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Öko-Institut e.V.
Institut für angewandte Ökologie
Institute for Applied Ecology

Targets for the non-ETS sectors in 2040 and 2050

Assessment prepared for Transport and Environment

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Effort Sharing Regulation in numbers

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Methodological approach

1 Global THG pathways up to 2050

2 Europe‘s fair share of the global THG budget

3 Splitting the EU target to ESR and ETS

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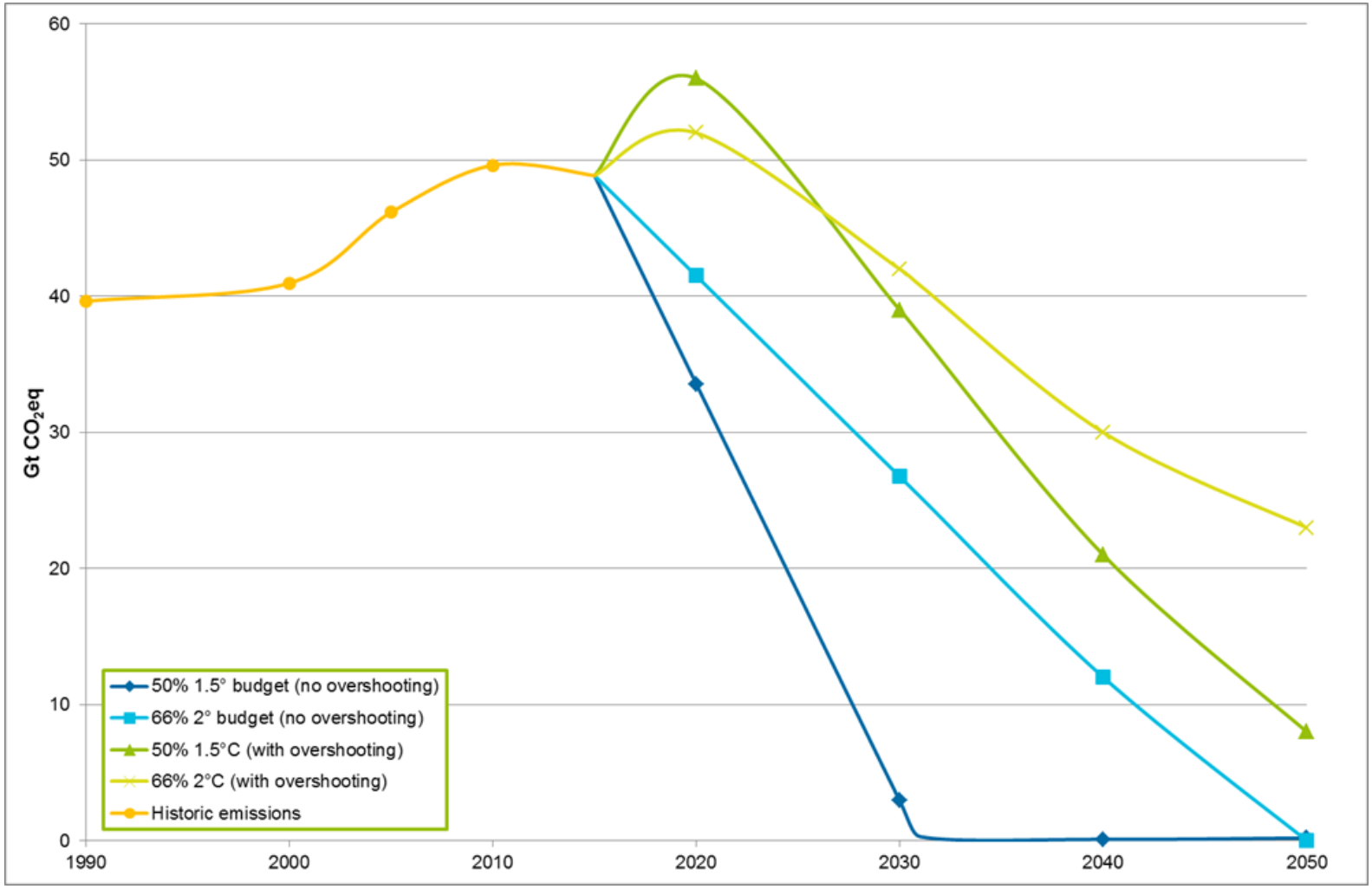
Global THG pathways up to 2050

