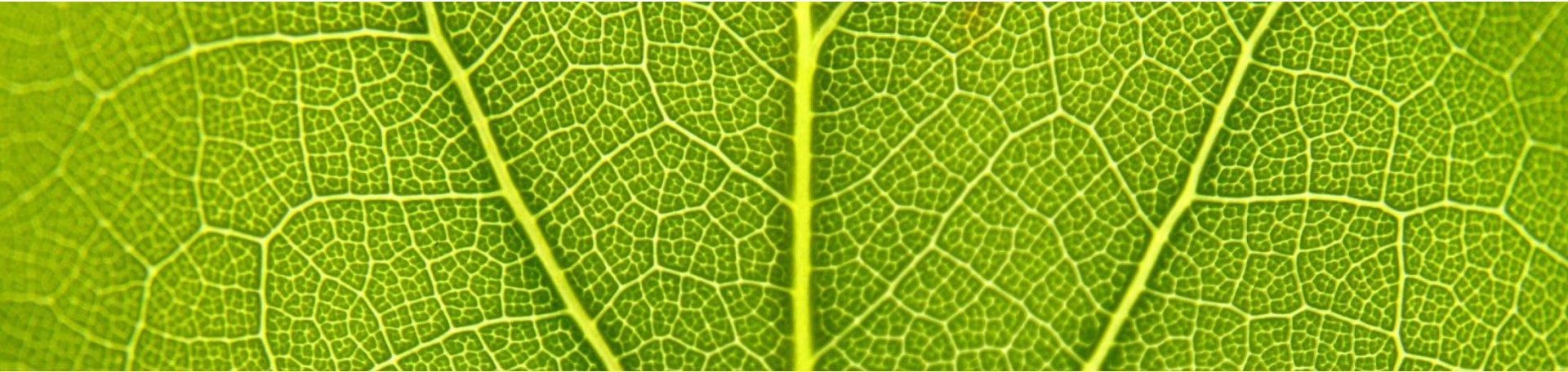




sustainable energy for everyone



Progress in energy and climate policies around the world —
What does it mean for the 2015 international climate agreement?

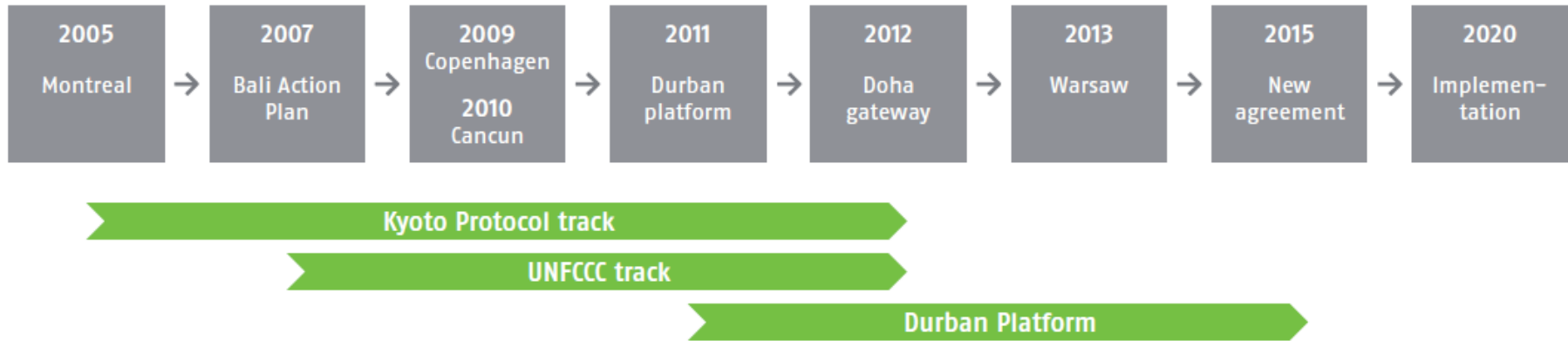
ALPS International Symposium, Tokyo

Dr. Niklas Höhne, n.hoehne@ecofys.com



- > Status of the UNFCCC negotiations and pledges
- > Progress in implementing energy and climate policies
- > Cooperative initiatives
- > Implications for the 2015 agreement

Selected achievements of the UNFCCC process



Emission reductions

- Agreement of limit global temperature increase to 2°C
- Emission reduction proposals for all major countries for 2020
- Kyoto Protocol with moderate targets until 2020 and limited participation

Financing

- From 10 billion US\$ (2010/11/12) to 100 billion US\$ per year (2020)
- Green Climate Fund as new financing channel
- New forms of cooperation, e.g. Nationally Appropriate Mitigation Actions (NAMAs), forestry (REDD+)

