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Results of the GAINS analysis

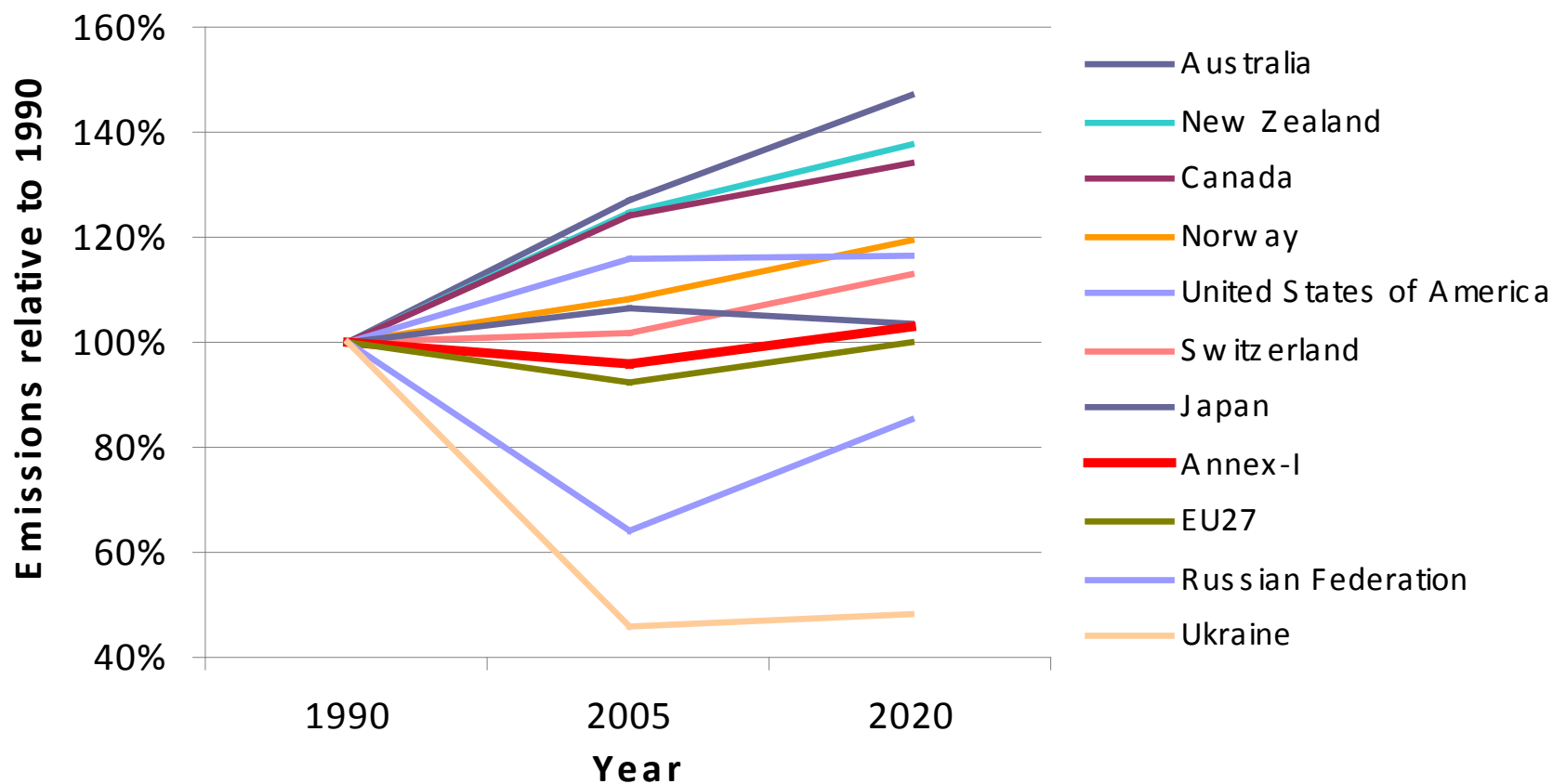
(excl. LULUCF)

Overview:



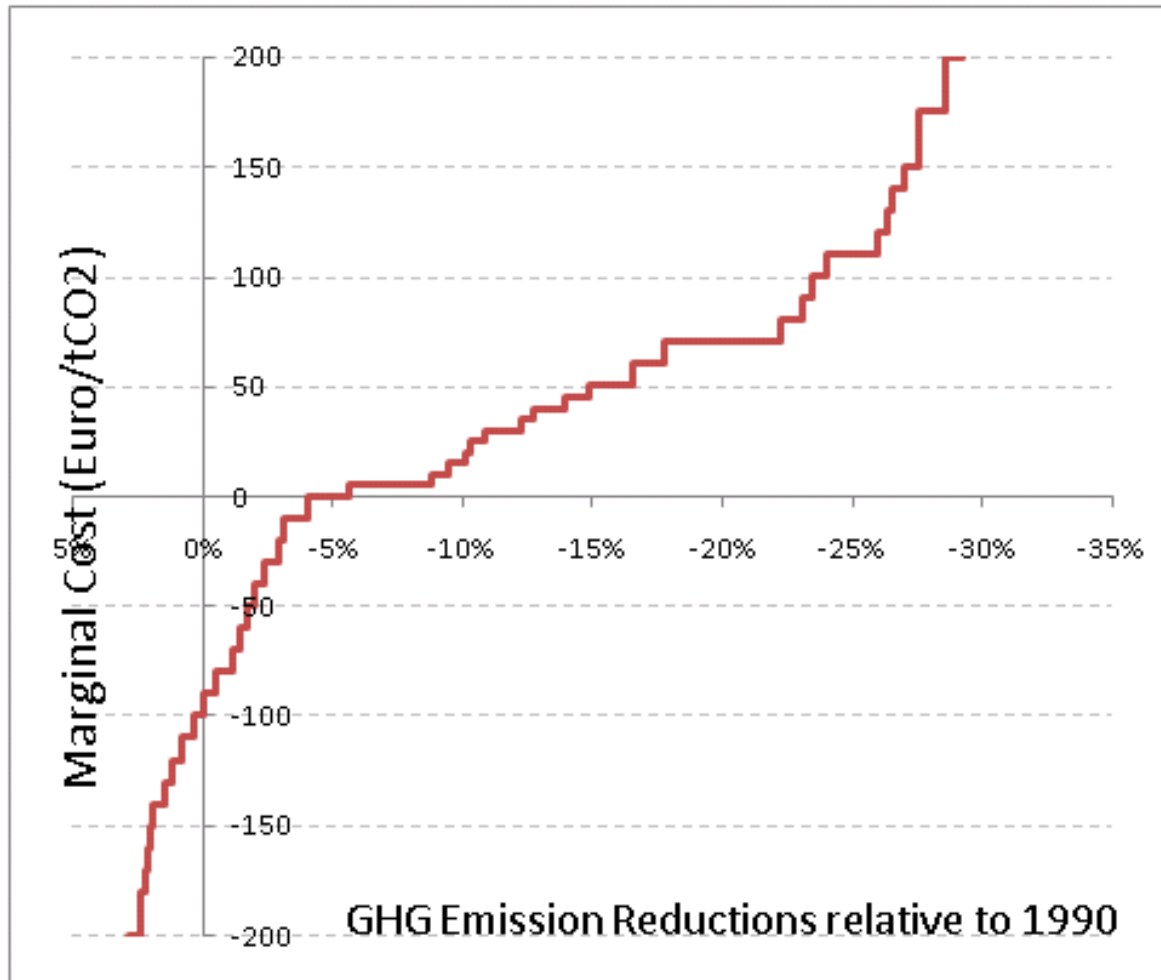
1. Marginal costs and total costs
2. The role of non-CO2 gases
3. Co-benefits
4. Sensitivity studies (our homework)
5. Conclusions

