Öko-Institut e.V.
Institut für angewandte Ökologie
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The way forward: The future of electric vehicles

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Workshop: Post-2020 CO_2 emission targets for new cars and vans: the right level of ambition?

European Parliament, Brussels, 27 March 2018

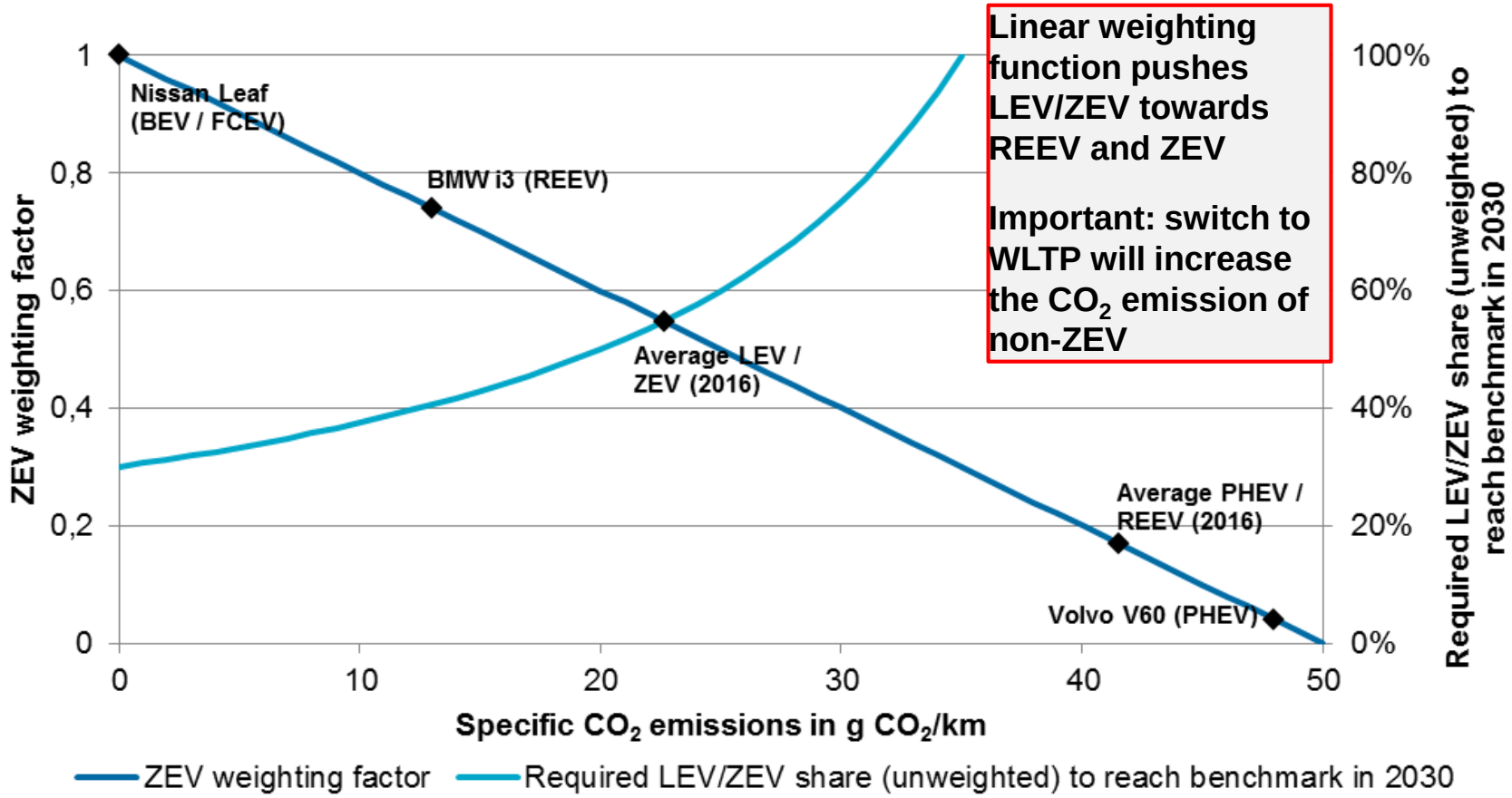
EV market uptake is a key part of GHG mitigation strategy in road transport and requires market certainty

- EVs are the key element of GHG mitigation strategy in road transport
  - >80% light duty vehicle activity in electric mode in 2050 (Energy Roadmap 2050, Roadmap 2050, etc.) → ~100% electric vehicle (incl. PHEV) sales share in 2040
- Certainty about future market size facilitates addressing systemic challenges of EV market uptake
  - Systemic challenges: integration into electricity system, development of charging infrastructure, ongoing transformation of automotive industry, access to other raw materials, etc.
- EU EV market roll out mainly driven by demand-side policy instruments (tax benefits, EV driving privileges, etc.)
  - China, California: additional supply-side instrument implemented →binding EV mandate up to 2020 / 2025 (incl. trading mechanism)

