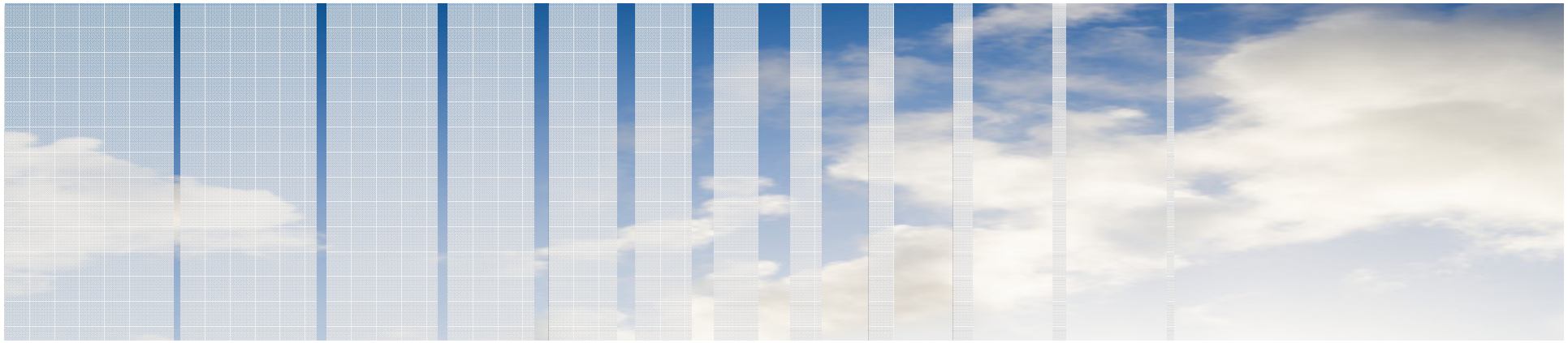
Netherlands Environmental Assessment Agency

Pledges and Actions

A scenario analysis of mitigation costs and carbon market impacts for developed and developing countries

Michel den Elzen, Angelica Mendoza Beltran, Jasper van Vliet



Key messages

- High pledges EU and Japan in line with the comparable effort reduction range. The reduction target of the US is above the reduction range.
- Russia and the Ukraine: above BAU (surplus AAUs)
- With emission trading, the total abatement costs for developed countries, by 2020, will be below 0.05% of GDP for pledges, and about 0.25% for comparable effort
- Without ambitious developed country targets and measures to limit use of surplus AAUs, there is an oversupply of carbon credits resulting in low carbon prices.

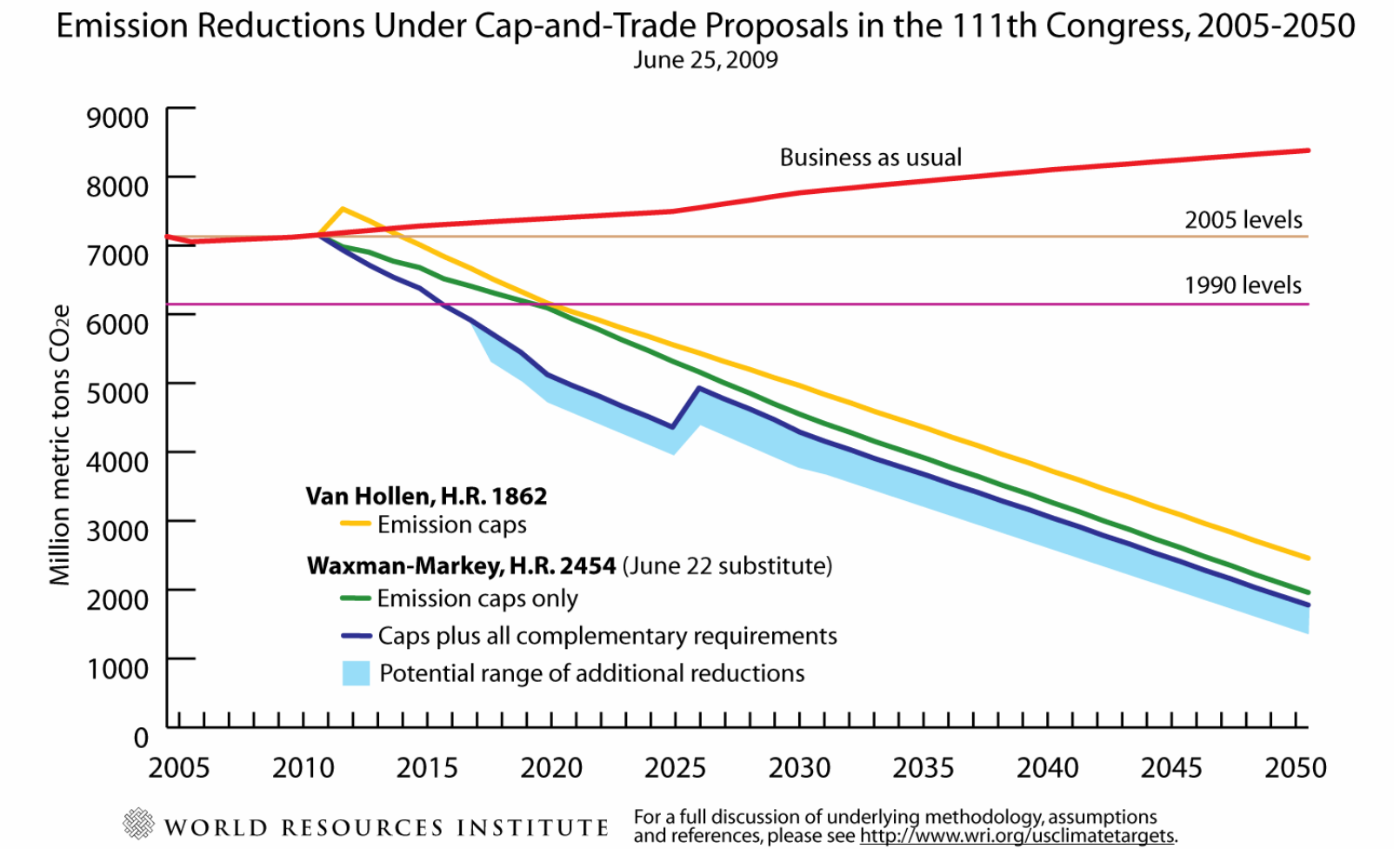
Outline Presentation: Questions

1. What is the total reduction of the Annex I pledges?
2. How ‘comparable’ are the pledges?
3. What are the implications for post-2012 carbon market?