Baseline GHG emissions projections



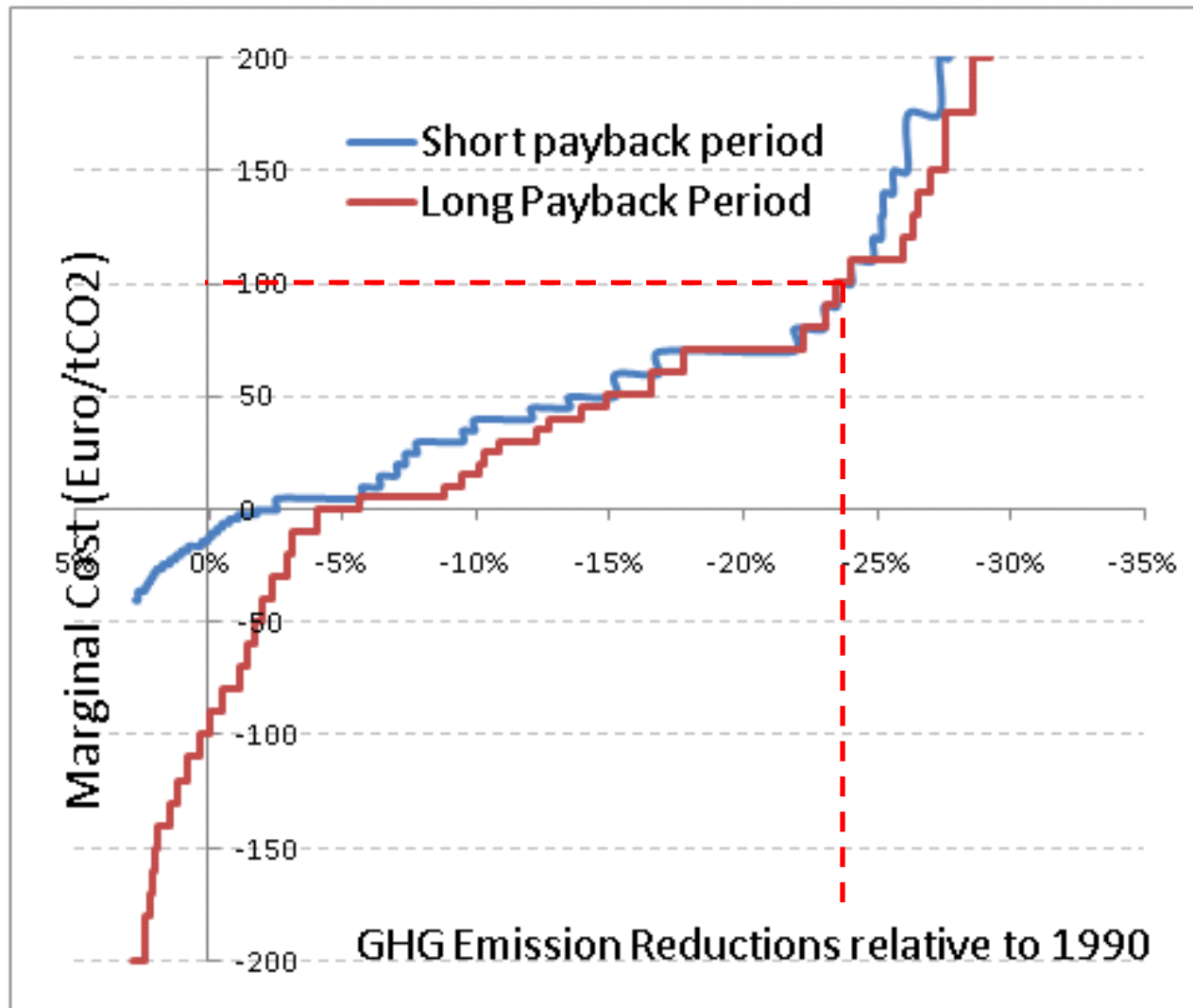
Analysis not completed yet for: Belarus, Croatia, Liechtenstein, Monaco, Turkey