- In line with the Paris agreement to hold "*the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C*".
- The remaining cumulative GHG budget from 2015 onwards:
  - 390 Gt CO_2eq (stay below 1.5°C with a probability of 50%)
  - 850 Gt CO_2eq (stay below 2°C with a 66% probability)
- Pathways can be with or without overshooting.
- Overshooting will have to be compensated with negative emissions.

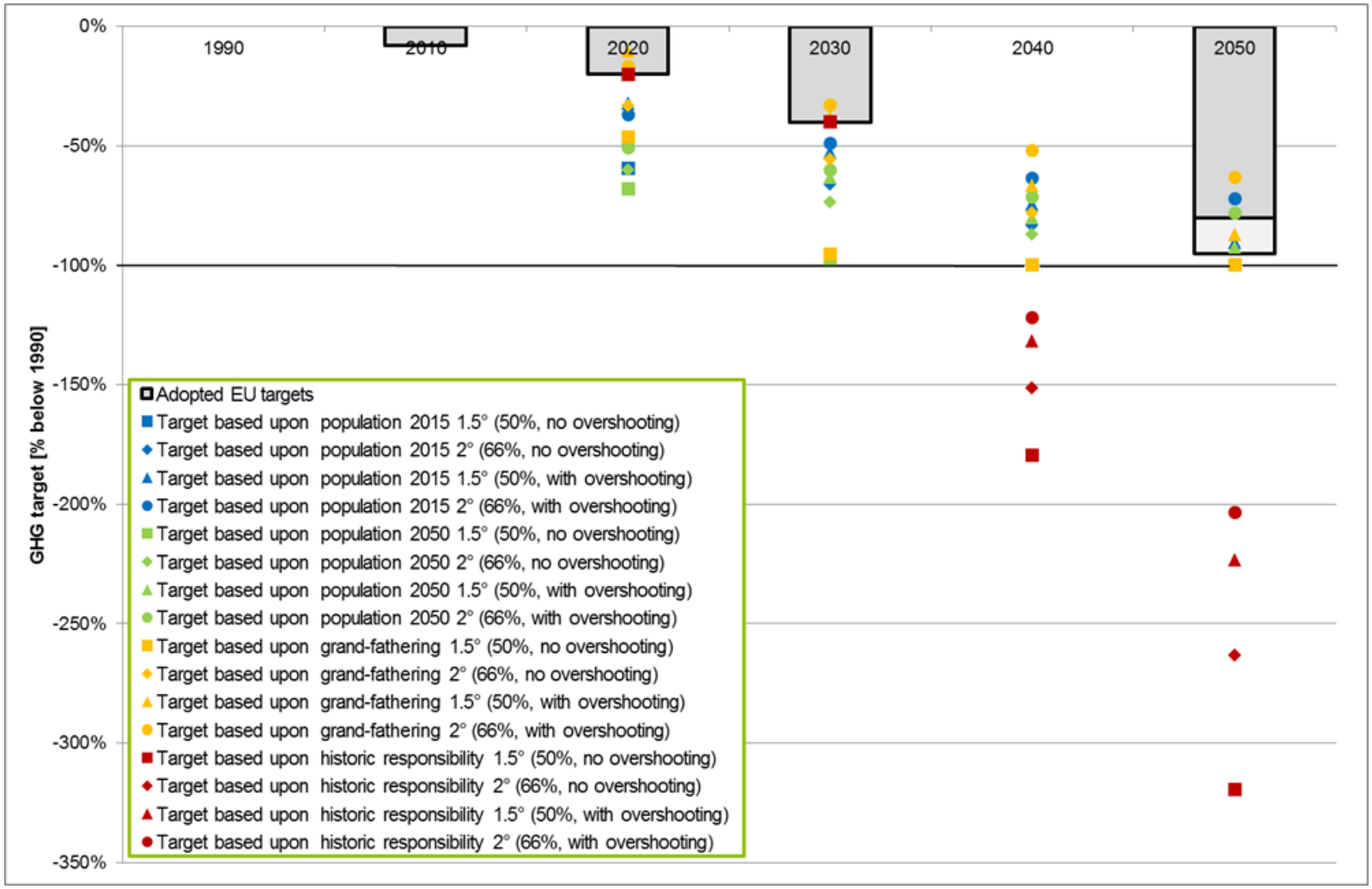
Global THG pathways up to 2050



Europe's fair share of the global THG budget Approaches

- **Share of global population**: Equal per capita emissions
  - 6.9% of the global population lived in the EU in 2015
  - 2050 the EU's share is projected to decline to 5.4%
- **Share of global emissions (2015)**:
  - Grandfathering favouring countries with high per capita emissions.
  - In 2015 the EU emitted 8.8% of global GHG emissions.
- **Historic responsibility**: Equal cumulated per capita emissions 1990 2050.
  - Favourable for countries with low emissions in the past.
  - Calculation based on 2015 population and assuming that EU targets up to 2030 remain as currently set.

Europe's fair share of the global THG budget Results



Europe's fair share of the global THG budget Conclusions

- EU 2020, 2030 and 2050 targets are only adequate based on grandfathering and with overshooting allowed (if global emissions after 2050 become net negative).
- All other approaches would require stepping up EU efforts.
- Any approach based on historic responsibility requires that the EU would become a net sink before 2040.
- Without overshooting the EU would have to reach net zero emissions before 2035 (1.5°C pathway) or by 2050 (2°C pathway).

