



Netherlands Environmental Assessment Agency

Exploring comparable post-2012 reduction efforts for Annex I countries

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Outline presentation



- 1. Defining ‘comparable effort’**
- 2. Methodology**
- 3. Analysis**
- 4. Conclusions**

What is “comparable effort”?

- In 2007, the EU adopted a 30% reduction objective by 2020 compared to 1990 levels within a future international climate agreement, provided that other developed countries commit themselves to **comparable emission reductions**
- Bali Action Plan on mitigation efforts for developed countries: “Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions, including quantified emission limitation and reduction objectives, while ensuring the **comparability of efforts** among them, taking into account differences in their national circumstances;
- Basic idea: equal treatment of equal countries, i.e. countries in similar circumstances should make similar contributions
- Questions: What are indicators for comparing commitments amongst countries? What national circumstances should we take into account?

Indicators for Considering Comparability

- Two conceptual approaches for “comparable efforts” :
 - **Equal effort:** based on country’s sharing the effort or burden according to a defined indicator (e.g., equal % reduction or equal cost).
 - *Efforts are needed to change the current state or to change a likely baseline or reference development*
 - *For example, equal reduction below BAU, equal MAC and equal costs as %-GDP*
 - **Equal endpoint:** the countries’ effort is based on achieving the “*same state in the future*”
 - *For example, equal emissions intensity per sector, or per capita emissions, Triptych.*

Advantages & Disadvantages Equal effort vs. equal endpoint

Equal effort

Advantage:

- Each country's effort is the same as defined by the indicator

Disadvantages:

- Based upon a baseline scenario which can never be actually proven
- Many current differences in lifestyle are assumed to remain in the future (e.g., countries with big cars have *more efficient* big cars)
- Doesn't account for past actions

Equal endpoint

Advantages:

- No baseline scenario is not required.
- Actions in the past are acknowledged.

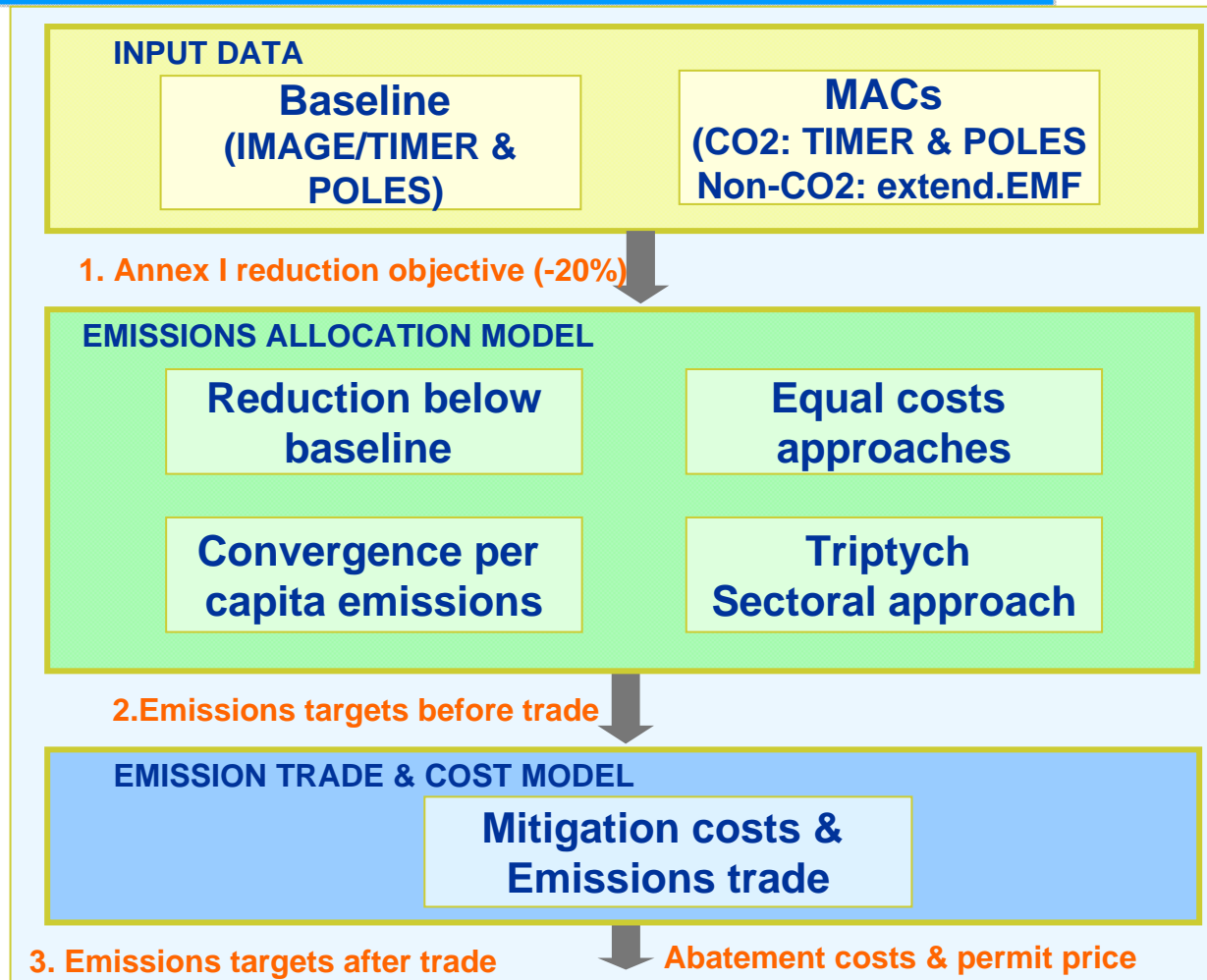
Disadvantages:

- May be difficult to find an appropriate indicator
- Does not account for structural differences between countries that cannot easily be overcome, e.g. the access to renewable energy resources.