Marginal cost curve: Annex 1 - 2020

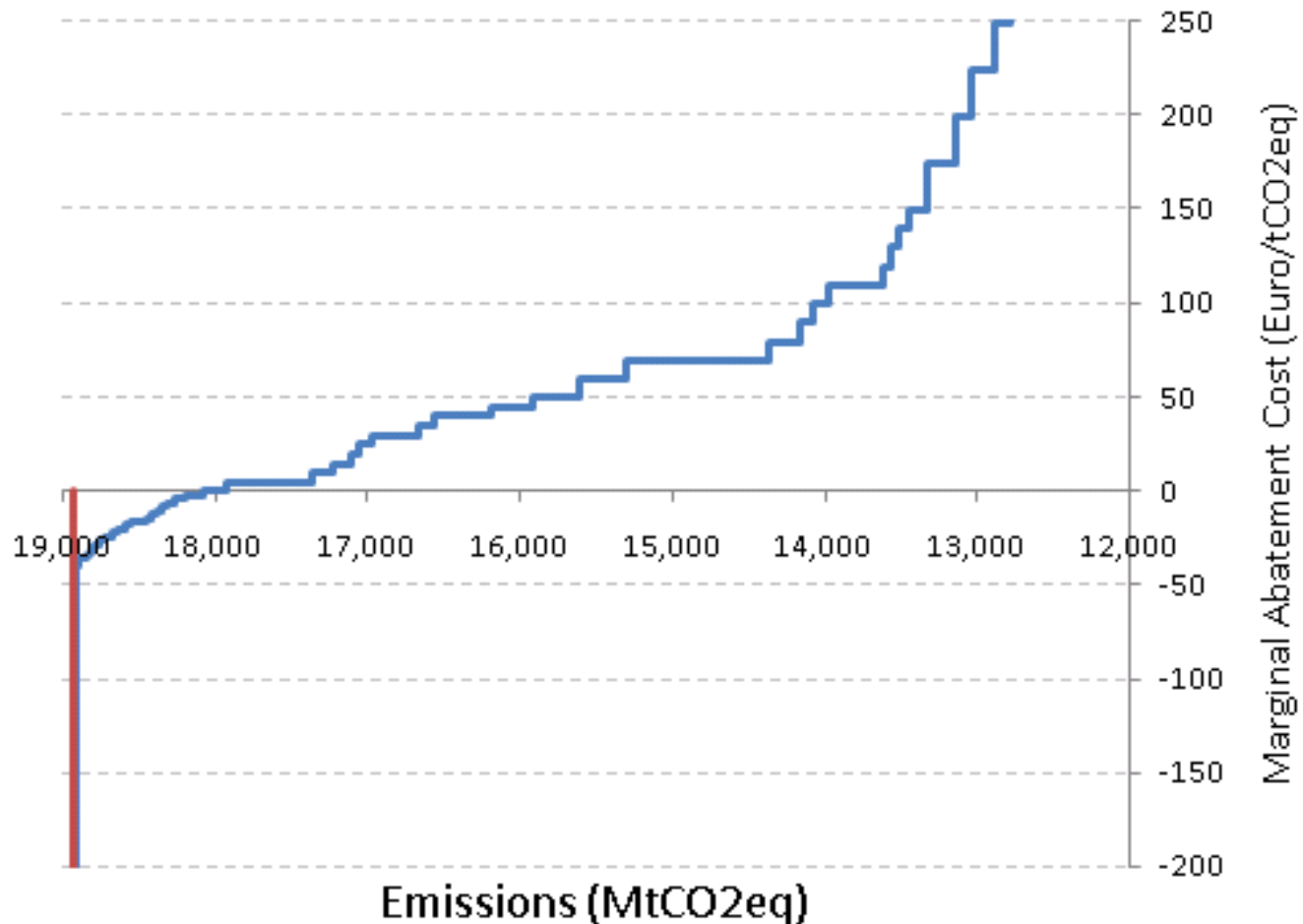


- Pure technology costs
- Payback period = Lifetime
- Interest rate: 4%

Shorter payback periods are used to calibrate

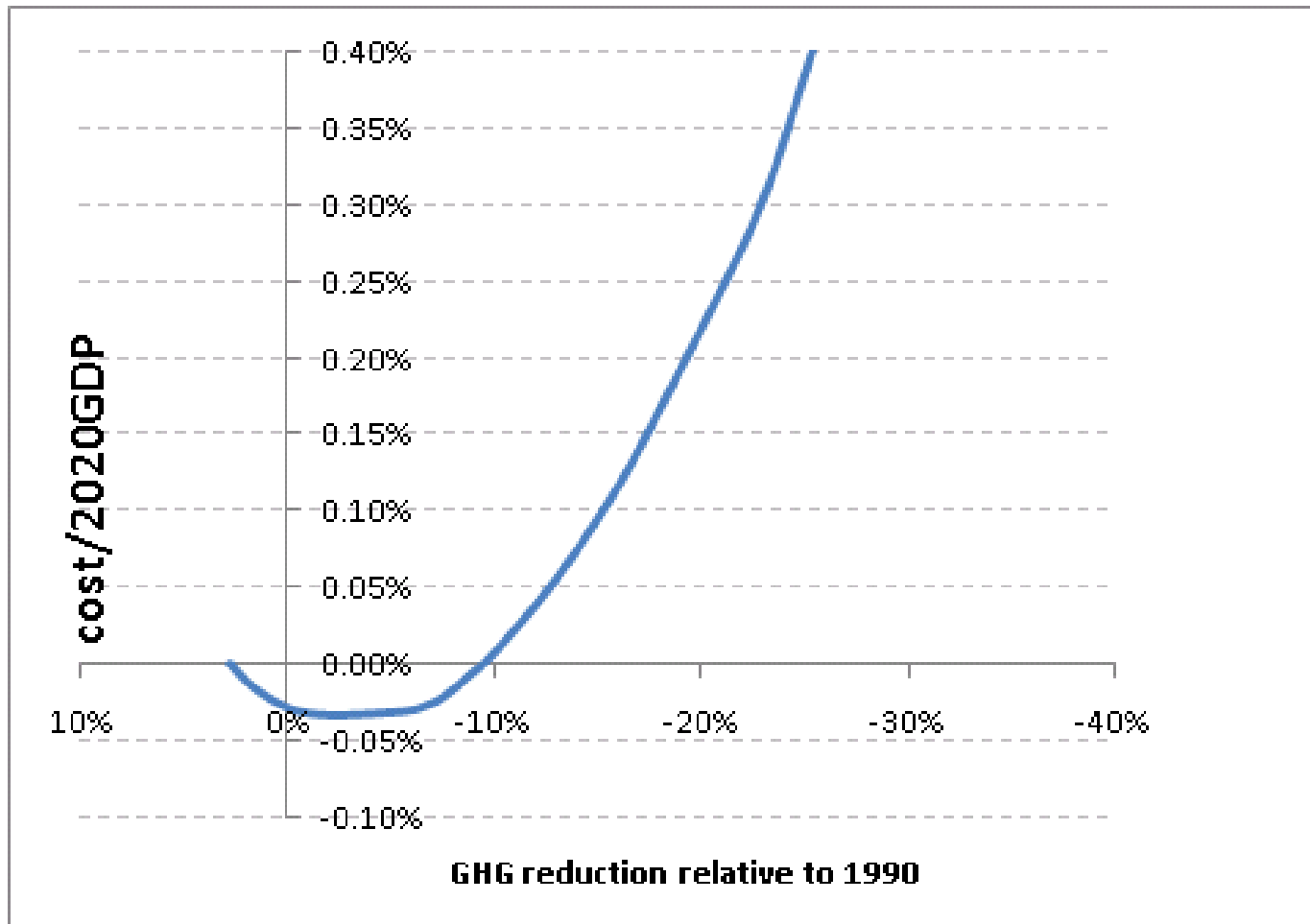