Splitting the EU target to ESR and ETS Approaches

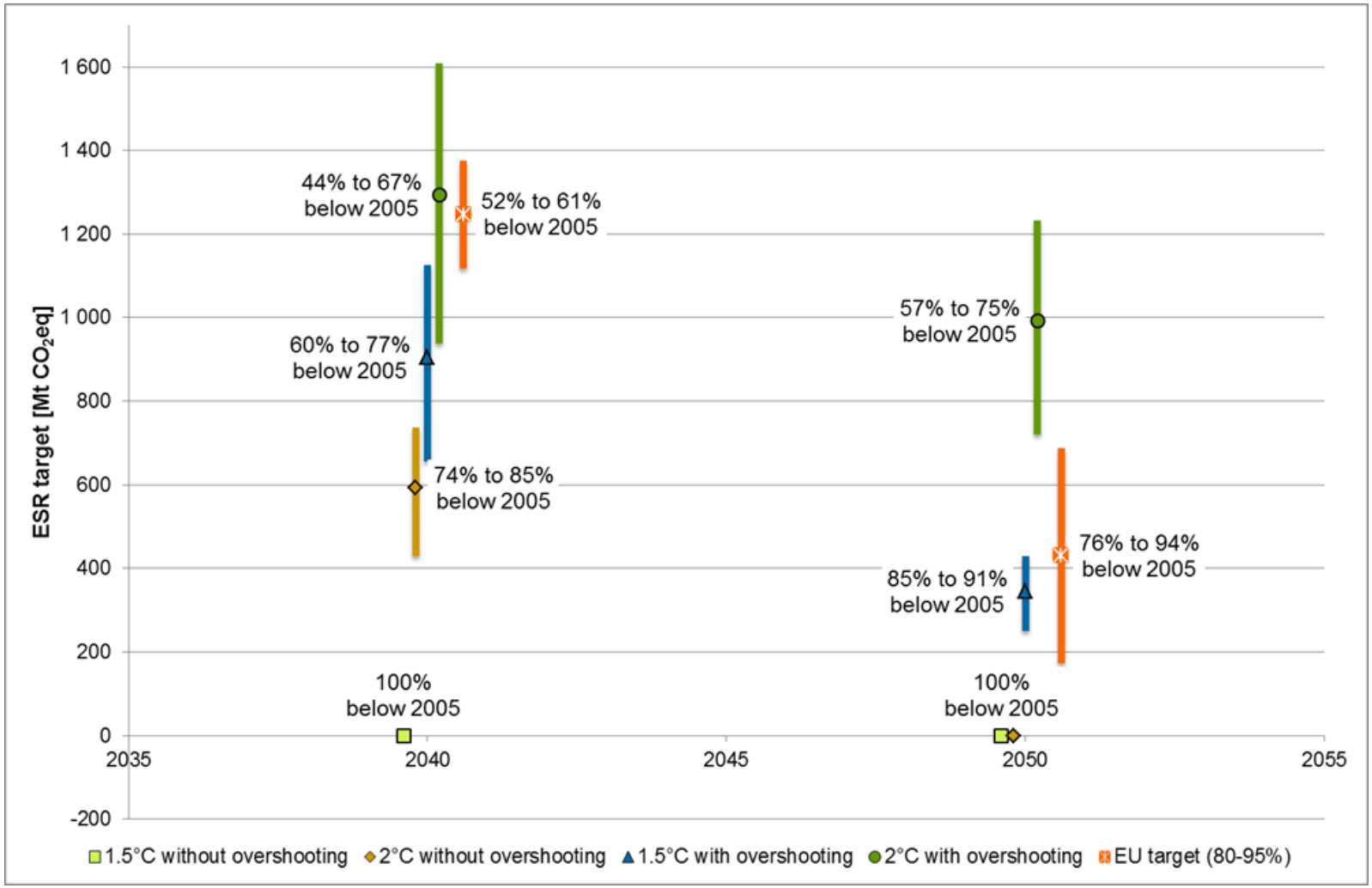
- Difference between the target and the ETS sectors:
  - A linear reduction factor defines the ETS cap until 2030 (-2.2%), assuming a constant LRF the ETS cap in 2050 is derived.
  - Difference between target and ETS is covered by ESR sectors.
- Constant shares between ETS and ESR:
  - In 2030 the split is approx. 40% ETS and 60% ESR .
- Mitigation difficulty: share of non-energy emissions ETS/ESR
  - Emissions from energy, waste and use of fluorinated gases would need to decline to zero in 2050.
  - Split is based on remaining non-energy emissions (industrial processes (ETS) and agriculture (ESR)): 53% for ESR.

Splitting the EU target to ESR and ETS Results

		Share ESR vs ETS		
		constant LRF	constant split	share non-CO2
Global budget distributed according to	Equal per capita emissions (Population 2015)	Massive negative emissions for ESR	analysed	similar to constant split (omitted in graph)
	Equal per capita emissions (Population 2050)			
	Grandfathering (emissions 2015)			
	Historic responsibility (cumulated emissions 1990-2050)	Massive negative emissions for ESR		

- All scenarios with massive negative emissions for the ESR are not further pursued. This is the case for all historic responsibility scenarios and almost all constant LRF scenarios.
- In the 80% scenarios the LRF would still allow the ESR some emissions, but significantly less than the ETS sector (45% only compared to ca. 60% in 2030).

Deriving ESR targets
Results



Conclusions

- EU targets:
  - 2050 targets are in line with those scenarios that allow overshooting of emissions – albeit this implies substantial negative emissions worldwide soon after 2050.
  - If no overshooting is allowed, the EU target for 2050 would need to be stepped up to -100%.
  - 2020, 2030 and (interpolated) 2040 targets are too low in the light of the Paris agreement (except grandfathered 2° overshooting).
- Split ESR/ETS
  - The currently proposed LRF of 2.2% for the ETS is not in line with the 95% target. Also in case of a 80% target; the ETS gets a higher share than the ESR.
  - Distribution to ESR/ETS should bear in mind mitigation potential.

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Vielen Dank für Ihre Aufmerksamkeit!
Thank you for your attention!

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Haben Sie noch Fragen?
Do you have any questions?