Main CO_2 regulation elements to incentivize EV market uptake

- The overall target level is the main incentivizing parameter
  - Inherent interaction: a higher share of LEV/ZEV implies less restrictive CO_2 emission levels for conventional cars
- Impact of additional LEV/ZEV incentive depends on type and level
  - Non-binding crediting system (incentivizing additional LEV/ZEV share) vs. binding mandate (increasing market certainty)
  - Benchmark level and its interaction with overall target level
- Eligibility criteria and weighting factors of different LEV/ZEV concepts have an impact on LEV/ZEV structure
- Enforcement requires (monetary) penalty

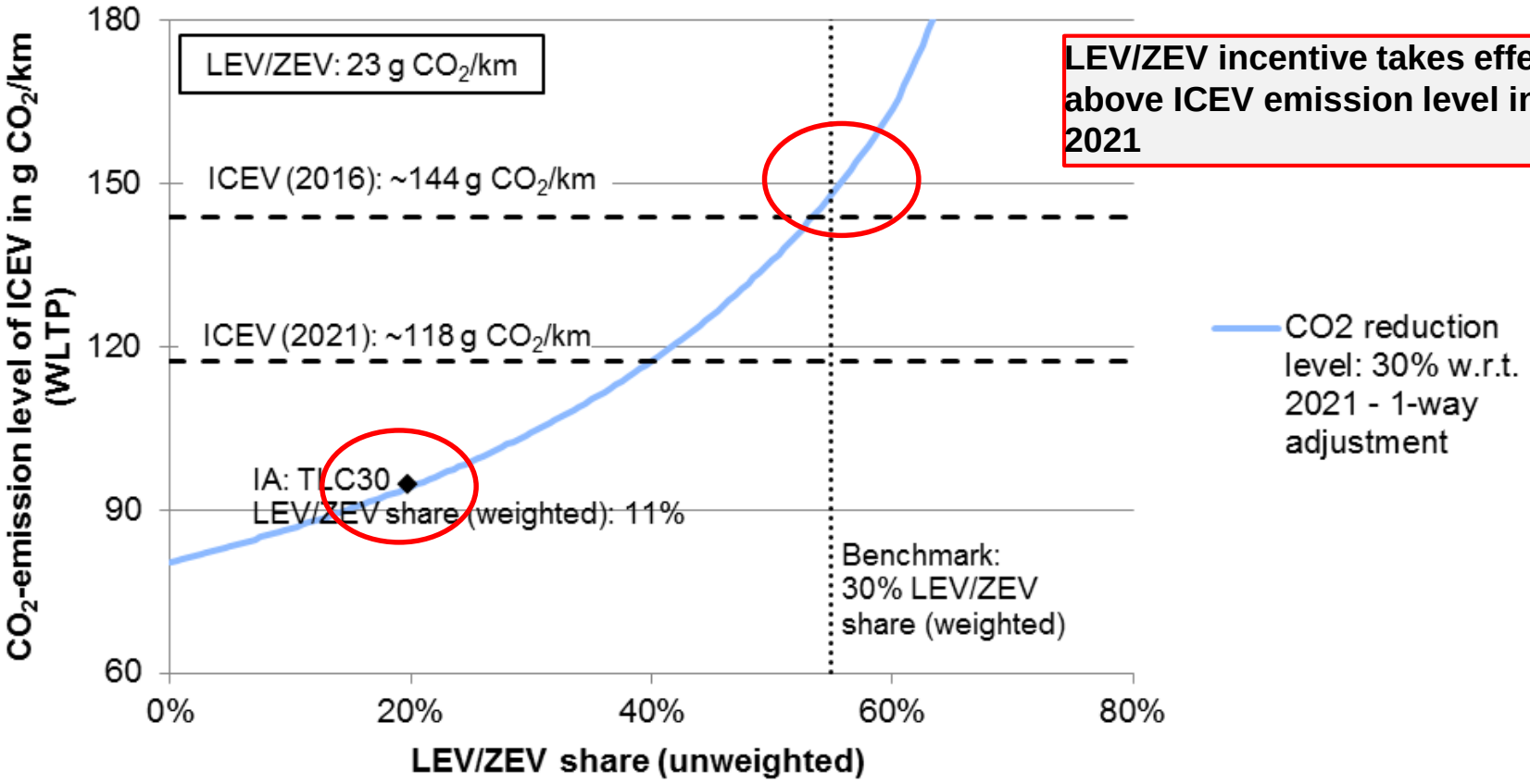
Eligibility criteria for LEV/ZEV incentive: Linear weighting function for LEV/ZEV <50 g CO_2/km