Annex I* - 2020 marginal abatement cost curve

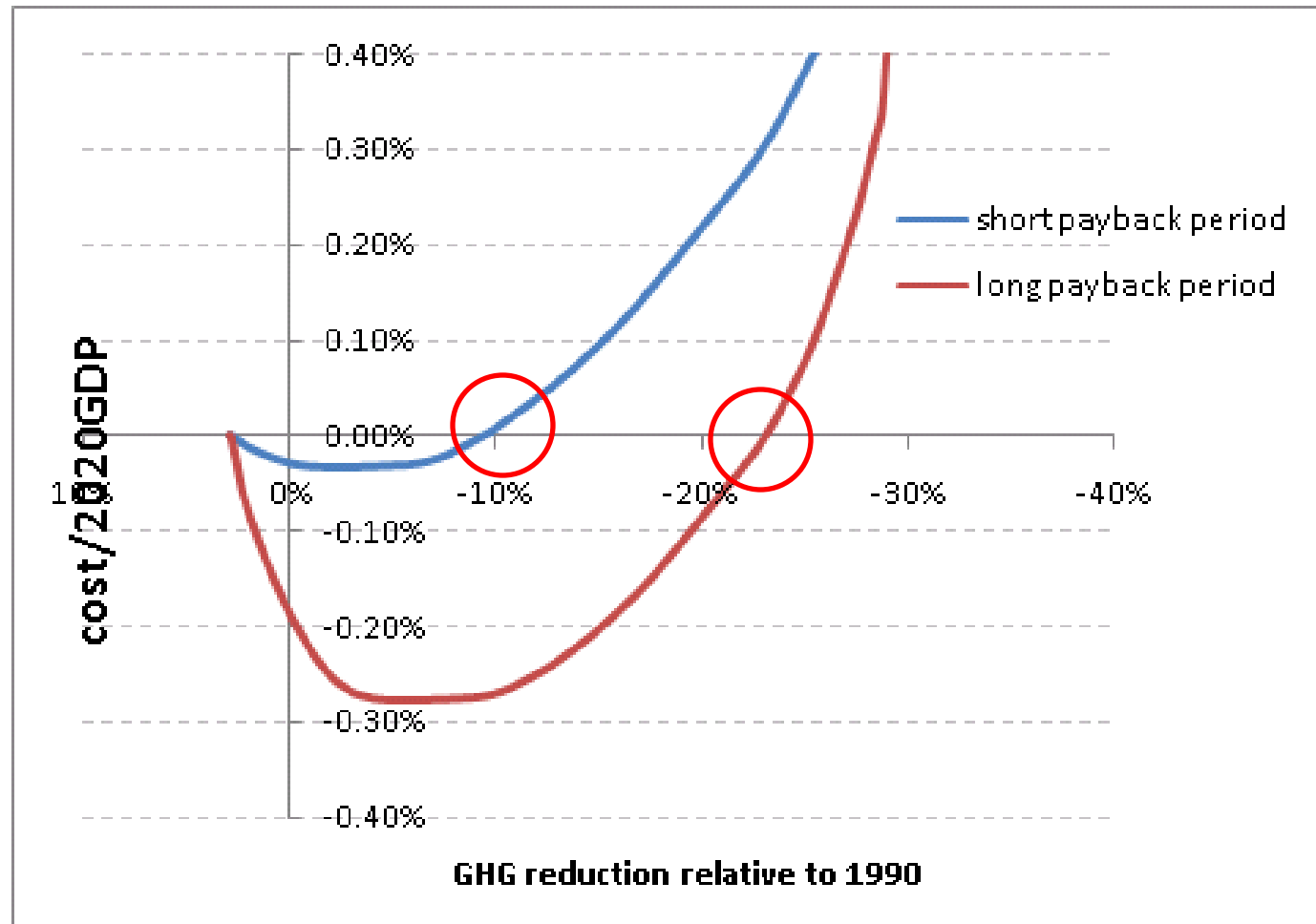


* Does not include Belarus, Croatia, Liechtenstein, Monaco, Turkey,

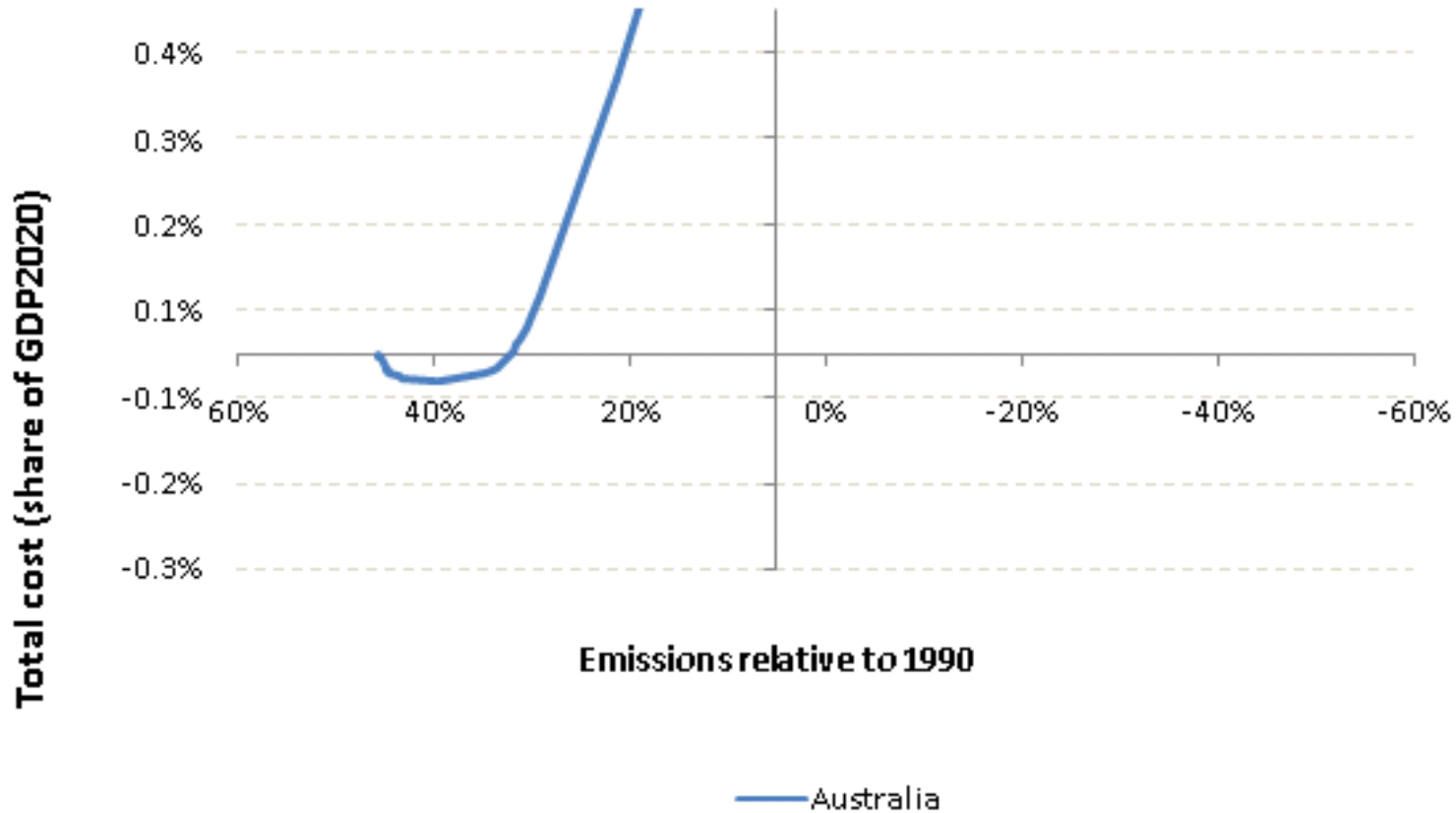
Resulting total mitigation costs: Annex 1 in 2020