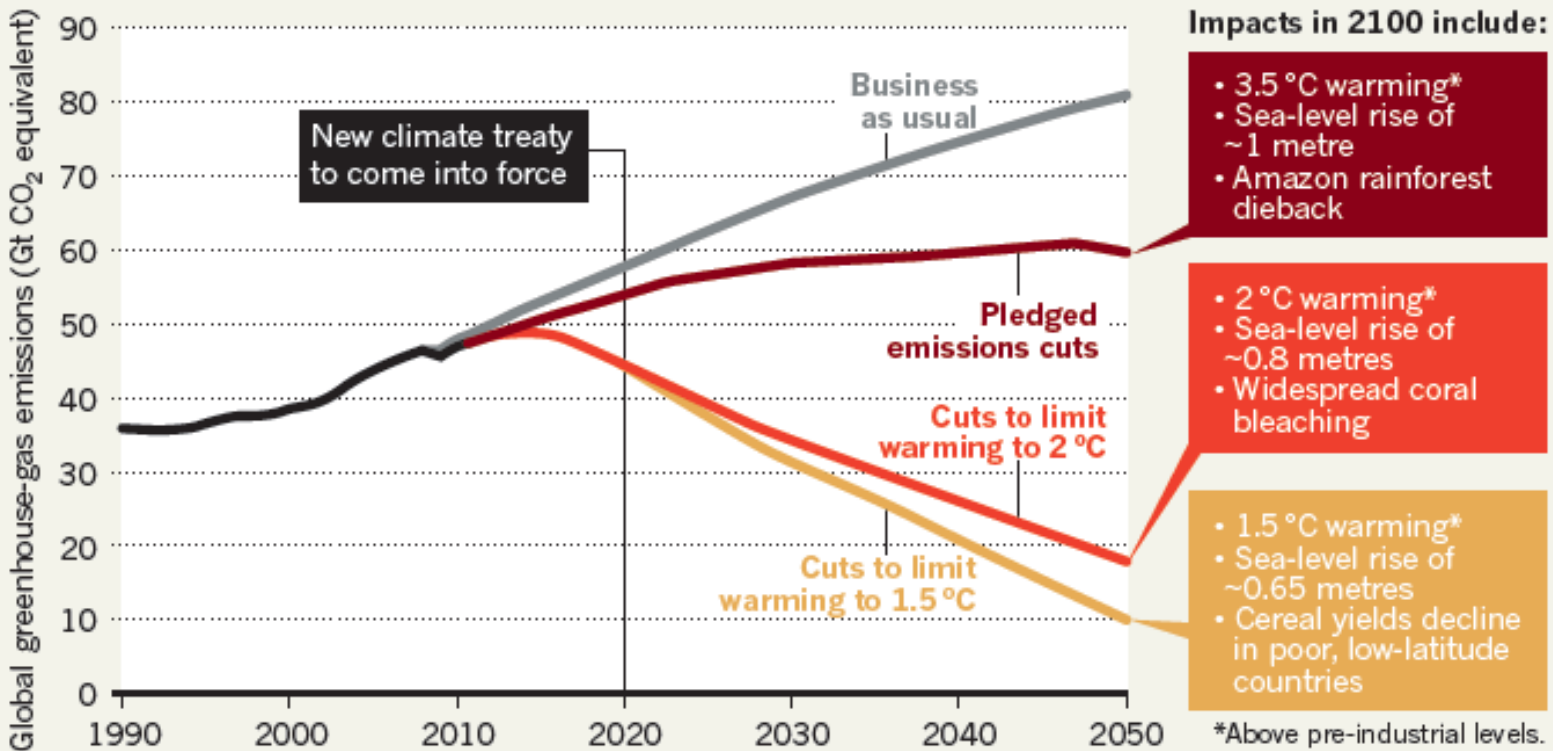
Reporting

- Biennial reporting of emissions and policies

The emissions gap

nature

By the time a new treaty to limit emissions comes into force in 2020, the world will have diverged further from the path needed to limit warming to 2 °C by 2100, according to an analysis by Climate Action Tracker.