Source: Data from EEA (2017): Monitoring of CO2 emissions from passenger cars – Regulation 443/2009

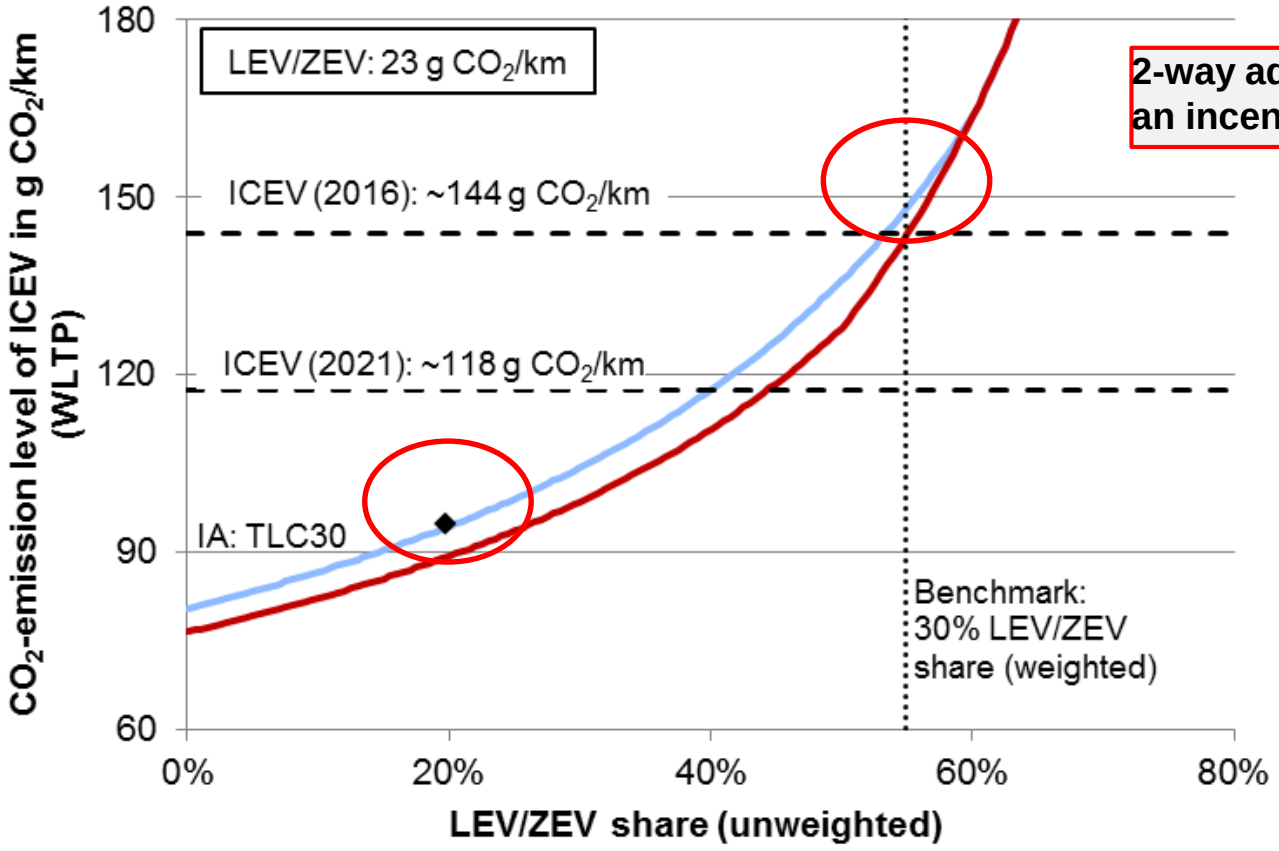
CO_2 emission target proposal incentivizes electrification rather than strong EV market uptake

Required CO_2 emission level of ICEV to meet CO_2 emission target (2030)



CO_2 emission target proposal (incl. 2-way adjustment) incentivizes electrification rather than strong EV market uptake

Required CO_2 emission level of ICEV to meet CO_2 emission target (2030)