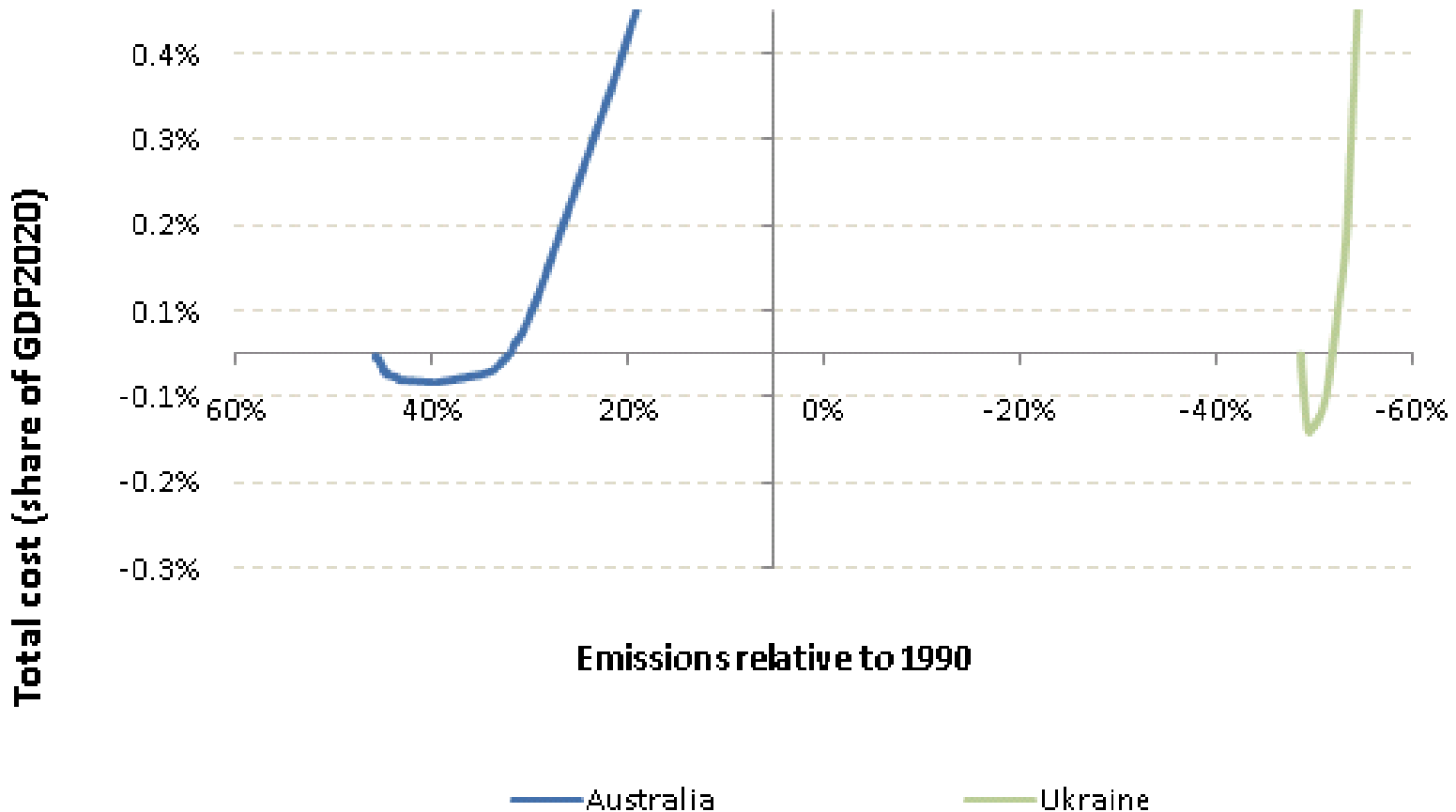
Resulting total mitigation costs: Annex 1 in 2020



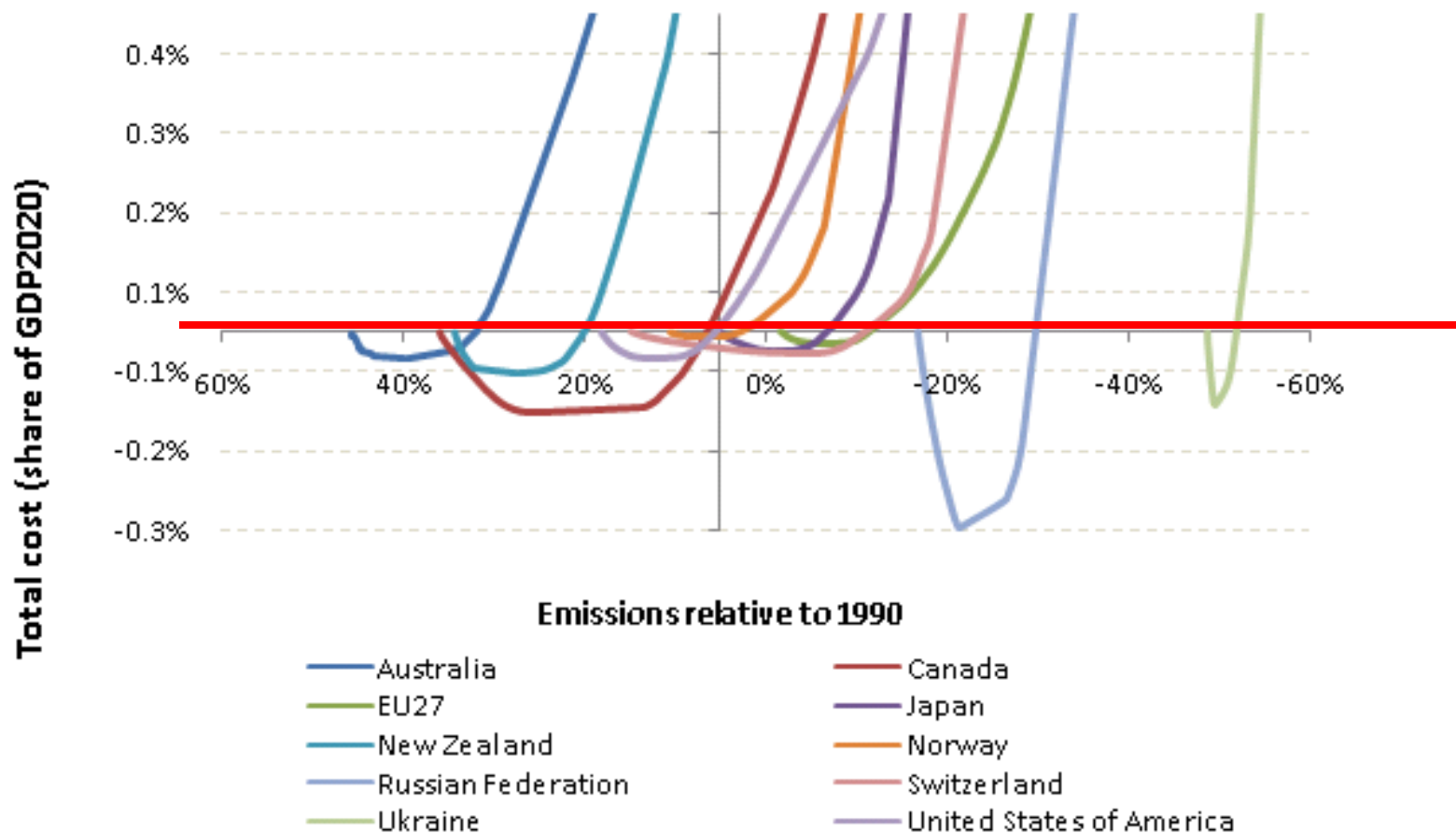
Total cost curves for individual Parties