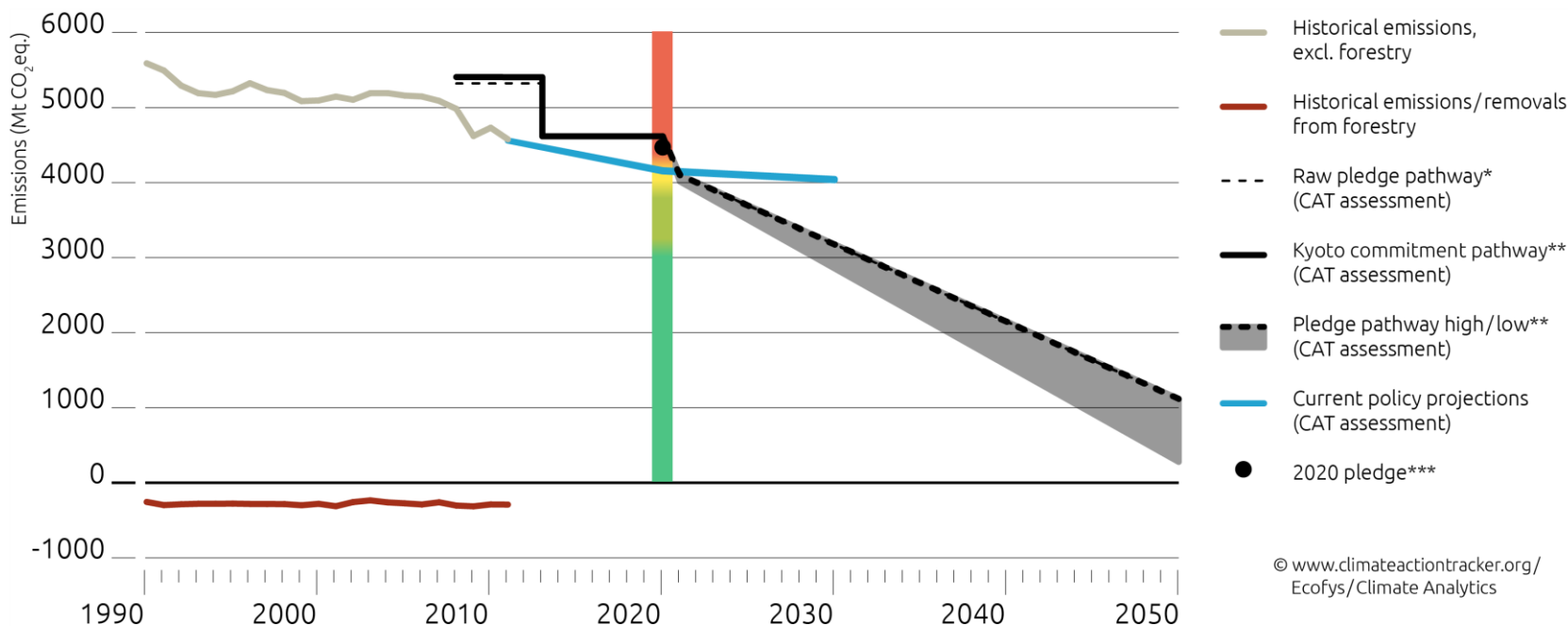


www.climateactiontracker.org



- > Status of the UNFCCC negotiations and pledges
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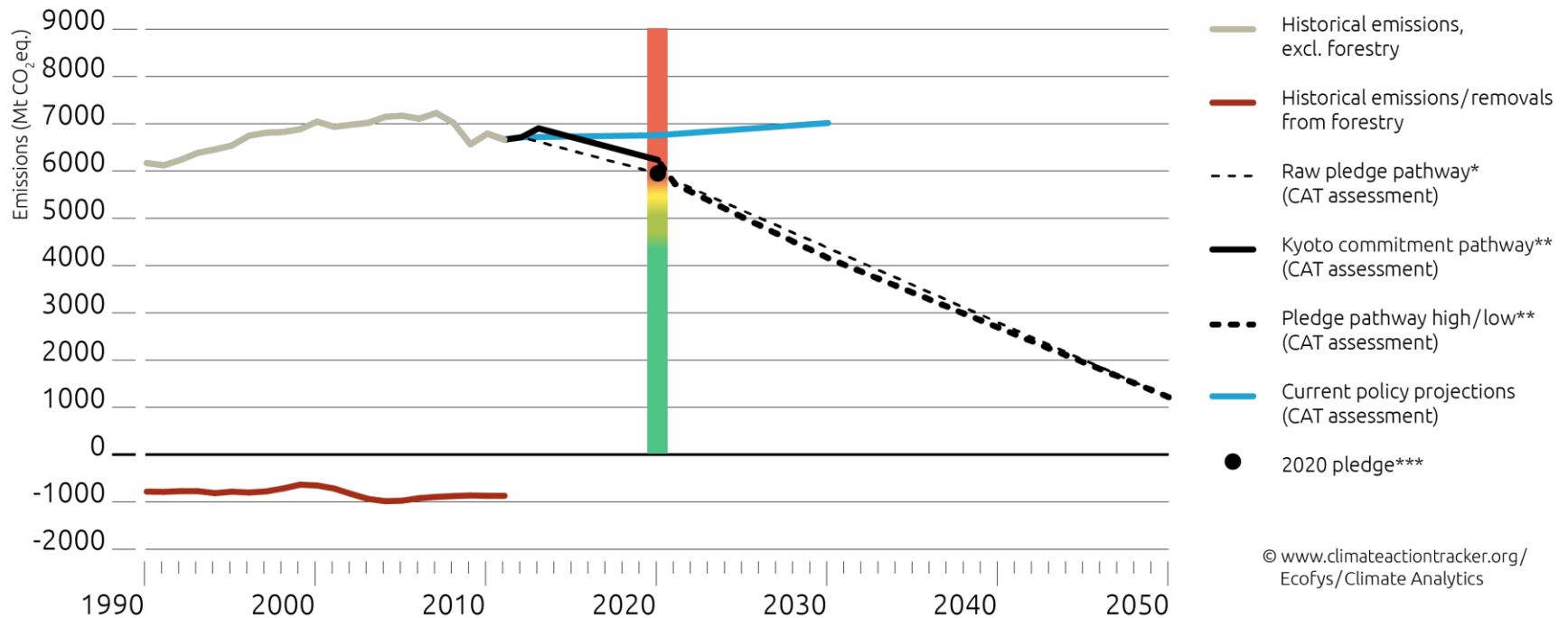
- > Unconditional 20% (conditional 30%) below 1990 in 2020
- > New proposal for 2030: 40% below 1990
- > Comprehensive policy package: emissions trading, support for renewables, efficiency standards, ...



* Excl. LULUCF credits and debits, excl. LULUCF base year emissions accounting rules and without application of historical threshold on emissions allowances in 2020 under the Doha decision.
 ** Incl. LULUCF credits and debits, incl. LULUCF base year emissions accounting rules and application of historical threshold on emissions allowances in 2020 under the Doha decision.
 *** Emissions level in 2020 resulting from unconditional pledge. This differs from the Kyoto commitment pathway as it depicts final 2020 levels whereas the Kyoto pathway considers the average level of emissions over the second commitment period (2013-2020).

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 Ecofys/Climate Analytics

- > Pledge: 17% below 2005 in 2020
- > New climate plan: if implemented sufficient to meet pledge
- > Policies: Car standards, power plant standards, state level renewable support, ...