Current pledges of Annex I countries lead to reductions of 12 to 18% below 1990 levels

	Emissions in tCO_2 eq		Low end		High end	
	1990	**2005**	**Relative to 1990**	**Relative to 2005**	**Relative to 1990**	**Relative to 2005**
Australia*	416155	529524	13%	–11%	–11%	–30%
Belarus	127361	75594	–5%	60%	–15%	52%
Canada	592281	734491	–3%	–20%	–3%	–20%
Croatia	32527	30561	6%	12%	6%	12%
EU 27	5572021	5153699	–20%	–14%	–30%	–24%
Iceland	3409	3709	–15%	–22%	–15%	–22%
Japan	1272056	1358065	–9%	–15%	**–25%**	–30%
New Zealand	61948	77354	–10%	–28%	–20%	–38%
Norway	49698	53800	–30%	–35%	**–40%**	–45%
Russian Federation	3326404	2123359	**–20%**	22%	**–25%**	13%
Switzerland	52800	53790	–20%	–21%	–30%	–31%
Ukraine	922013	425666	–20%	73%	–20%	73%
United States	6135243	7106638	**-3%**	–17%	**–3%**	–17%
Annex I total	18734206	18038941	**–12.5%**	–8%	**–18.5%**	–15%

Annex I reduction depends on assumed target for the US (7% below 1990, 20% below 2005)



- With additional US reductions up to 17-21%, Annex I reduction 23-24%

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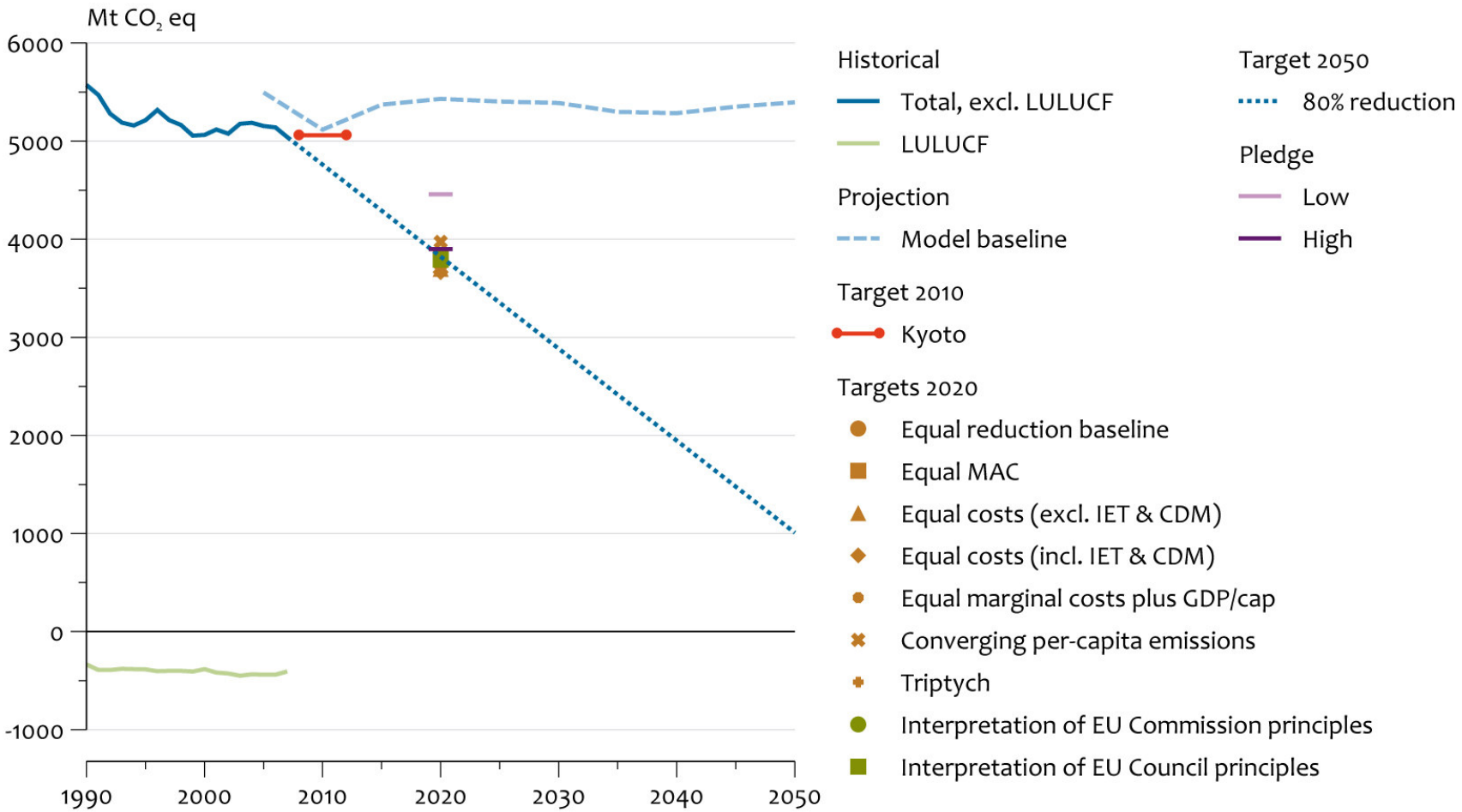
EU27: only high pledge is in line with comparable effort reduction