Total cost curves for individual Parties

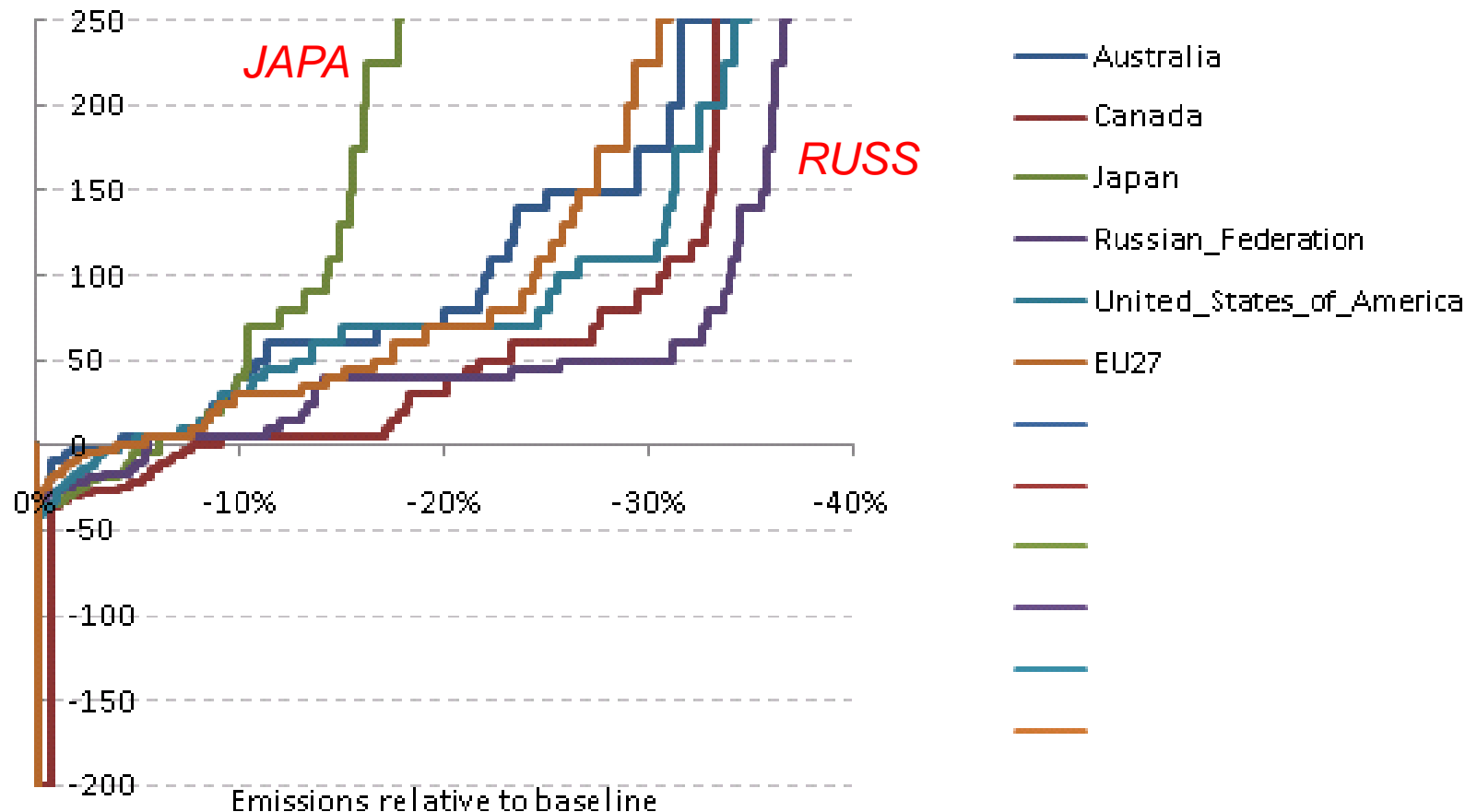


Total cost curves for individual Parties

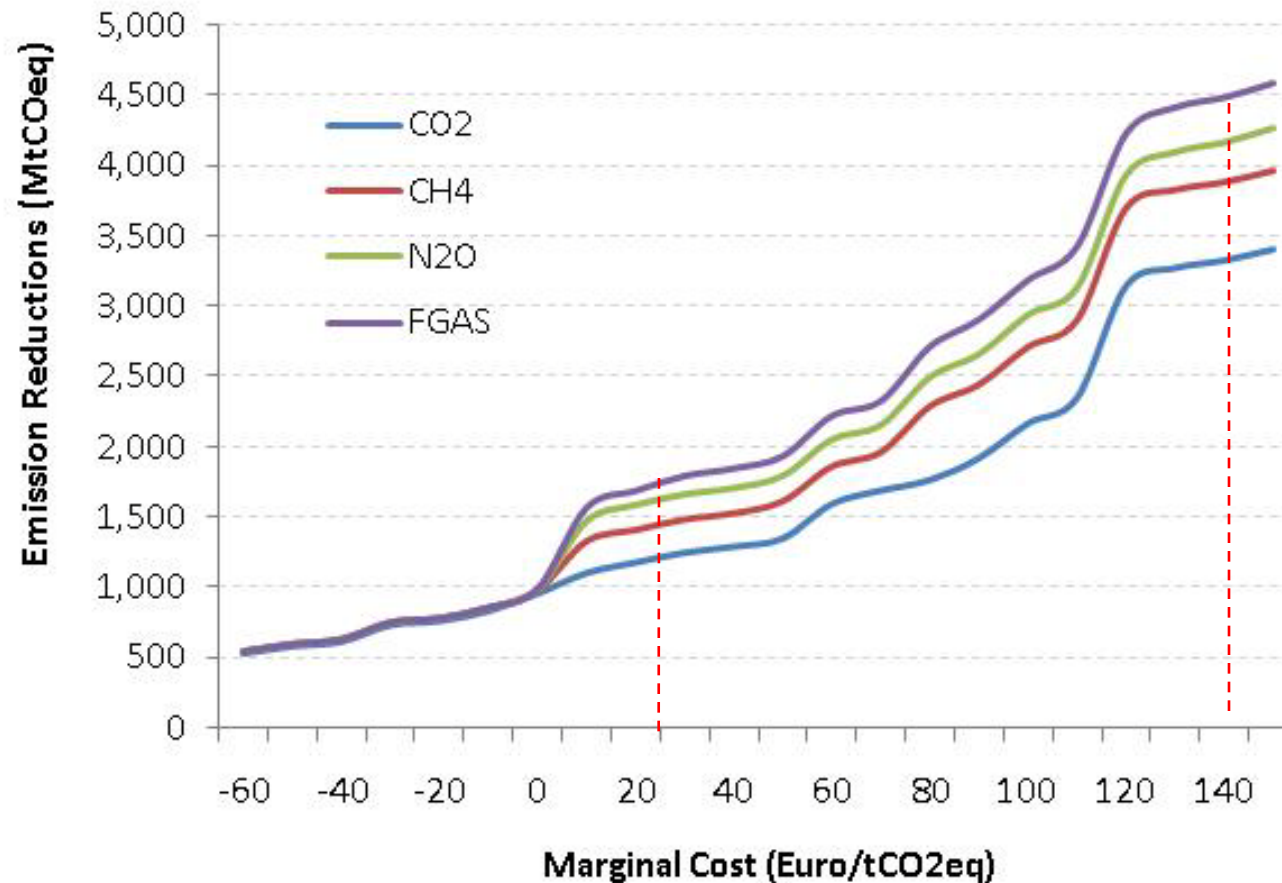


National MACs

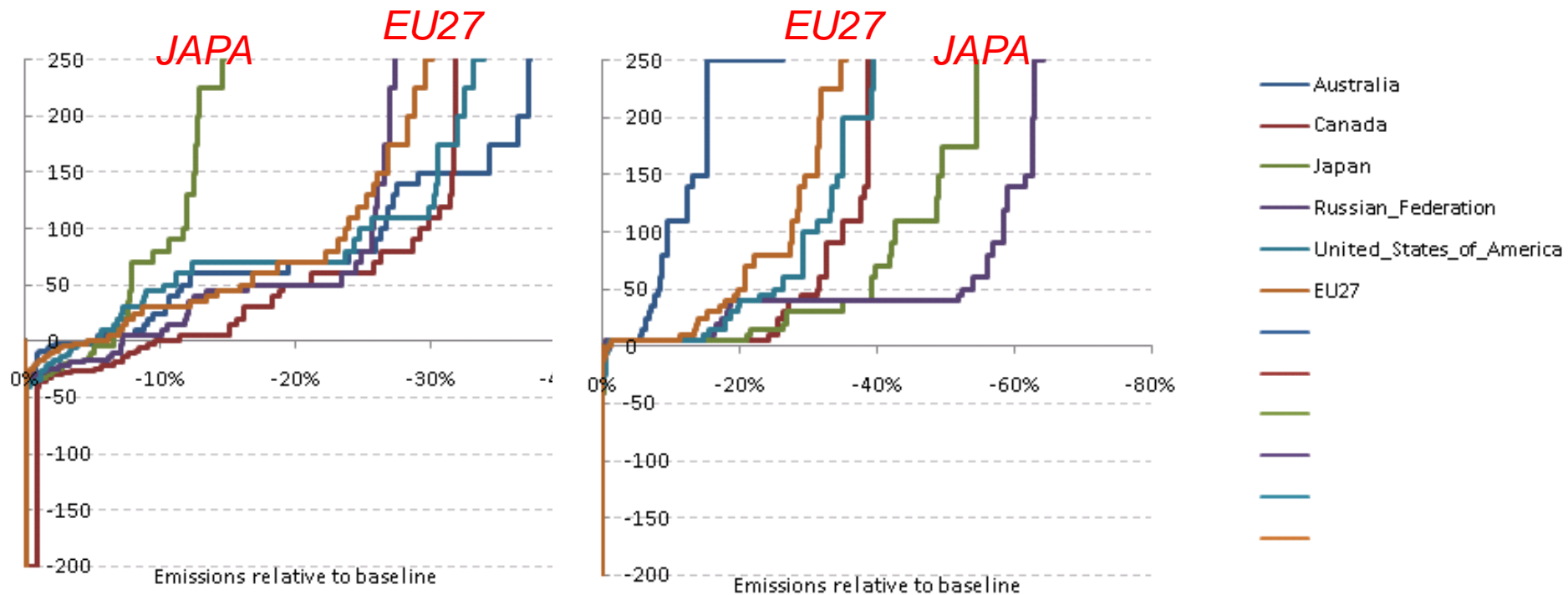
Example: Selected Parties – All GHGs



The roles of CO2 vs non-CO2



The roles of CO2 vs non-CO2



CO2

non-CO2

Co-control of air pollutant emissions

Use data from RAINS model