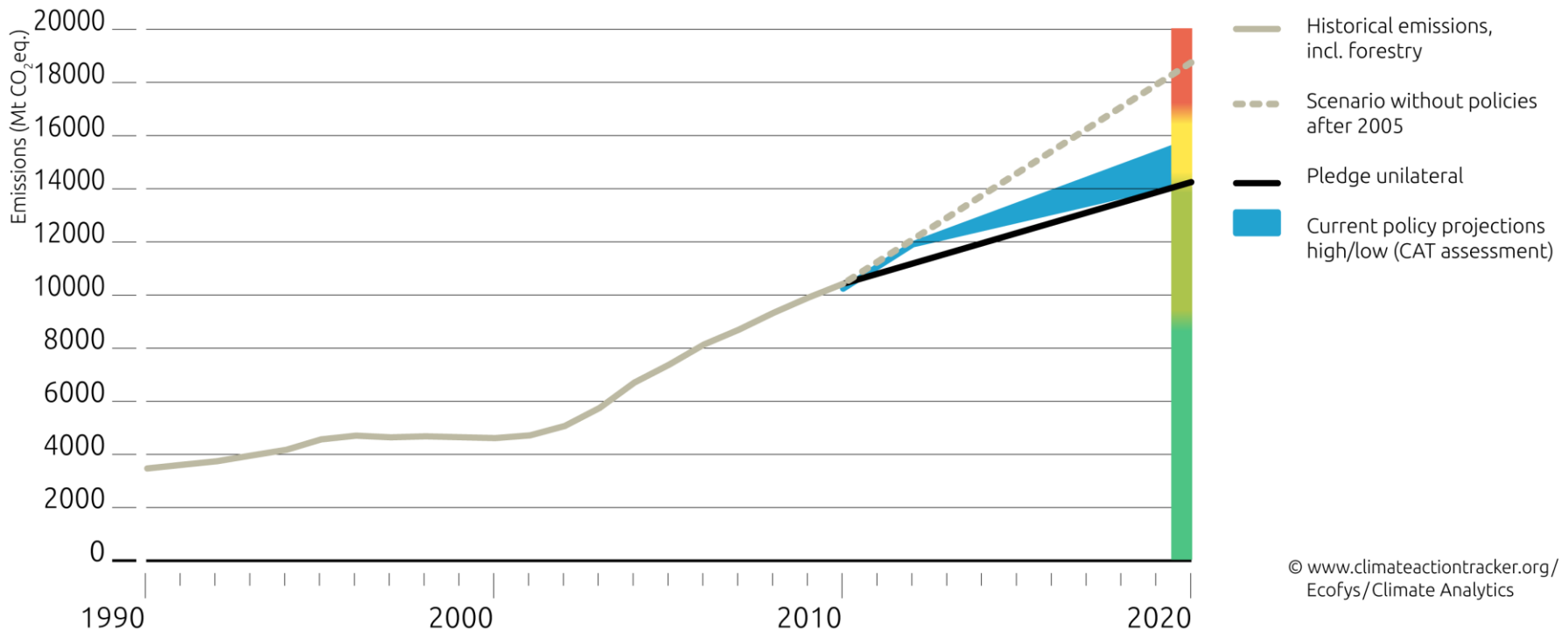
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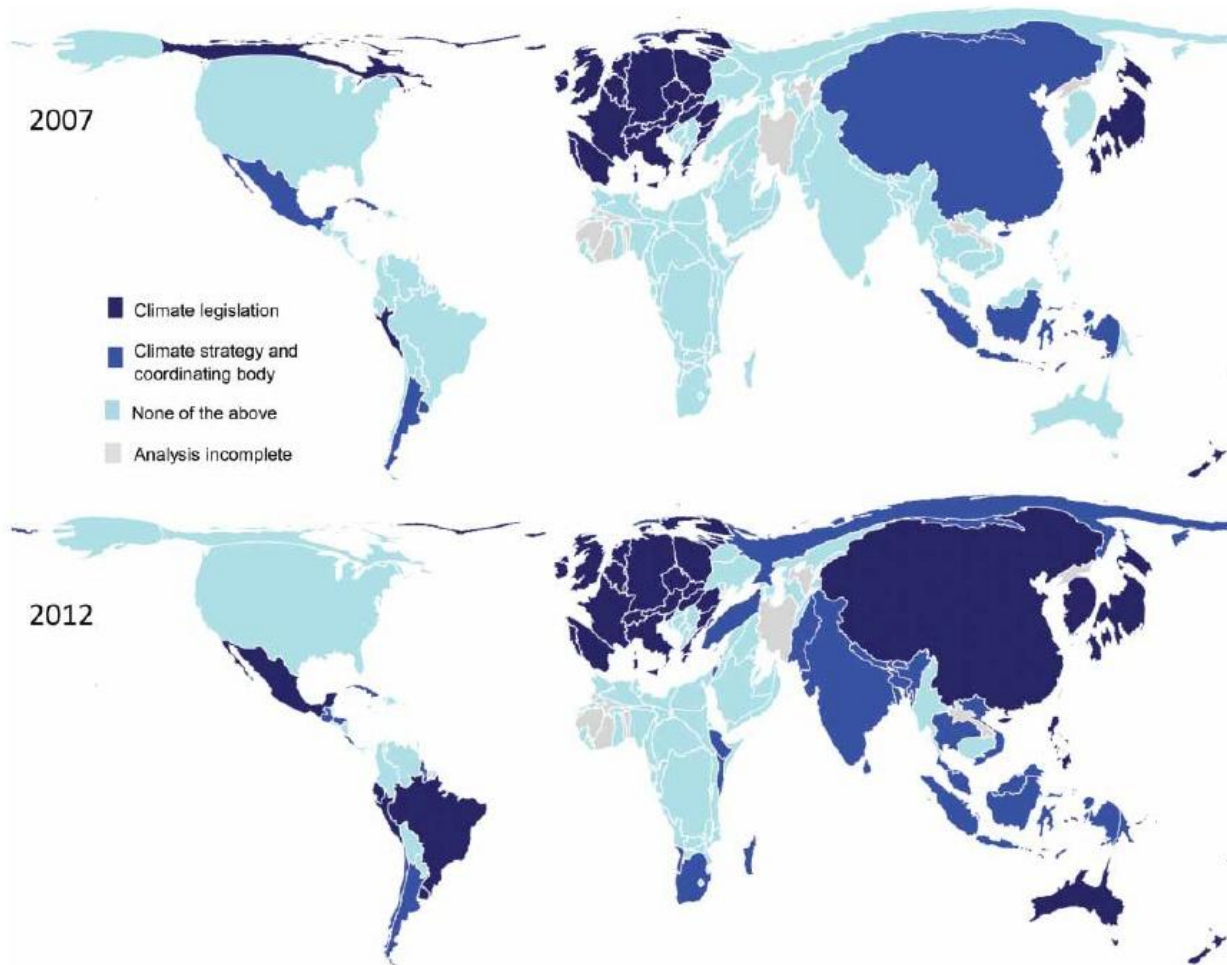
*** Emissions level in 2020 resulting from unconditional pledge. This differs from the Kyoto commitment pathway as it depicts final 2020 levels whereas the Kyoto pathway considers the average level of emissions over the second commitment period (2013-2020).

China

- > Pledge: CO₂/GDP 40-45% below 2005 by 2020, share of non-fossil fuels of 15% by 2020, forest cover
- > Policies: top 10 000 company programme, support for renewables, low carbon zones, emission trading systems, efficiency standards for cars and trucks, regional ban of new coal-fired power plants, ...