Greenhouse gas emissions of EU27



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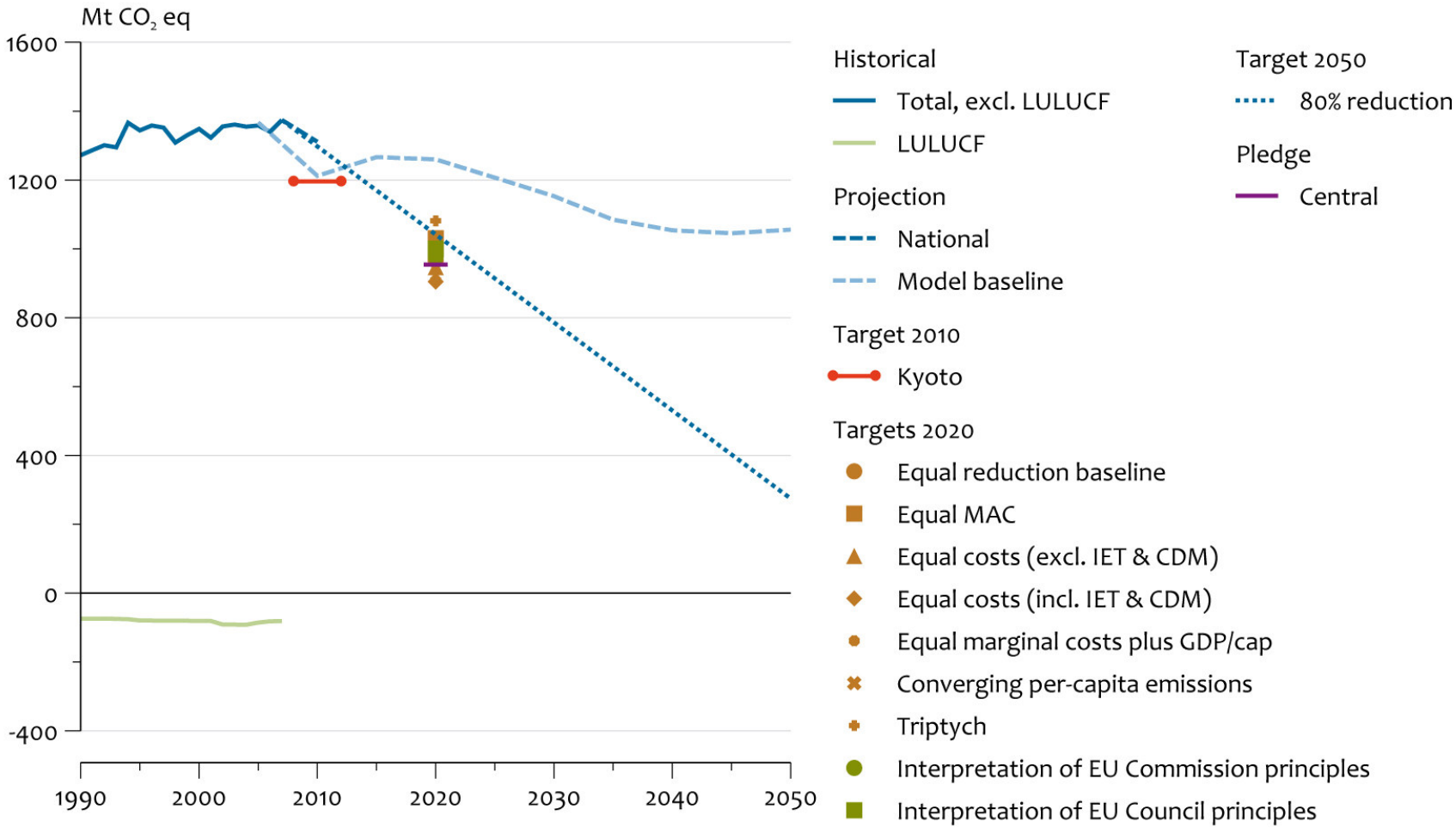
Japan: only high pledge is in line with comparable effort reductions. Rules LULUCF determine stringency