List of indicators, **selected** for further analysis (CCAP)

Equal burden	Representation of efforts	Technical feasibility
Proportional to simple criteria for differentiating reductions below base year (e.g. GDP/cap)	Low	High
Equal % reduction below a reference scenario	Medium	Medium
Equal marginal abatement costs	Medium	Low
Equal total abatement costs per GDP	Medium	Low
Equal per capita emissions at an endpoint	Medium	High
Achieving equal efficiency levels per sector	High	Low
Triptych approach	High	Medium

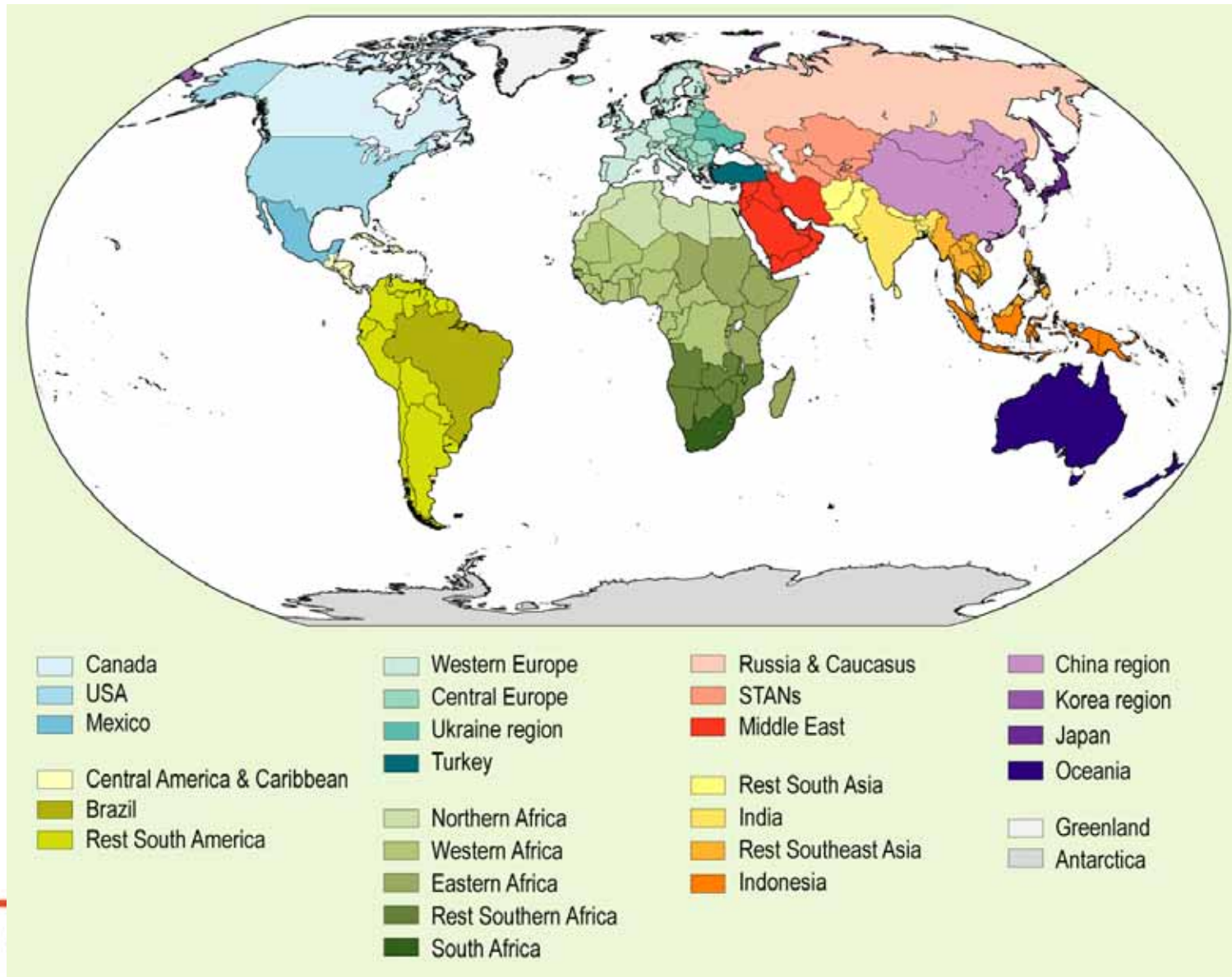
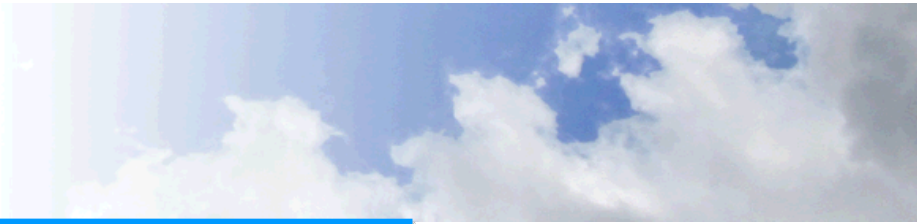
The FAIR model: to analyse post-2012 climate mitigation regimes