National climate policy



Countries responsible for 67% of global emissions have national climate legislation or strategy

Source:

Dubash et al. 2013
<http://dx.doi.org/10.1080/14693062.2013.845409>

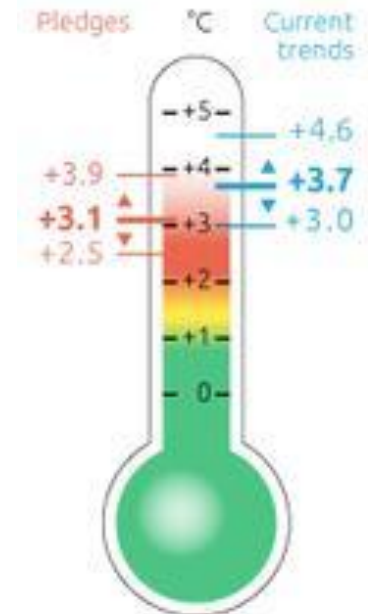
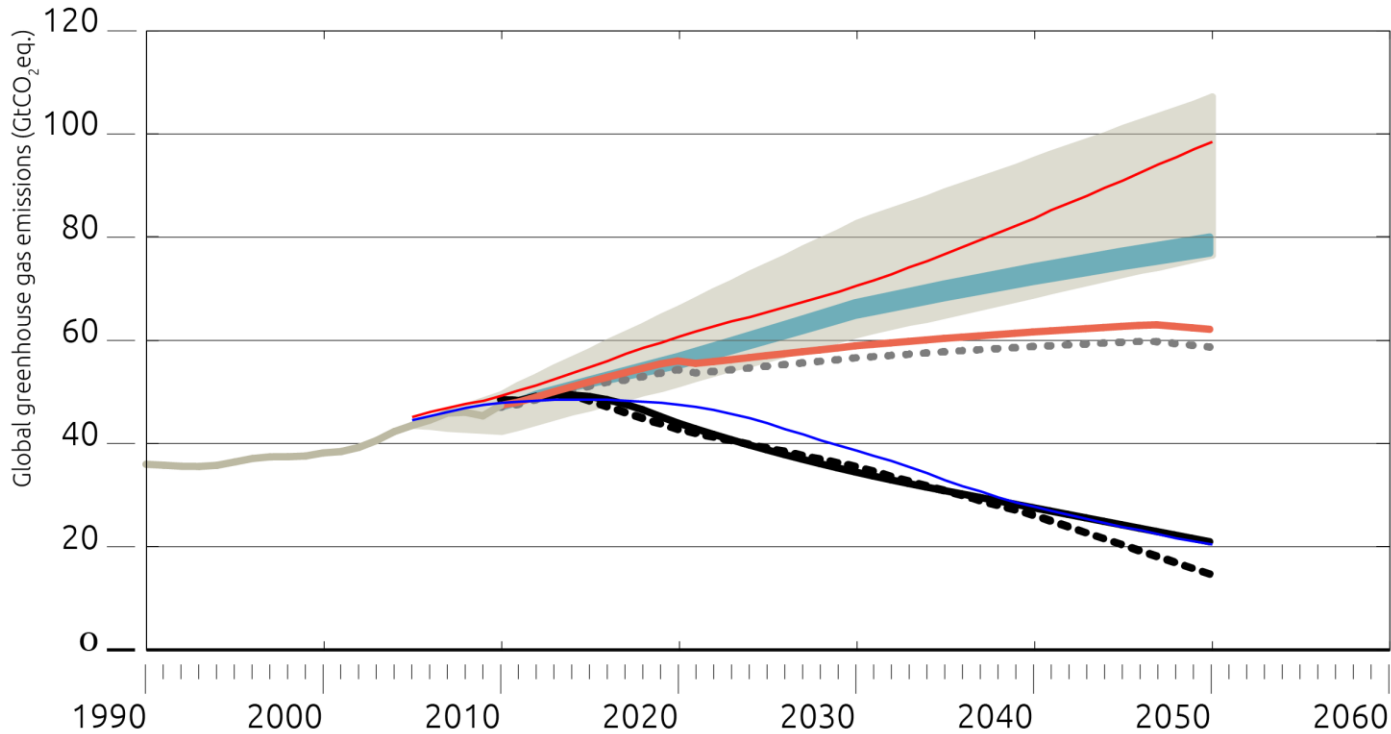
Global coverage of energy and climate policies

	Changing activity	Energy efficiency	Renewable energy	Low carbon	Other / non energy
General	Strategies + targets 70%				
Electricity	Carbon pricing schemes 28%				
		Performance Standards 22%	Support schemes (e.g. feed-in) 49%	Tax exemptions 6%	
Industry	Carbon pricing schemes 30%				
	Strategies 6%	Voluntary agreements 25%	Quota 36%	...%	Regulatory ...%
Buildings	Energy taxes ...%				
	Programs 8%	Product standards & building codes 55%	Tax exemptions 31%	...%	
Transport	Fuel taxes ...%				
	Modal shift programs 14%	Vehicle standards 23%	Direct subsidies & fuel quota 50%	E-mobility programs 14%	
AFOLU	Strategies 28%				Regulation / planning 39%

Preliminary

Source: Ecofys, unpublished draft

Pledges and recent trends



- Historic emissions
- Likely below 2°C
- Action incl. conditional pledges & national policies
- Reference range*
- 50% chance below 1.5°C in 2100
- Current policy projections (CAT assessment)
- Climate Action Tracker
- RCP2.6
- RCP8.5

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Ecofys/Climate Analytics/PIK

* Harmonized 90% range of recent reference scenarios from the literature.