Greenhouse gas emissions of Japan



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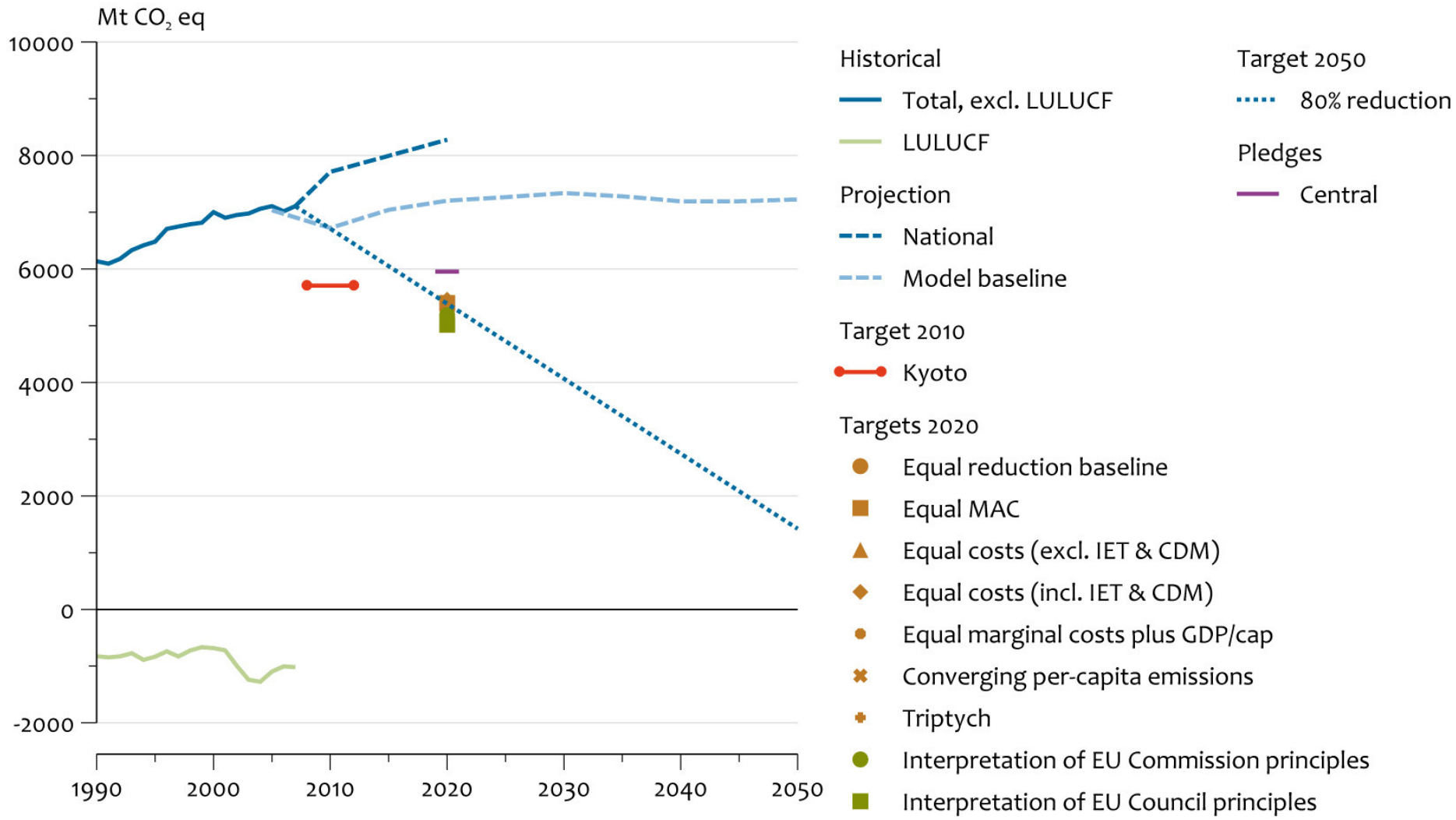
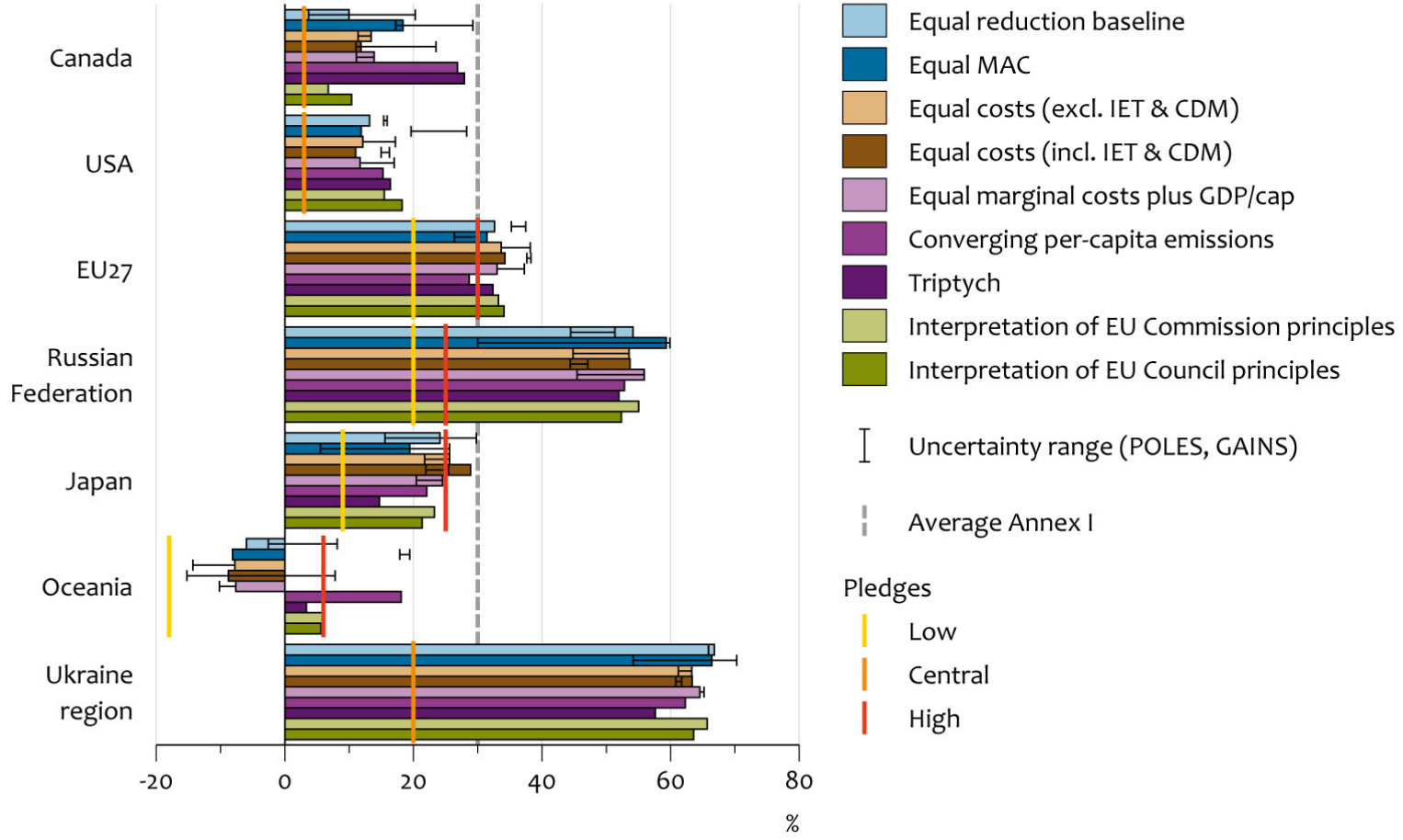
United States: ambitious pledge is too low, unless additional reductions are included

Greenhouse gas emissions of the United States



Pledges Canada, Russia, Ukraine are far below, US pledge is too low, only high pledges EU and Japan are in line

Greenhouse gas emission reduction targets 1990-2020, 30% Annex I comparable



Outline Presentation: Questions

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Three post-2012 climate policy scenarios