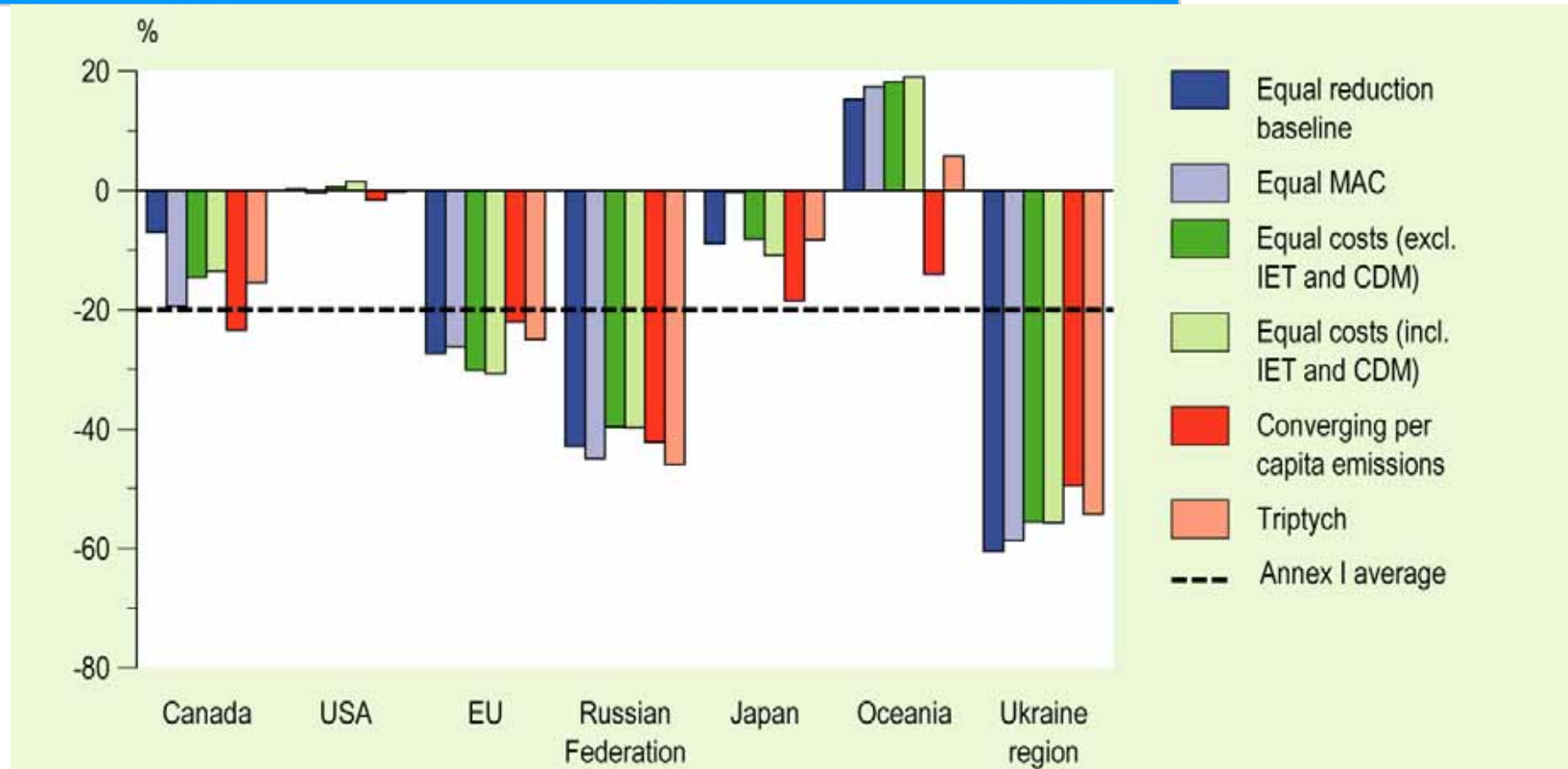
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Abatement costs do not include macro-economic effects and gains of ancillary benefits