Source: Climate Action Tracker trends report

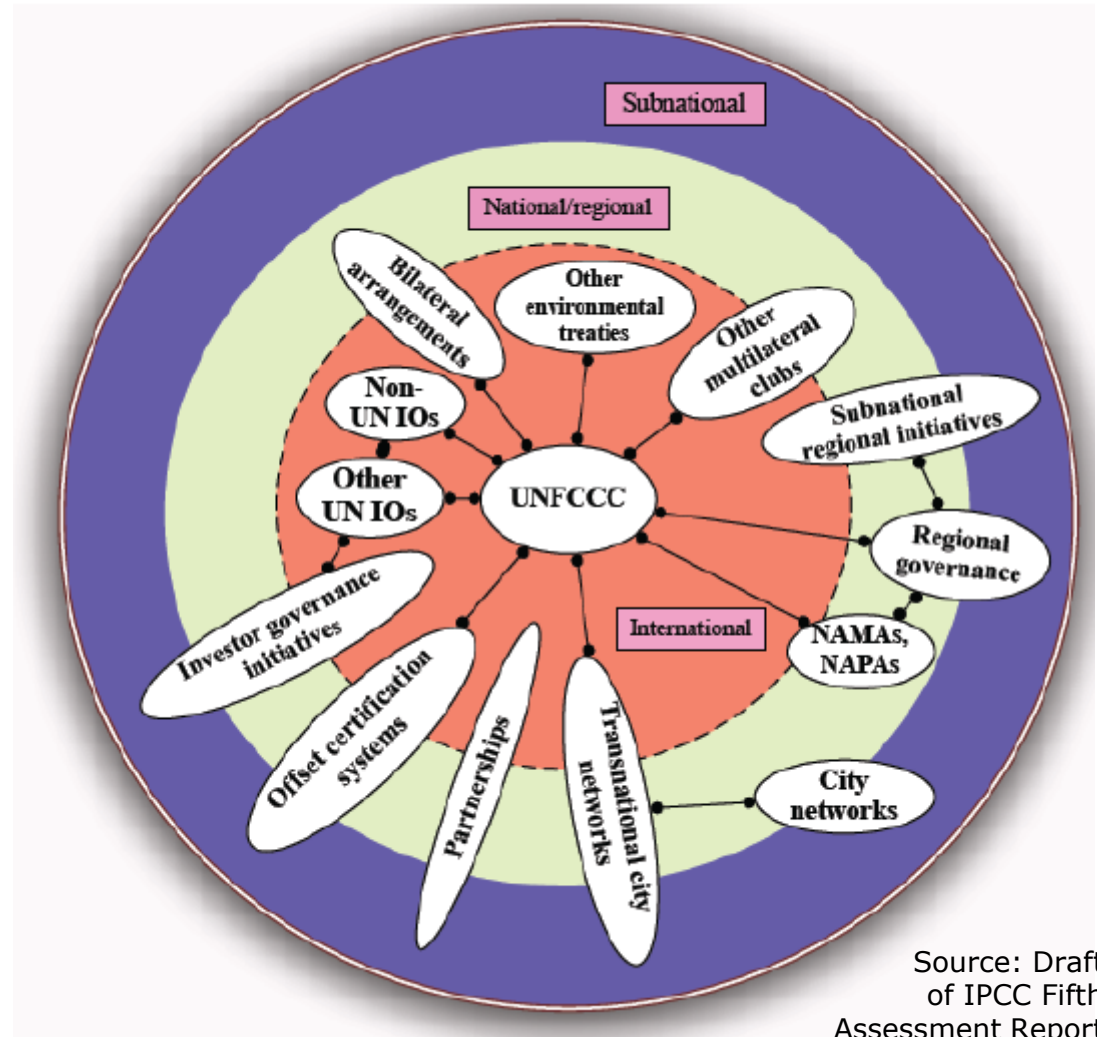
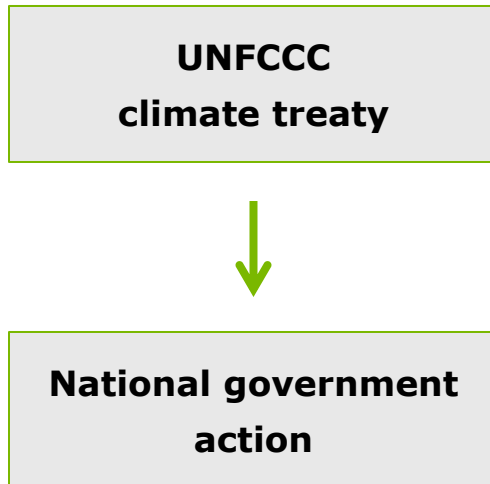
http://climateactiontracker.org/assets/publications/publications/CAT_Trend_Report.pdf



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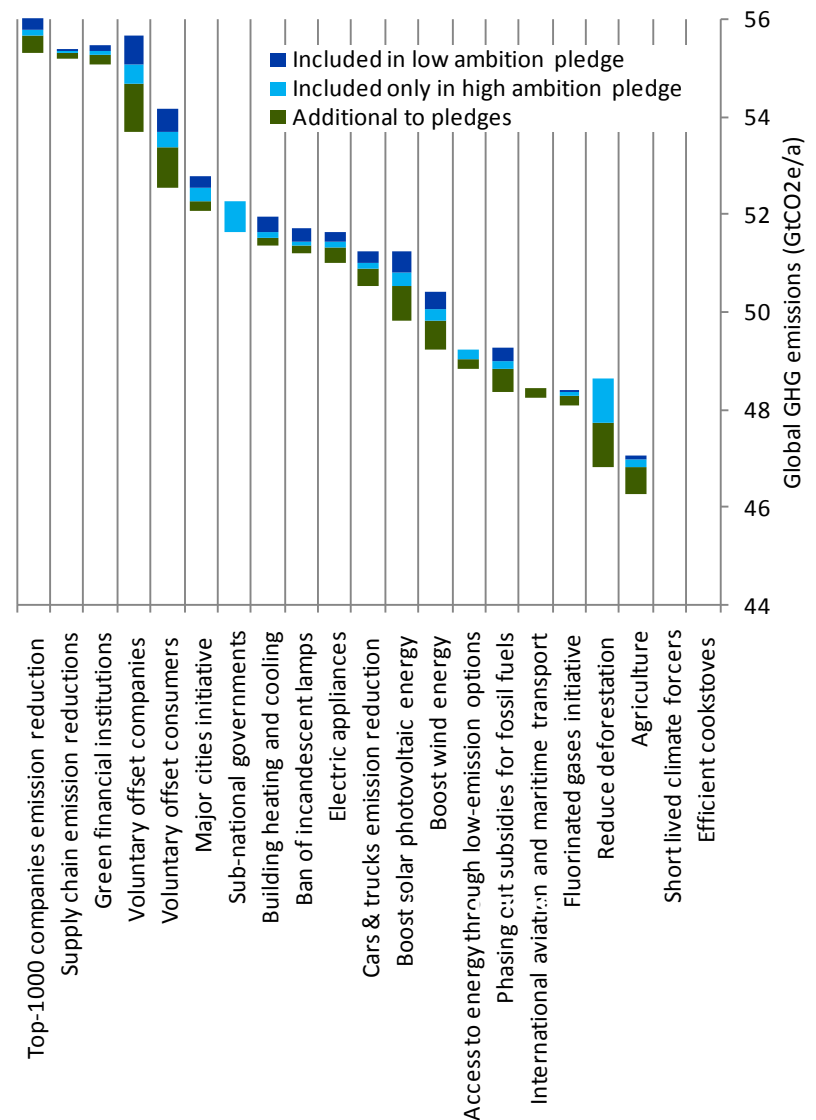
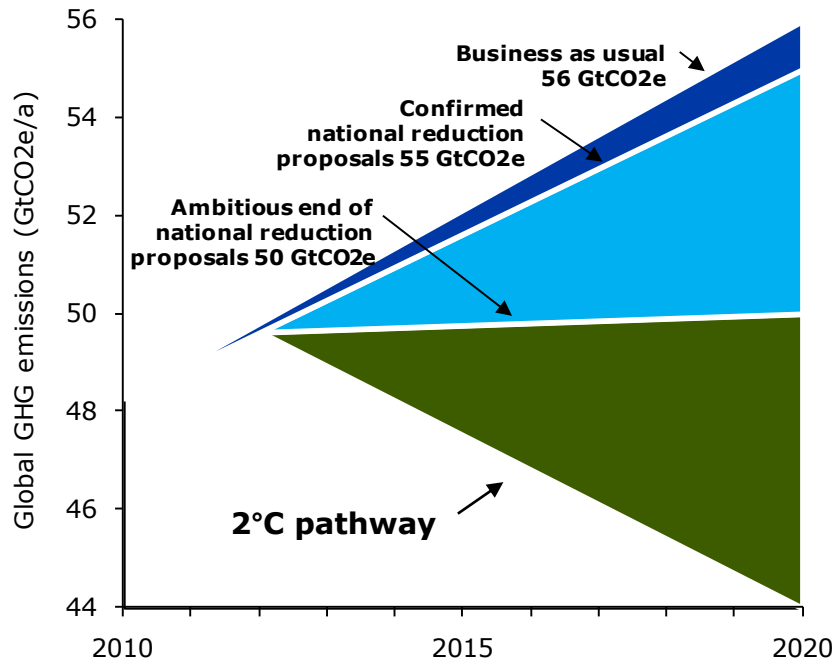
Simple view