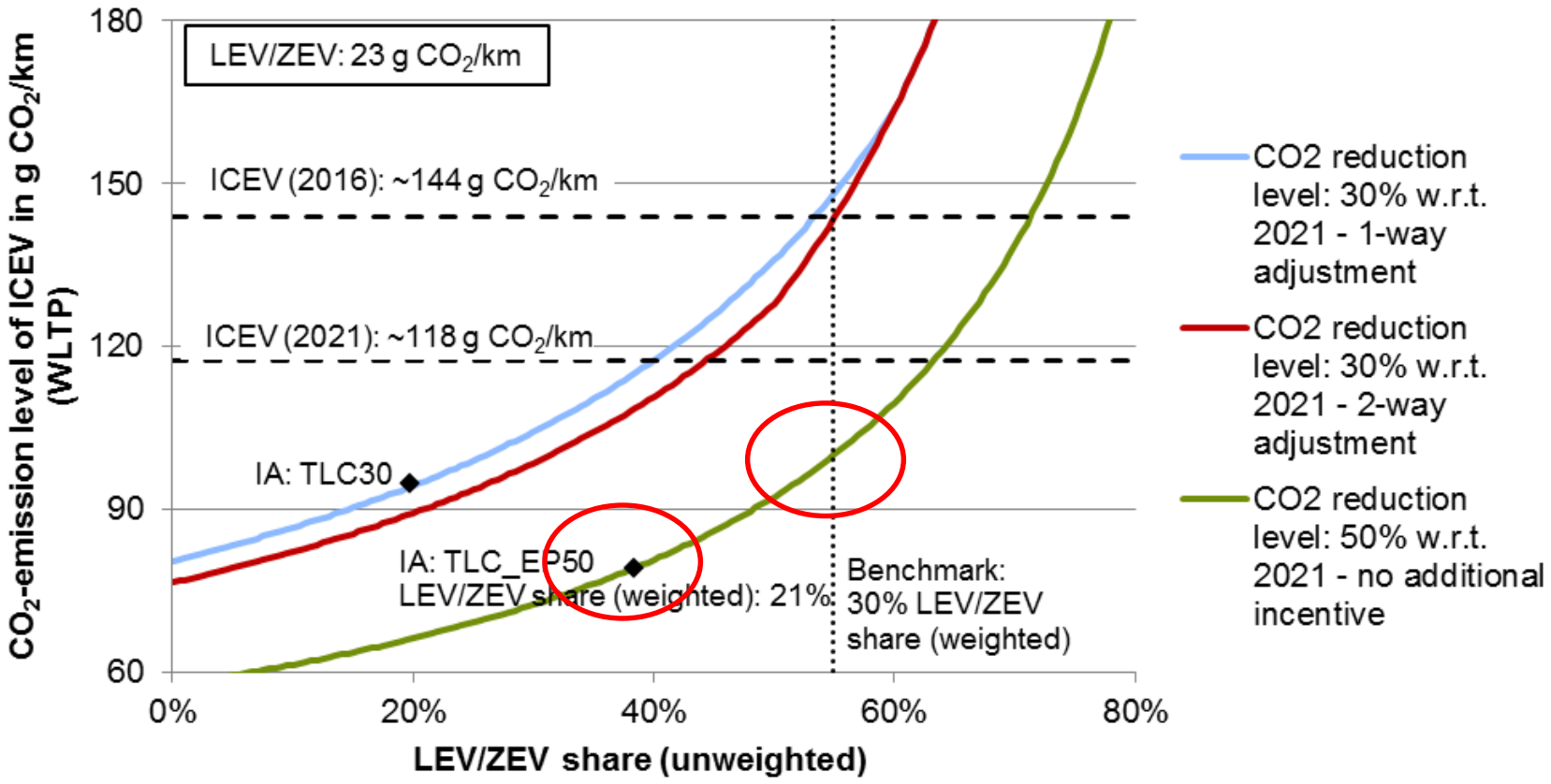
2-way adjustment has inherently an incentivizing impact

CO2 reduction level: 30% w.r.t. 2021 - 1-way adjustment

CO2 reduction level: 30% w.r.t. 2021 - 2-way adjustment

The overall target level is the main incentivizing parameter for EV market uptake (example: CO_2 reduction level 50% w.r.t. 2021)

Required CO_2 emission level of ICEV to meet CO_2 emission target (2030)



Conclusions

- EV market uptake is a key part of GHG mitigation strategy in road transport and requires as much market certainty as possible
- CO_2 emission target proposal incentivizes electrification rather than strong EV market uptake

→ More ambitious target level would be the main incentive for faster EV market uptake

- Current LEV/ZEV incentive does not provide market certainty

→ Combination of binding mandate + trading mechanism (increasing market certainty) and non-binding crediting-system (increasing EV market uptake) as an option for improvement

- Eligibility criteria: Linear weighting function pushes LEV/ZEV share towards REEV and ZEV
- Benchmarks are in line with OEM LEV/ZEV share announcements
- Penalty mechanism would strengthen the enforcement (e.g. 2-way adjustment mechanism, monetary fine)

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