Regions in FAIR 2.2 model



Reduction Compared to 1990 Levels, Annex I -20%

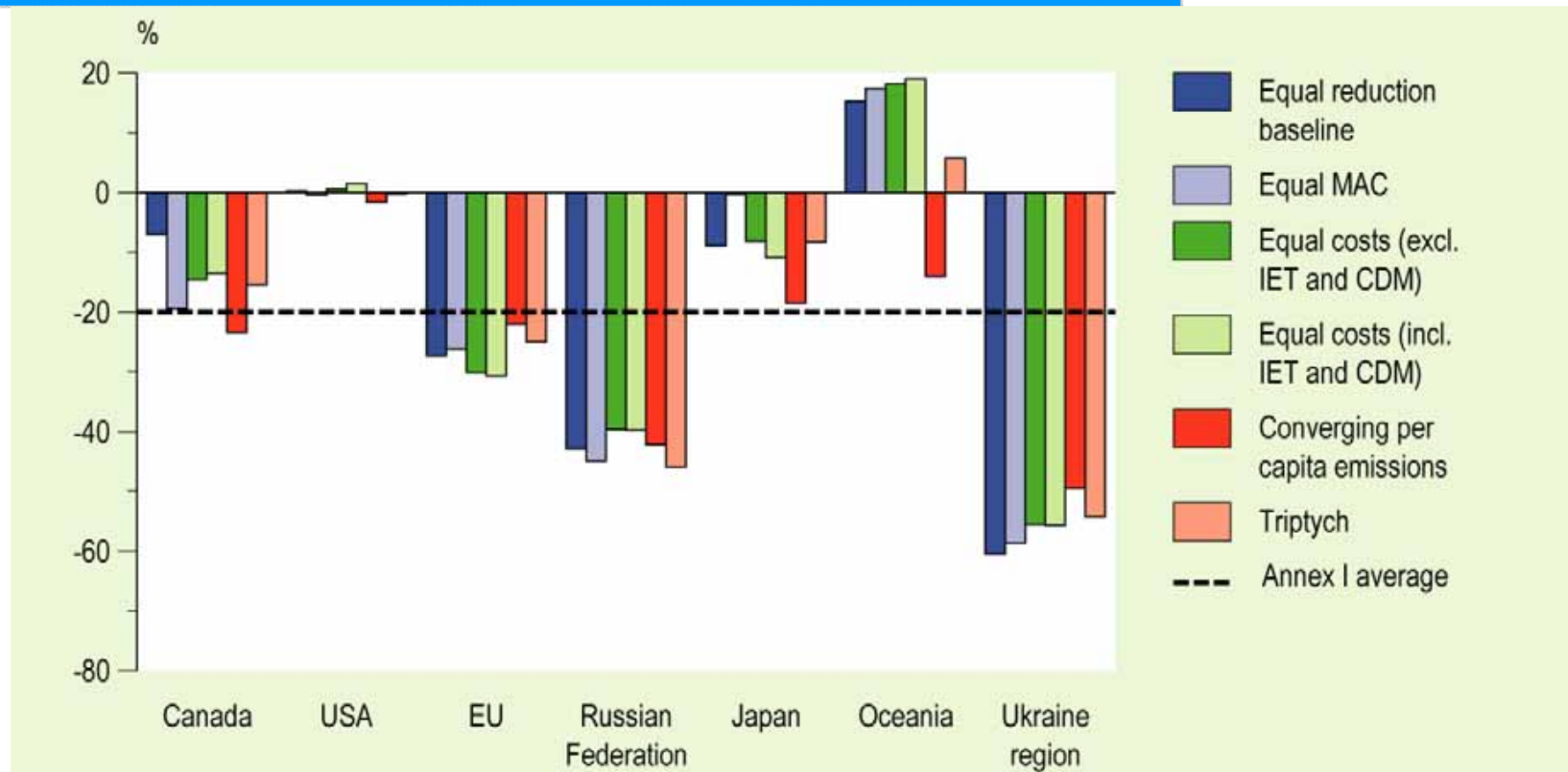


- Red. below BAU less stringent for countries with high growth (USA, Canada)
- Equal MAC less stringent for countries with little mitigation options (Japan)
- Equal costs as %GDP similar as equal MAC, except GDP. Low GDP Russia leads to low reductions, whereas high GDP Japan, EU lead to high reductions