Complex view



Source: Draft of IPCC Fifth Assessment Report

Wedging the gap: the Green Growth approach to global action on climate change



Blok et al 2012: Bridging the greenhouse gas gap, Nature Climate Change
<http://www.nature.com/nclimate/journal/v2/n7/full/nclimate1602.html>

Wedging the gap: the Green Growth approach to global action on climate change

Companies' emissions

Top-1000 companies emission reduction

Supply chain emission reductions

Green financial institutions

Voluntary offset companies

Other actors

Voluntary offsets consumers

Major cities initiative

Sub-national governments

Energy efficiency

Buildings heating and cooling

Ban of incandescent lamps

Electric appliances

Cars and trucks emission reductions

Energy supply

Boost solar photovoltaic energy

Boost wind energy

Access energy through low emission options

Phasing out subsidies for fossil fuels

Special sectors

Intl. aviation and maritime transport

Fluorinated gases initiative

Reduce deforestation

Agriculture

Methane and other air pollutants

Methane and other air pollutants

Efficient cook stoves

Blok et al 2012: Bridging the greenhouse gas gap, Nature Climate Change
<http://www.nature.com/nclimate/journal/v2/n7/full/nclimate1602.html>

Cooperative initiatives

- > **Energy efficiency** with significant potential, up to 2 GtCO₂e by 2020. It is already covered by a substantial number of initiatives. Focus and coherency is needed.
- > **Fossil-fuel subsidy reform** with varying estimates of the reduction potential: 0.4–2 GtCO₂e by 2020. The number of initiatives and clear commitments in this area is limited.
- > **Methane and other short-lived climate pollutants** as a mix of several sources. Reducing methane emissions from fossil-fuel production has received particular attention in the literature. This area is covered by several specific initiatives and one that is overarching.
- > **Renewable energy** with particularly large potential: 1–3 GtCO₂e by 2020. Several initiatives have been started in this area. Focus and coherency is needed.

Quelle: UNEP emissions gap report

<http://www.unep.org/publications/ebooks/emissionsgapreport2013/>



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Implications for the 2015 agreement

- > **Enable strong pledges:** Self-determined pledges alone unlikely to be sufficient for 2°C
- > **Incentivise *national* policies** to implement and overachieve pledges
- > **Support cooperative initiatives:** help actors other than national governments to intensify their efforts

Experience from the past on mitigation commitments

- > **Diverse:** Pledges are very diverse (economy wide targets to individual projects)
- > **Ambiguous:** Pledges often were ambiguous and had to be clarified
- > **2°C:** Some pledges are influenced ranges needed for 2°C
 - Norway -40%, Mexico and South Korea 30% below BAU, Japan -25%, ...
- > **National:** Some pledges are also primarily driven by national discussions
 - EU, USA, ...
- > **Unchangeable:** Pledges once made did not change
 - No major economy has changed its pledge of 2009, although the gap is widely accepted
 - Even countries that will over-achieve their pledge (new circumstances or more information) do not change it

Possible Elements of a 2015 Legal Agreement

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.