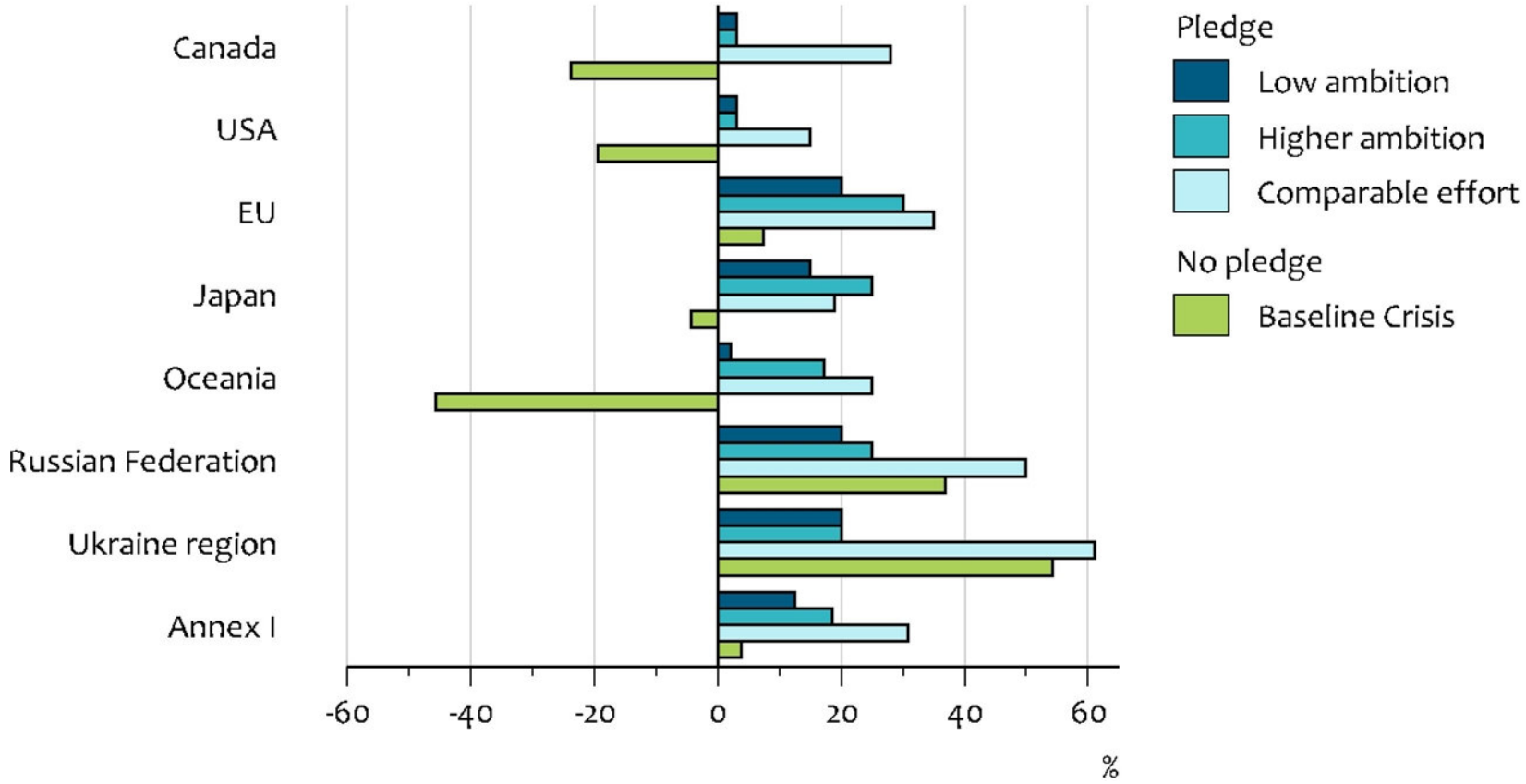
1. Low ambition scenario: **low pledge** for reduction by Annex I countries and low-ambition mitigation actions (NAMA) in non-Annex I regions (4% below BAU)

2. Higher ambition scenario: **high pledges** for reduction by Annex I countries and high-ambition mitigation actions in non-Annex I regions (8% below BAU)

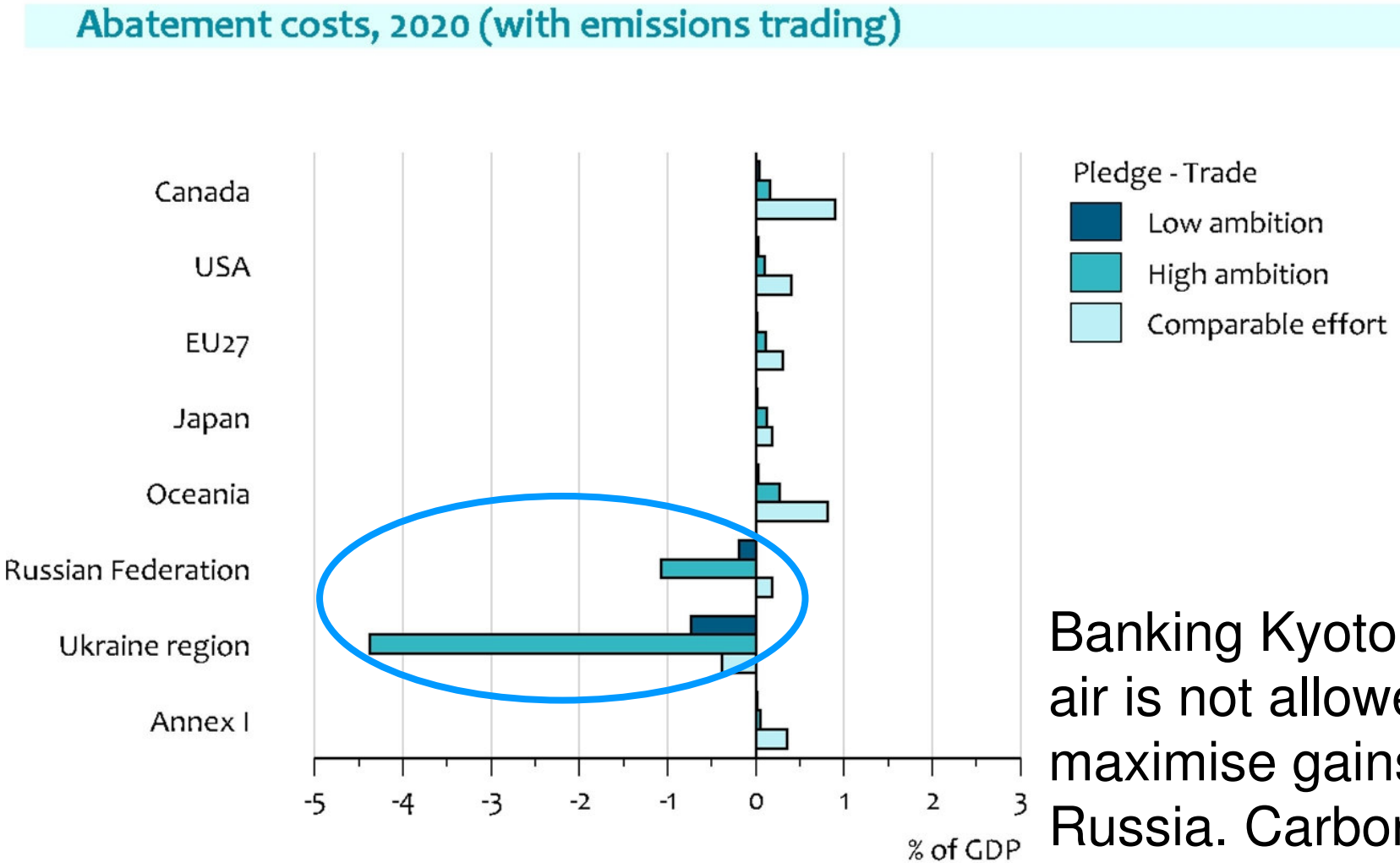
3. Comparable effort scenario: Annex I **30% below 1990** levels, and non-Annex I **15% below baseline** (BAU) emissions by 2020, to meet 450 ppm CO_2 eq (2 ^{o}C target)

Pledges Russia and the Ukraine lead to new hot air

Reductions compared to 1990 levels, 2020



Abatement costs A1, by 2020, below 0.05% of GDP for pledges, and 0.25% for comparable effort