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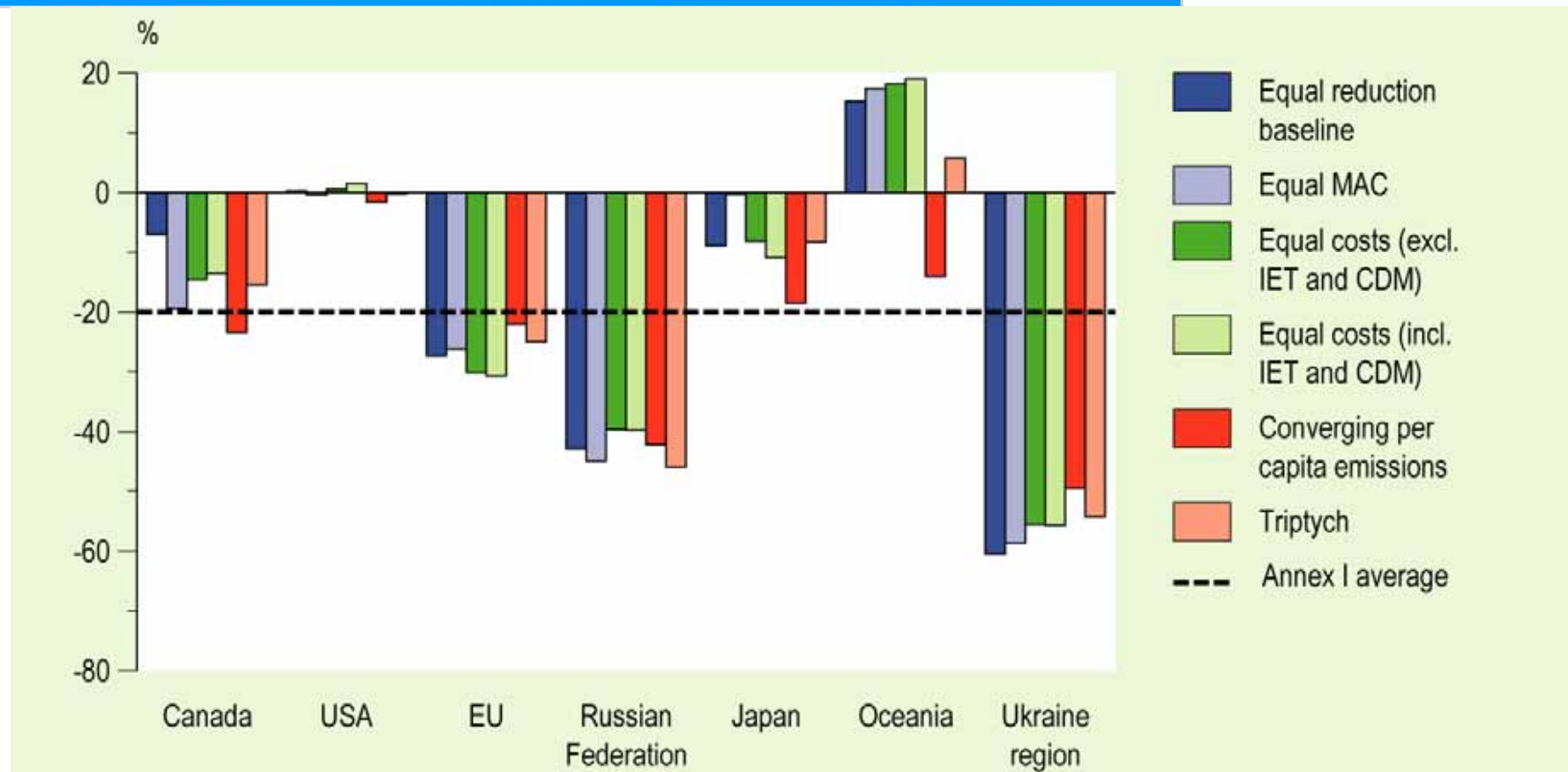
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Reduction Compared to 1990 Levels, Annex I -20%



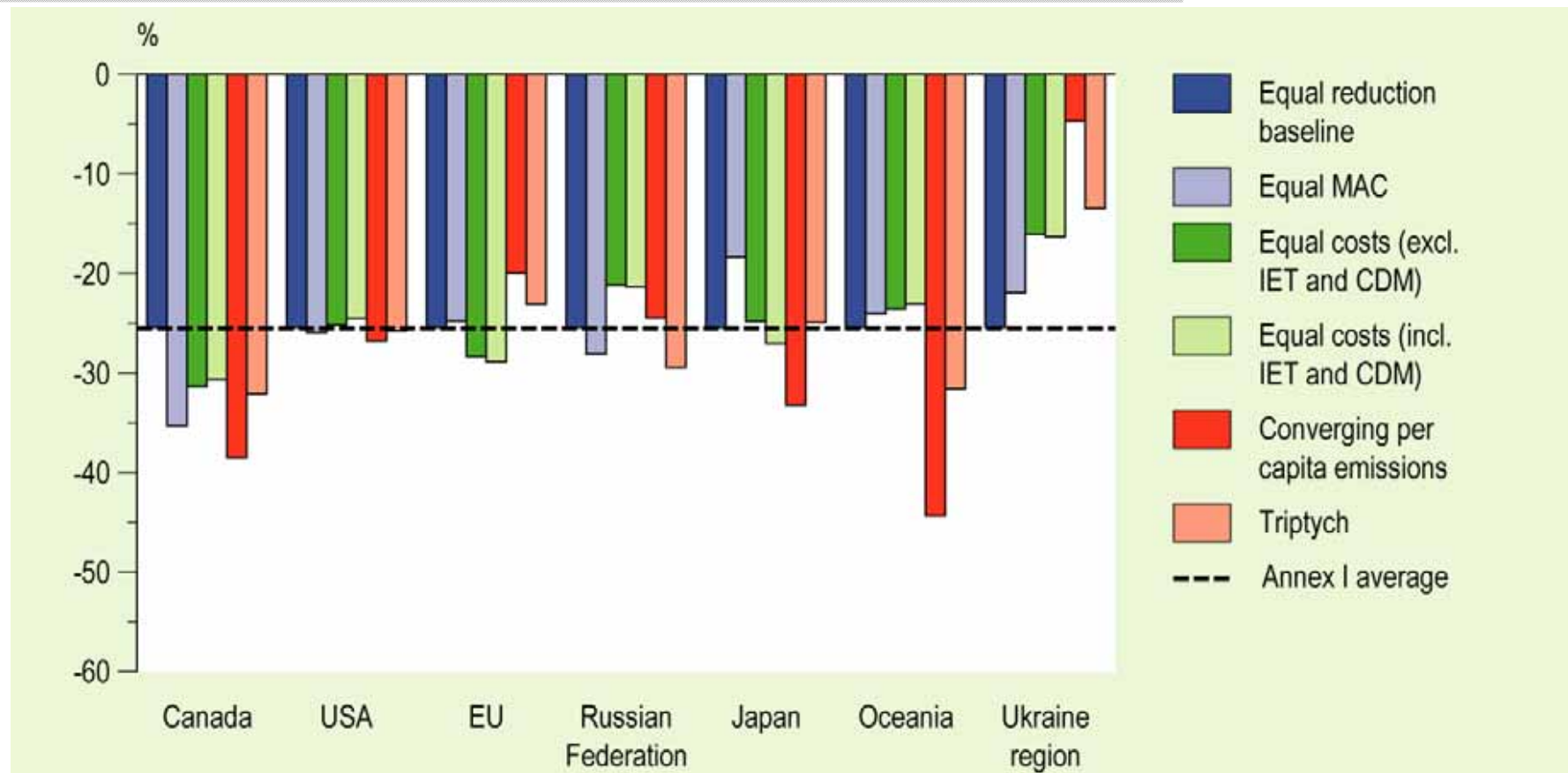
- Equal costs (incl. trade) moves reductions outside (e.g. for JPN)
- Equal per capita emissions less stringent for countries with low per capita emissions (EU, Japan)
- Triptych less stringent for more efficient countries (EU, Japan)