<http://www.iddri.org/>



Ambition

Joint goal of all Parties to **phase out** anthropogenic greenhouse gas emissions by 2050

Nationally proposed 2020-23 commitments

- Consistent with the phase-out goal
- Based on self-selected equity principle
- Technical review

See also: Höhne et al. 2013, Feasibility of GHG emissions phase-out by mid-century, <http://www.ecofys.com/files/files/ecofys-2013-feasibility-ghg-phase-out-2050.pdf>

Feasibility of a global GHG phase out goal

Sector	Current emissions (% of global total)	Main areas where technological options are available today or in the near future to reduce net GHG emissions	Remaining technical challenges
Industry	29%	Material and energy efficiency, fuel switch to electrification and sustainably sourced biofuels, CCS, no HFCs	No technological option currently available for some production processes (currently 6% of global emissions)
Buildings	18%	Zero emissions buildings (new and renovated), efficient appliances	Energy efficient renovation of existing building stock
Transport	15%	Smart urban areas, energy efficiency, modal shift to public transport and electric rail, electric and hybrid vehicles, sustainably sourced biofuels	Shifting to 100% biofuel use in air, water and freight road transport, extending range of electric vehicles
Energy supply	13%**	Renewable energy, nuclear, CCS Methane capture and reuse in fossil fuel production	Dependency on viability and infrastructure needs of CCS (some scenarios) Integration of renewables in the electricity grid
Land use change	15%	Stopping deforestation/ degradation Afforestation and reforestation	Conflicting demands for land (alternative land uses are often more profitable)
Agriculture	7%	Adoption of improved livestock and agricultural land management technologies Reduction of demand: food waste and loss, dietary changes	Reduction options provide some reductions but not to zero
Waste	3%	Stopping landfilling of organic waste Treating waste water	-

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

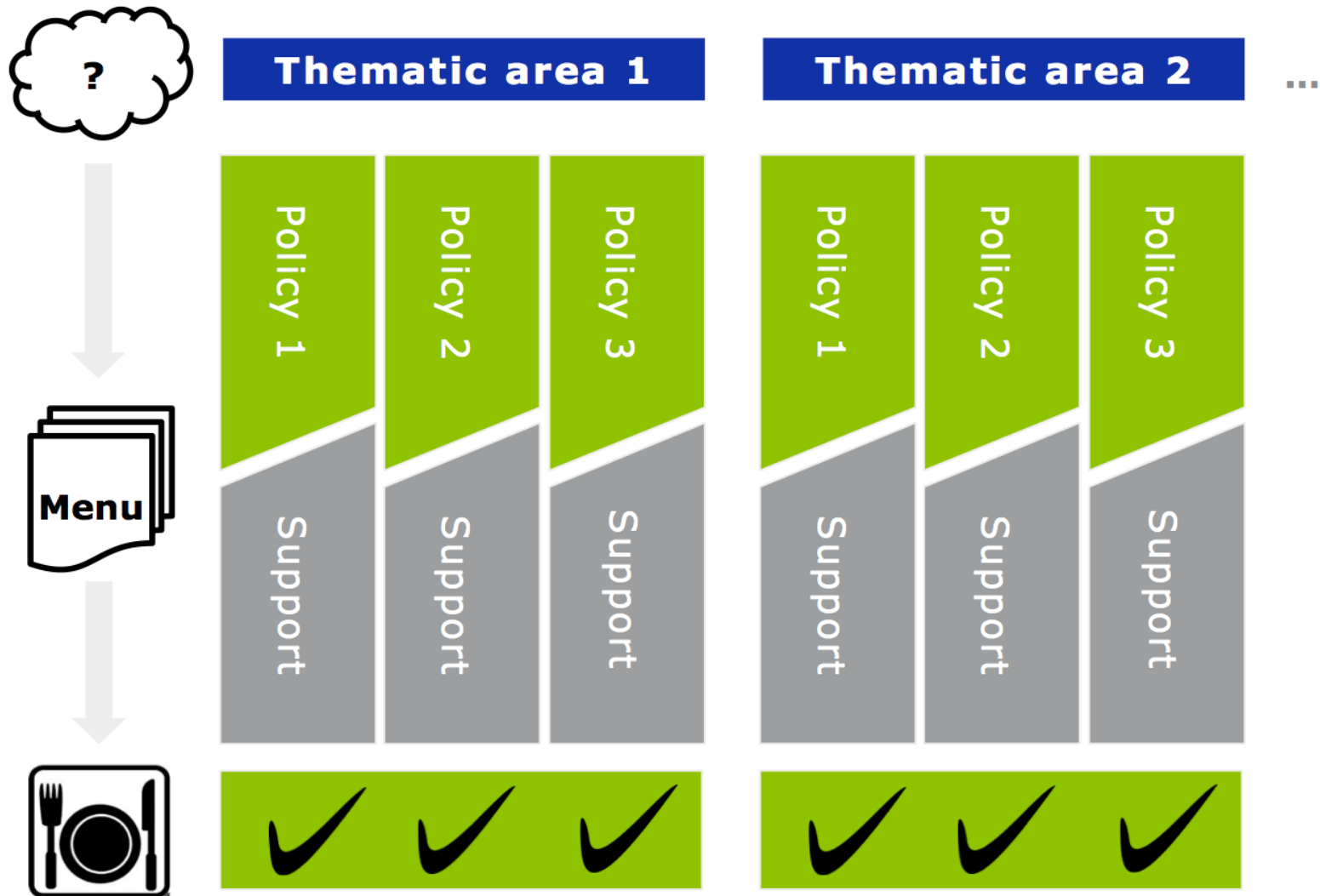
Implications for the 2015 agreement

- > **Enable strong pledges:** Self-determined pledges alone unlikely to be sufficient for 2°C
 - Strong global goal, e.g. phase out of GHG emissions by 2050
 - Regular technical and equity review of pledges and commitments
 - Accept offers as floor of ambition and increase ambition afterwards

- > **Incentivise *national* policies** to implement and overachieve pledges

- > **Support cooperative initiatives:** help actors other than national governments to intensify their efforts

Development of a best practice policy menu



Source: Ecofys, Towards a policy menu to increase greenhouse gas reduction ambition, draft

Implications for the 2015 agreement

- > **Enable strong pledges:** Self-determined pledges alone unlikely to be sufficient for 2°C
 - Strong global goal, e.g. phase out of GHG emissions by 2050
 - Regular technical and equity review of pledges and commitments
 - Accept offers as floor of ambition and increase ambition afterwards

- > **Incentivise *national* policies** to implement and overachieve pledges: Discuss and disseminate
 - Lessons learned with national policy making
 - Benefits and costs
 - Best practice policies
 - A policy menu

- > **Support cooperative initiatives:** help actors other than national governments to intensify their efforts by
 - Recognition
 - Comprehensive inventory and assessment of their impact
 - Possibly common rules for target setting and accounting

Thank you for your attention!

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