Banking Kyoto hot air is not allowed to maximise gains of Russia. Carbon price is 4-24 USD

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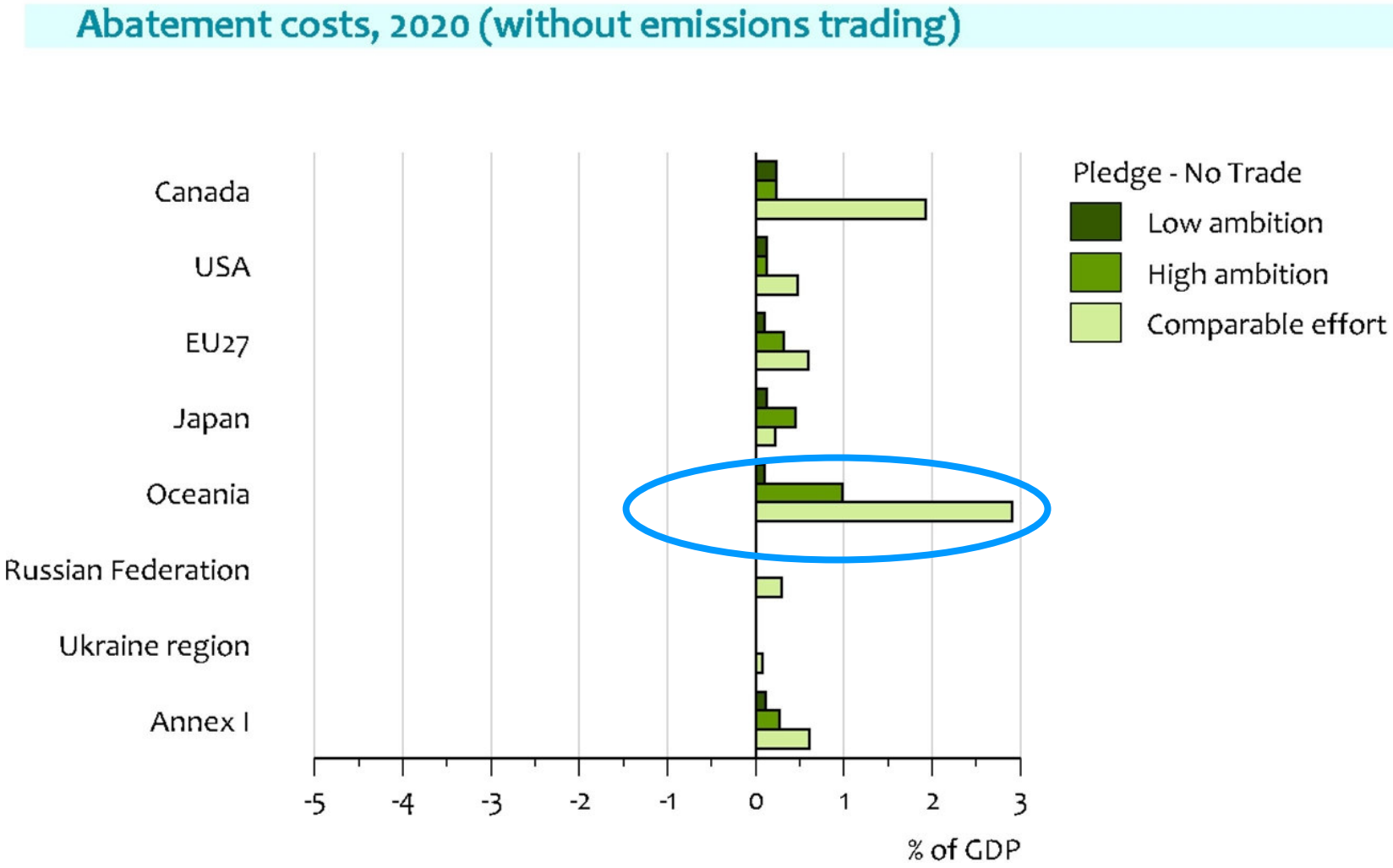
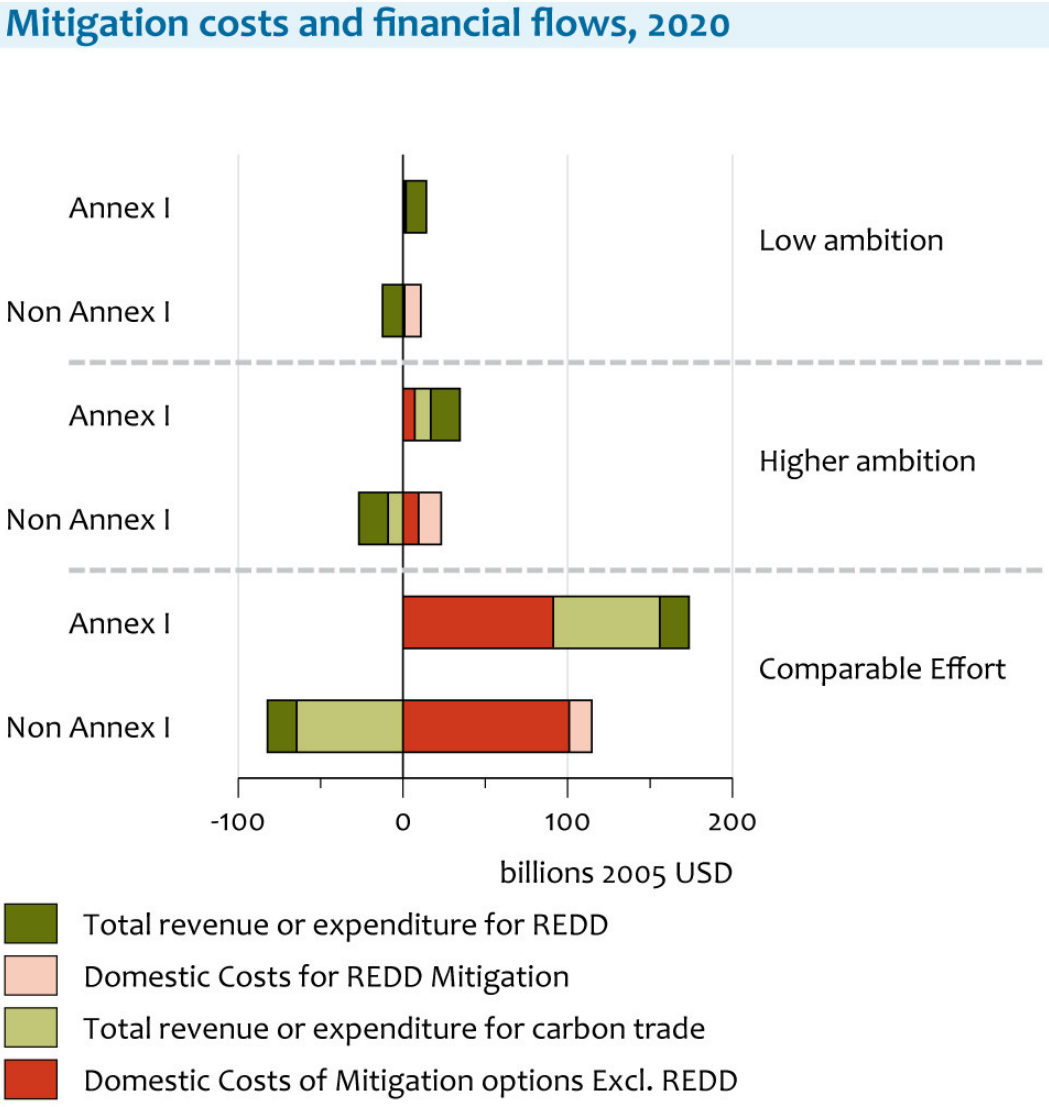
Without emission trading, total abatement costs increase by a factor of 4 to 10