Reduction Compared to 1990 Levels, Annex I -20%



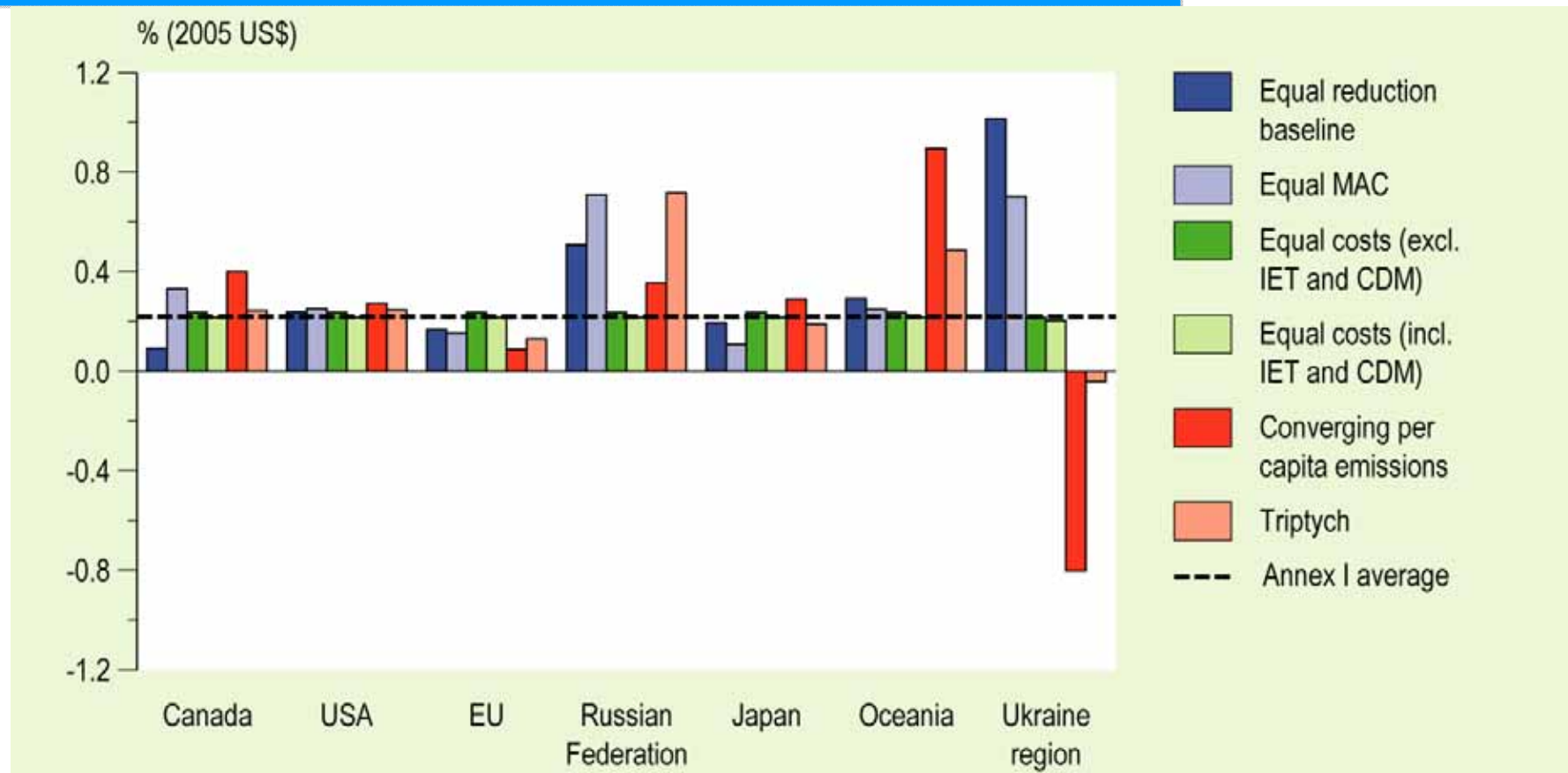
- Highest reductions below 1990 for Russia and Ukraine, but not to BAU
- Next, the EU, as emissions has levelled off, followed by Canada and Japan
- USA return 1990 level when starting from their national target in 2010 and not from their Kyoto target! We assume Canada starts at Kyoto target.