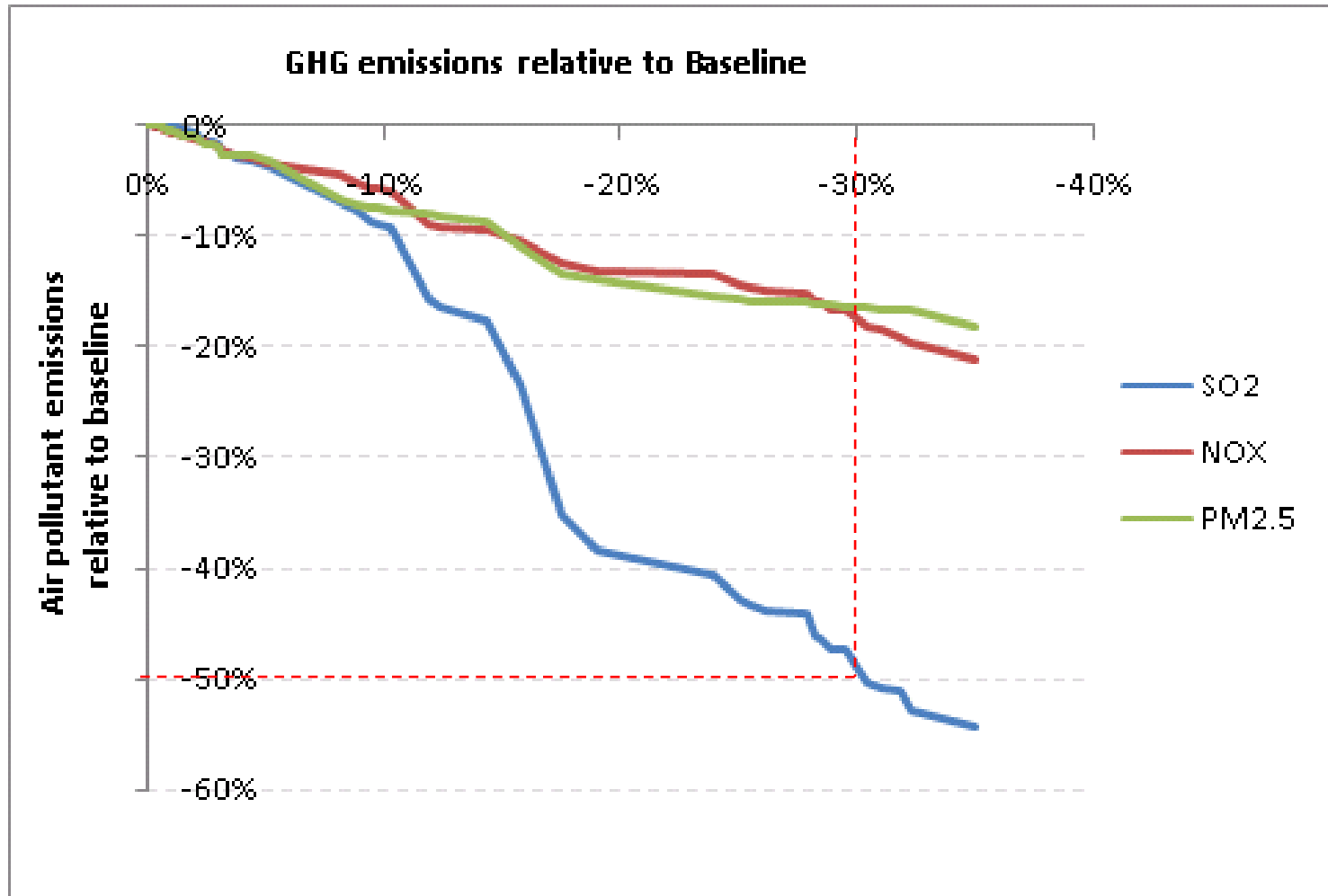
- Some 10 different pollutants (Here used PM, SO₂, NO_x)
- Several hundred emitting sectors
- Several hundred air pollution control measures

Here:

- Assume emission standards as in baseline
- Emission reductions only by changes in fuel mix

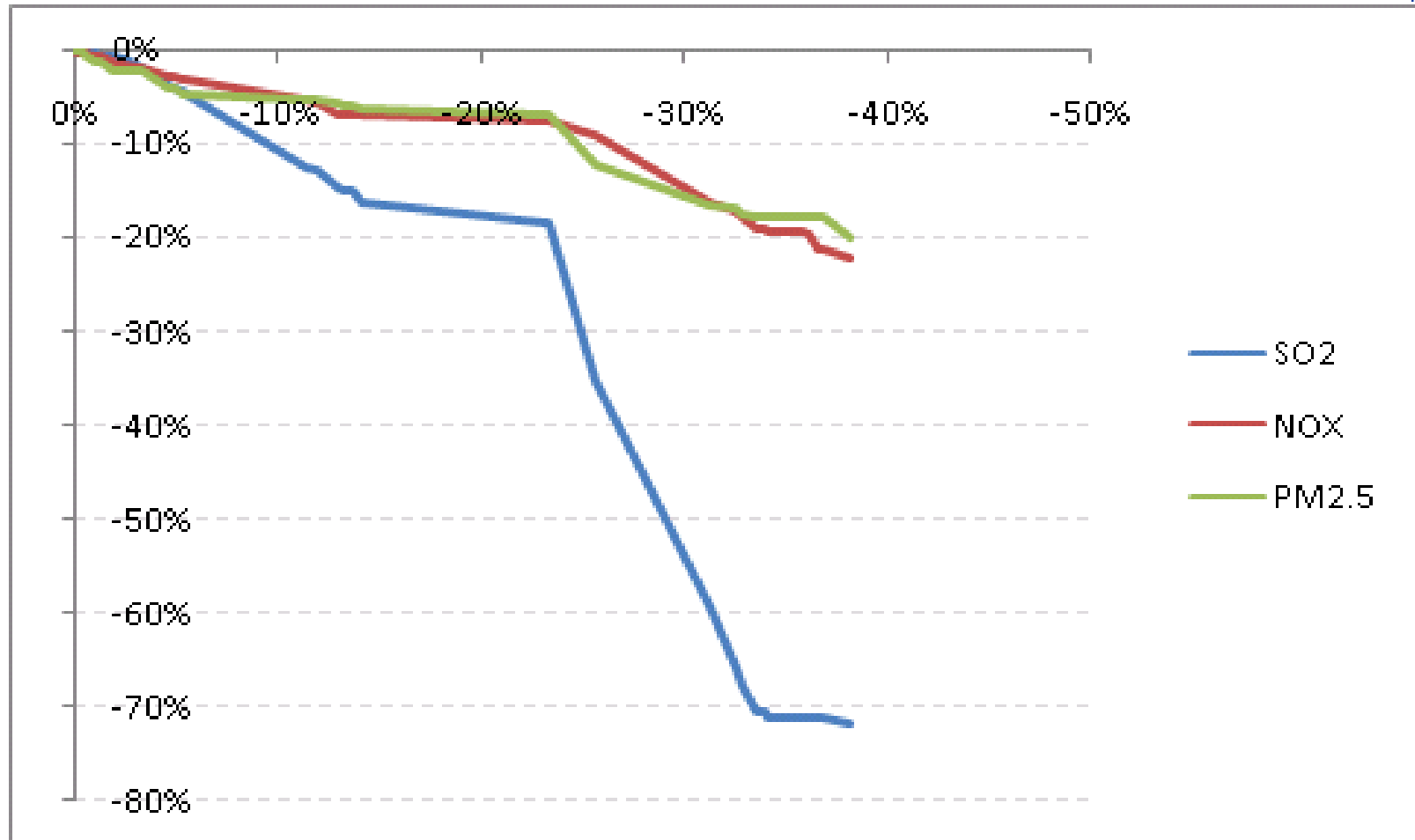
Co-benefits of air pollutant emissions

Example: Annex 1 in 2020



Co-benefits of air pollutant emissions

Example: Russia in 2020



(Proposed) Sensitivity analyses



- Alternative interest rates/payback periods
- Alternative fuel prices/Baseline activity projections
- Year 2030
- ...

Conclusions



- Significant differences in mitigation potentials between countries
- Different roles for different gases
- Mitigation potential for Annex 1
 - at 100 Euro/tCO₂eq 24% below 1990