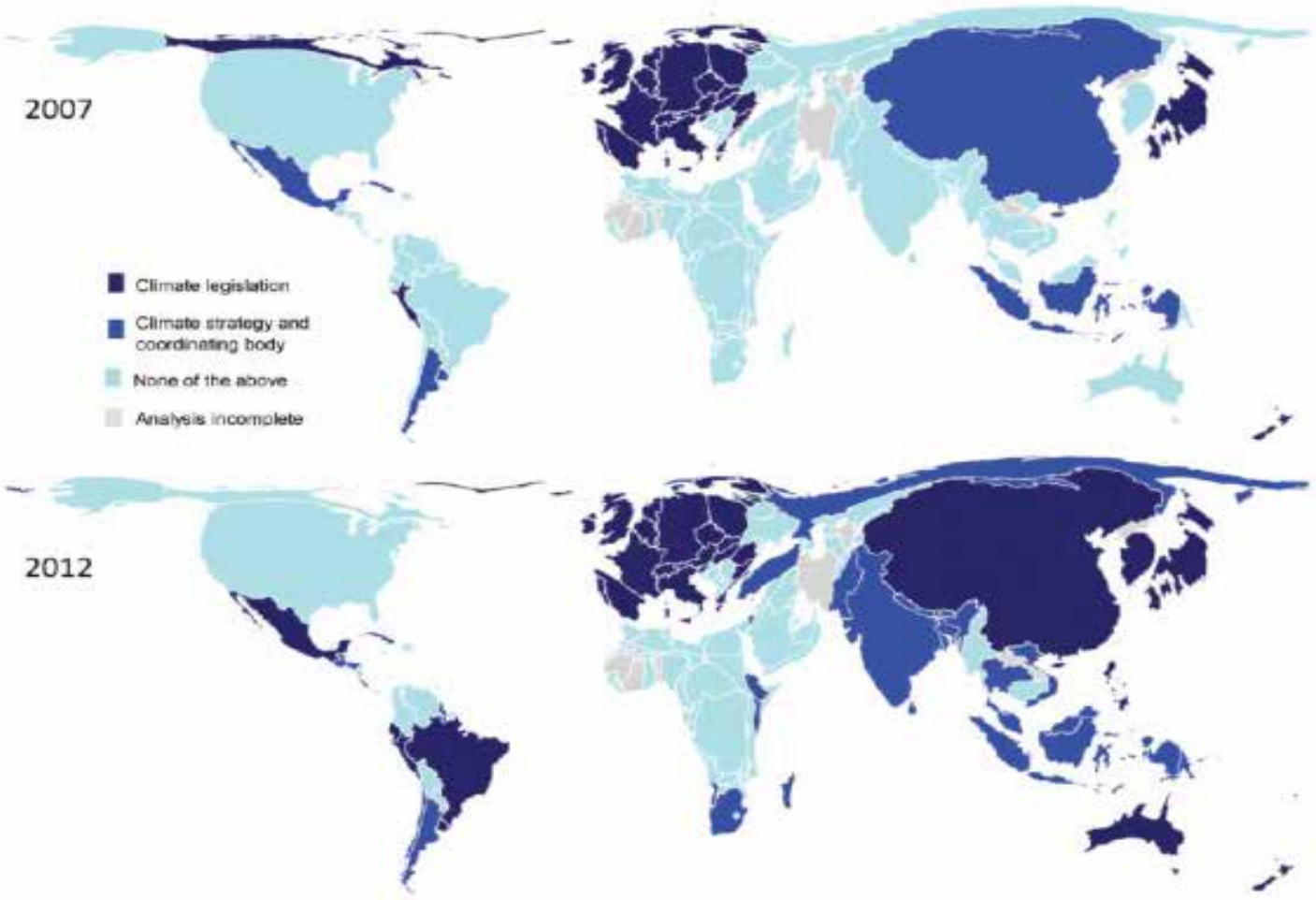
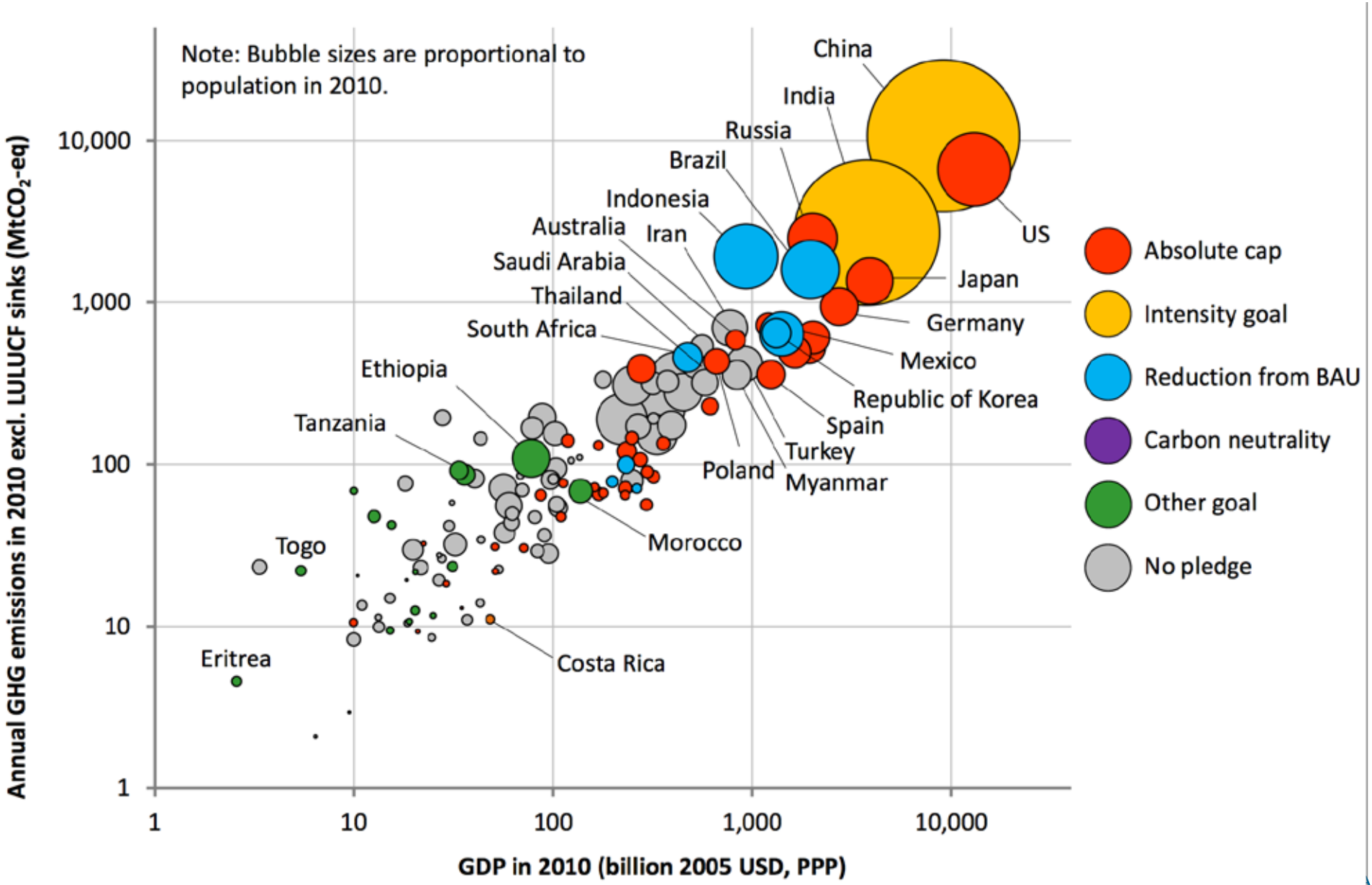


Figure 3 Climate legislation and strategies in 2007 and 2012 (area proportional to GHG emissions in 2010)

Source: Dubash et al. Developments in national climate mitigation legislation & strategy: Climate Policy, Vol 13, No. 6, 2013

Net zero would be compatible with wide range of pre -2020 mitigation pledges



Source: Briner and Prag (2013), based on UNFCCC (2011b; 2013b); IEA (2012);

Net zero/carbon neutrality: more details in…

Possible Elements of a 2015 Legal Agreement on Climate Change
Erik Haites; Farhana Yamin; Niklas Höhne
Working Papers N ° 16/2013. Iddri, 2013. 24 p.

- **Proposal on a package of possible elements of a 2015 legal agreement**
- **Tried to find out of the box solution that is new but also would be effective and basis for landing ground that is "hybrid"**
- **Avoids sterile debate between "top-down" and "bottom-up" approaches by creating complementary long term and short term GHG targets along with adaptation/finance structures**
- **See also Feasibility of Phase out of GHGs by mid –century, Hohne, N, van Breevoort, P, Deng, Y, Larkin, J, and Hansel, Ecofys, 2013**

http://www.iddri.org/