Reduction Compared to BAU, Annex I -20%



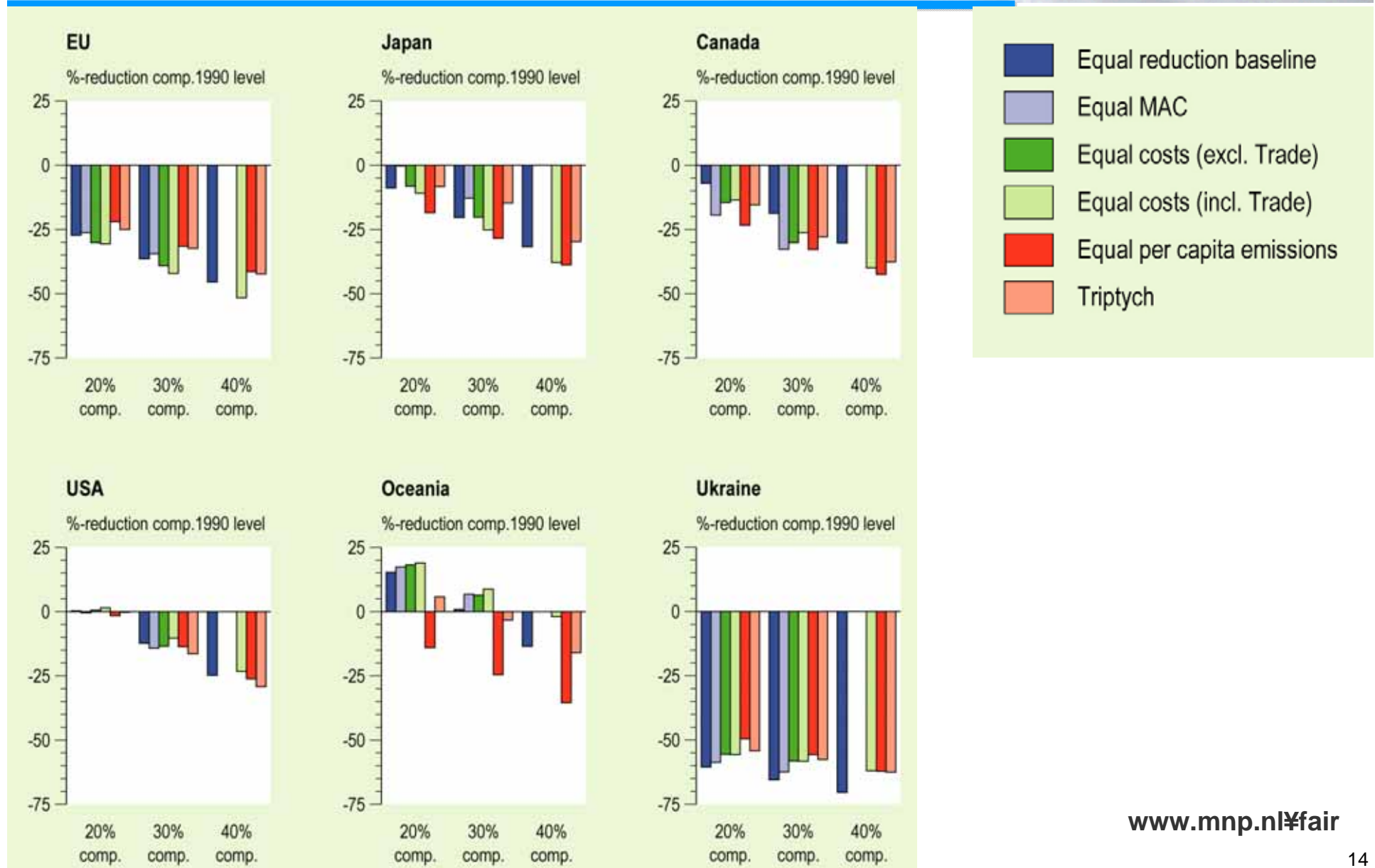
- Range of Annex I reductions compared to baseline levels is less (except for Ukraine)