Non-Annex I may gain from REDD (despite 20% own contribution) and carbon market revenues



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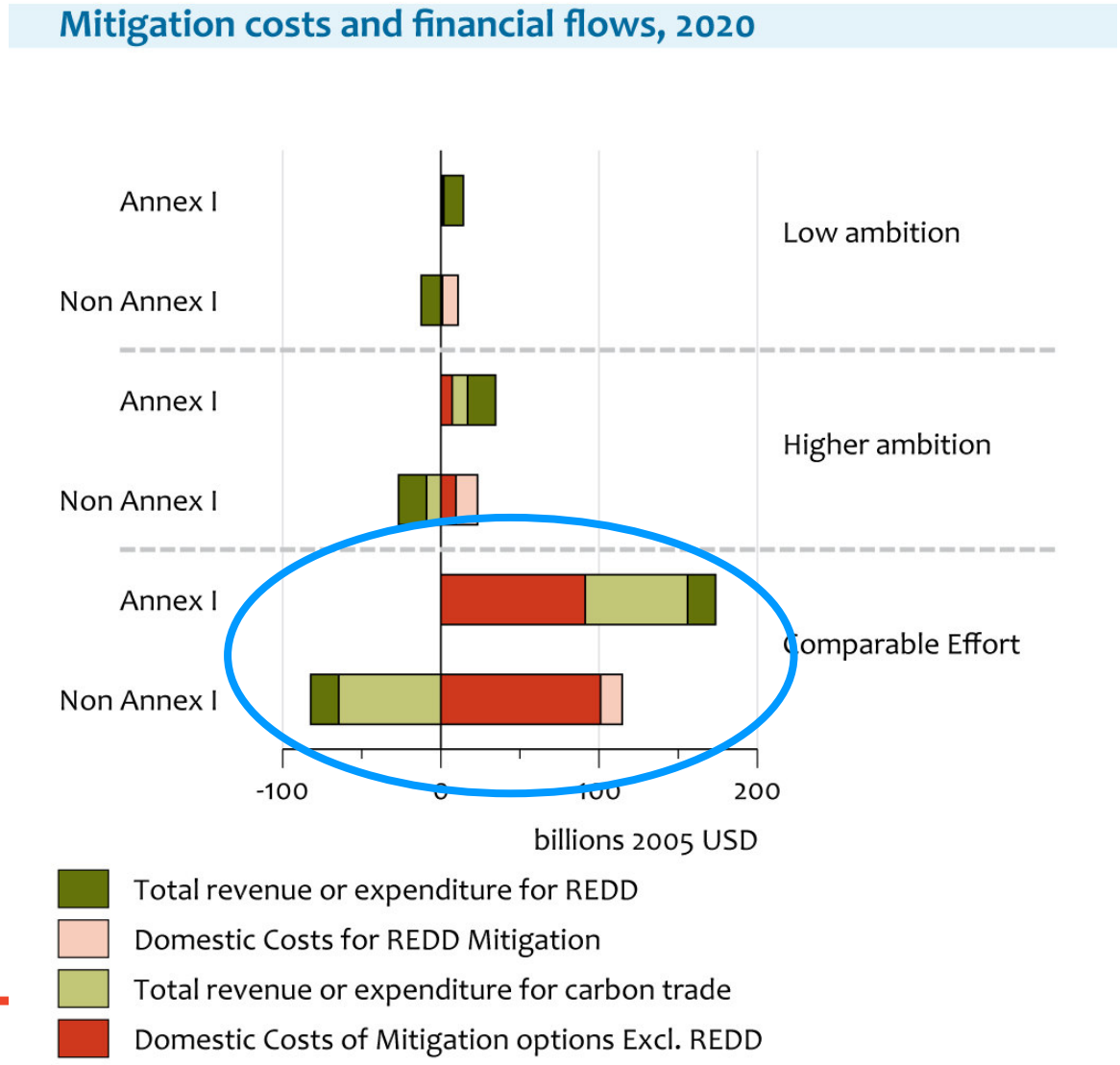