Abatement Costs as % of GDP, Annex I -20%

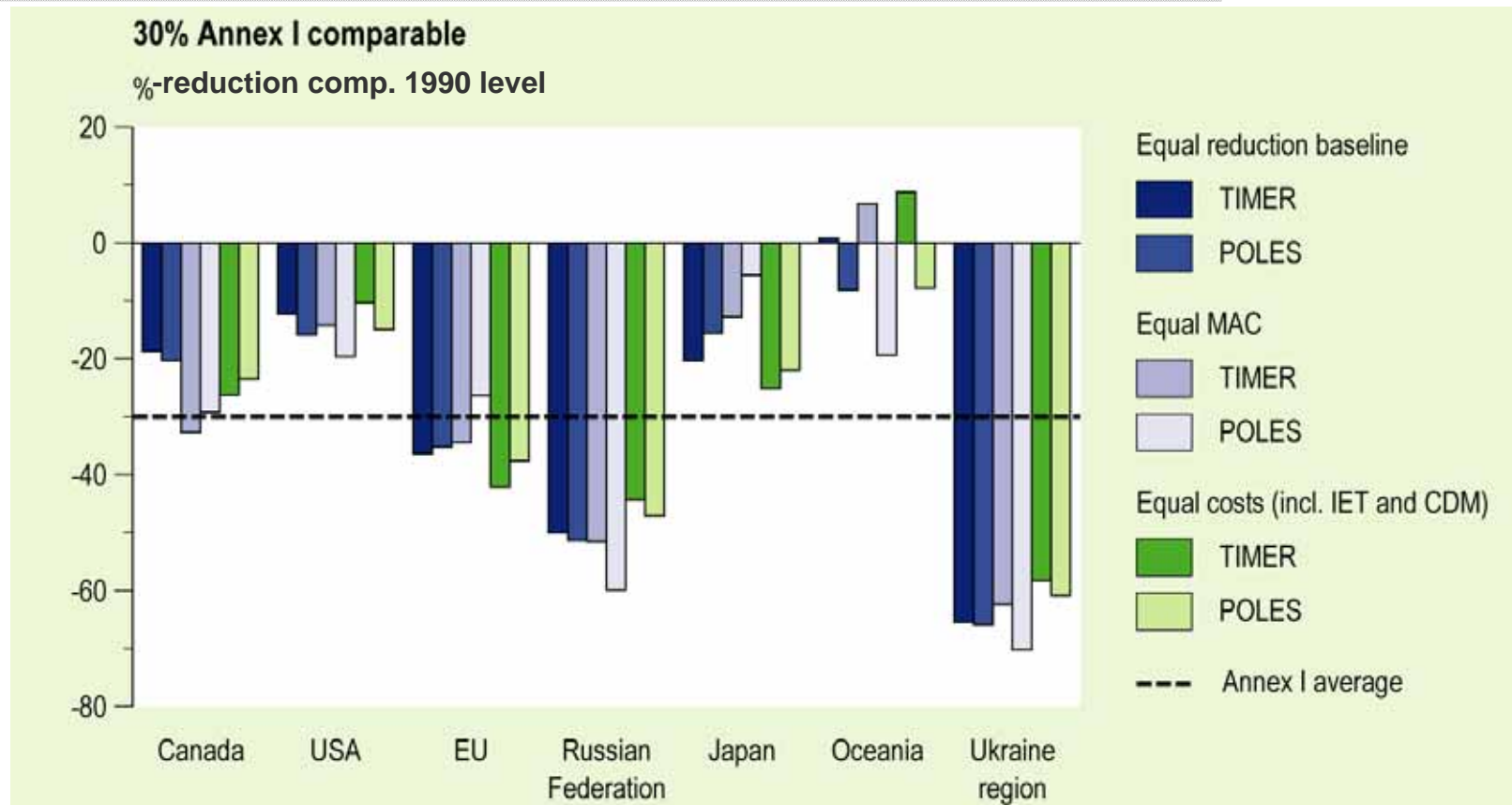


- The abatement costs (as percentage of GDP) also show a wide range again, in particular for Triptych and Converging per capita emissions

The choice of the overall Annex I reduction level (20%, 30% or 40%) is of major importance

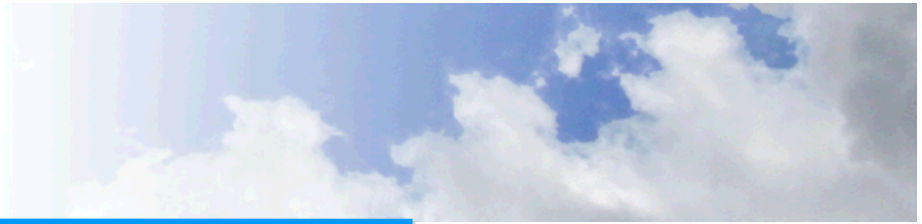


The reductions dependent on the assumed Marginal Abatement Costs curves



- Reductions by the EU of at least 30% combined with comparable reduction efforts by other Annex I countries and concrete support by developing countries to keep emissions substantially below baseline (about 15–30%) are sufficient to secure the EU 2 ° C target

Conclusions



- Many indicators potentially available to assess “comparability”
 - Each has pros and cons
 - Equal costs as %-GDP interesting as it accounts the ability to pay principle (GDP) and reduction potentials
 - Equal effort indicators do not account for past action
- Under quantitative results:
 - Compared to 1990: the EU takes the lead (25-30% reduction compared to 1990 levels), the USA has lower reductions (return to 1990 levels)
 - The choice of the overall Annex I reduction level (20%, 30% or 40%) is of major importance
 - Reductions by the EU of at least 30% combined with comparable reduction efforts by other Annex I countries and concrete support by developing countries to keep emissions substantially below baseline (about 15–30%) are sufficient to secure the EU 2 ° C target
 - The reductions and costs of the approaches are dependent on the many assumptions on parameter settings, baseline and MAC curves used

Thank you for your attention



Report (will be available soon):

- den Elzen, M.G.J, Höhne, N., van Vliet, J. and Ellerman, C., 2008. Exploring comparable post-2012 efforts for Annex I countries, MNP Report 500102019/2008, Netherlands Environmental Assessment Agency, Bilthoven, the Netherlands.
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