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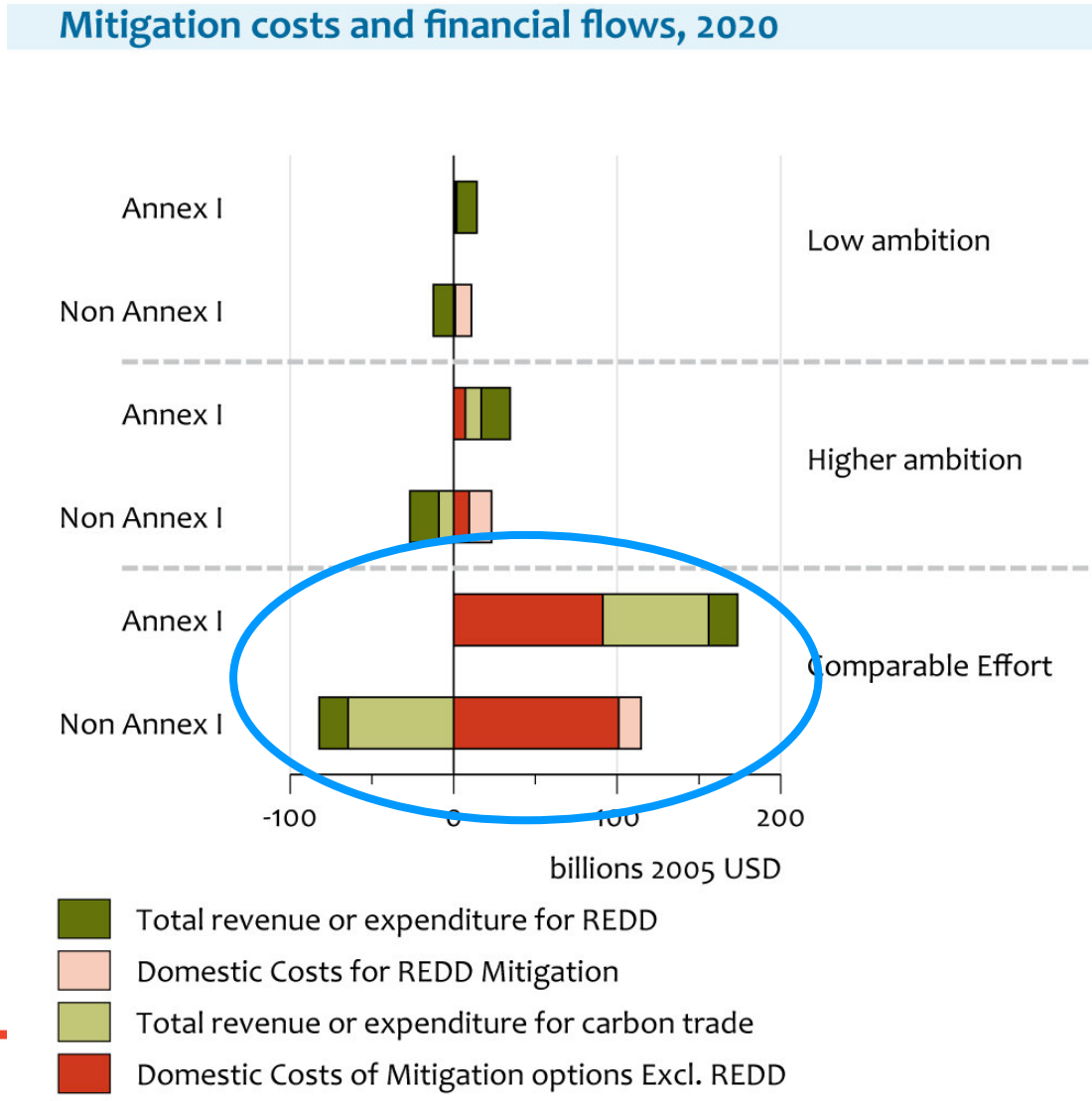
Non-Annex I may gain from REDD (despite 20% own contribution) and carbon market revenues



If Annex I countries would finance 80% of REDD activities in developing countries to halve emissions by 2020, costs would be around 13 to 18 billion USD /year, while non-Annex I earn 4 billion USD

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Conclusions (1)

- Japan in line with effort-sharing approaches. Rules on LULUCF will determine stringency
- For the EU, only the more ambitious pledge would be just in line with the comparable-effort reduction range
- For the United States, high pledge is above reduction range, unless REDD-financed reductions are taken into account
- Canada's pledge is above the least-ambitious results
- Russia and the Ukraine: above BAU (new hot air)

Conclusions (2)

- Present pledges (12 to 18%) are insufficient to meet 2 °C target
- With emission trading, total abatement costs for Annex I countries, by 2020, below 0.05% of GDP for pledges, and about 0.25% for comparable effort
- Without emission trading, costs would increase by a factor of 4 to 10
- Without ambitious developed country targets and measures to limit use of surplus AAUs, there is an oversupply of carbon credits resulting in low carbon prices
- There are high revenues for Russia and the Ukraine

PBL report

Sharing developed countries' post-2012 greenhouse gas emission reductions based on comparable efforts

Den Elzen, Höhne, Hagemann, Van Vliet and Van Vuuren, PBL/ECOFYS report

see: **www.pbl.nl\cop15**

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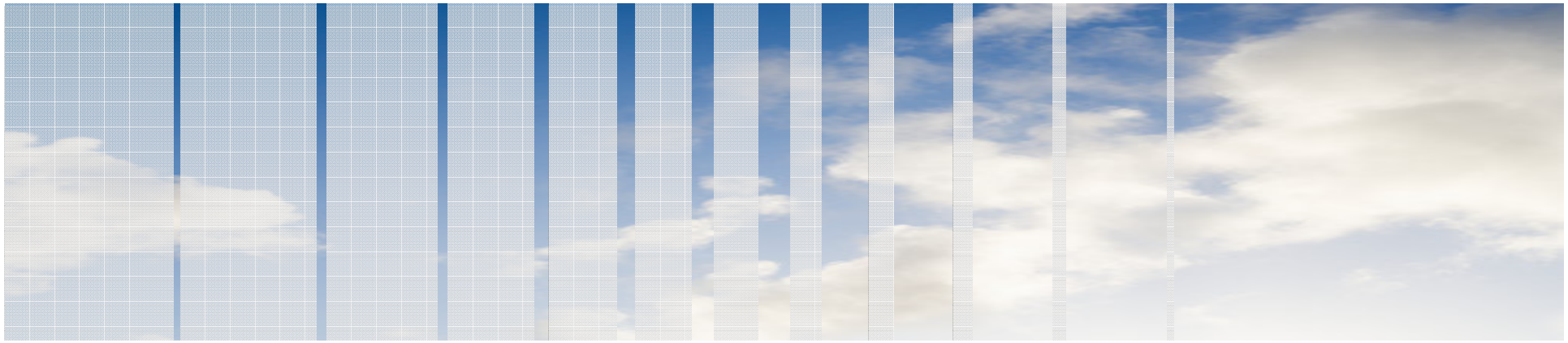

Back-up slides

Annex I reduction may be 5 to 13% or 14 to 21%, including or excluding all surplus AAUs

Impact Hot air

1. Default (Kyoto hot air excluded)	**11 – 19%**
2. All hot air included	**5 – 13%**
3. All hot air excluded	**14 – 21%**

Starting point for all: reference emissions

Impact US target

4. US 17 or 21% reduction & all hot air excl.	**14 – 24 or 26%**