Mexico's national baseline: A comparison exercise in collaboration with Denmark

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ESTADOS UNIDOS MEXICANOS

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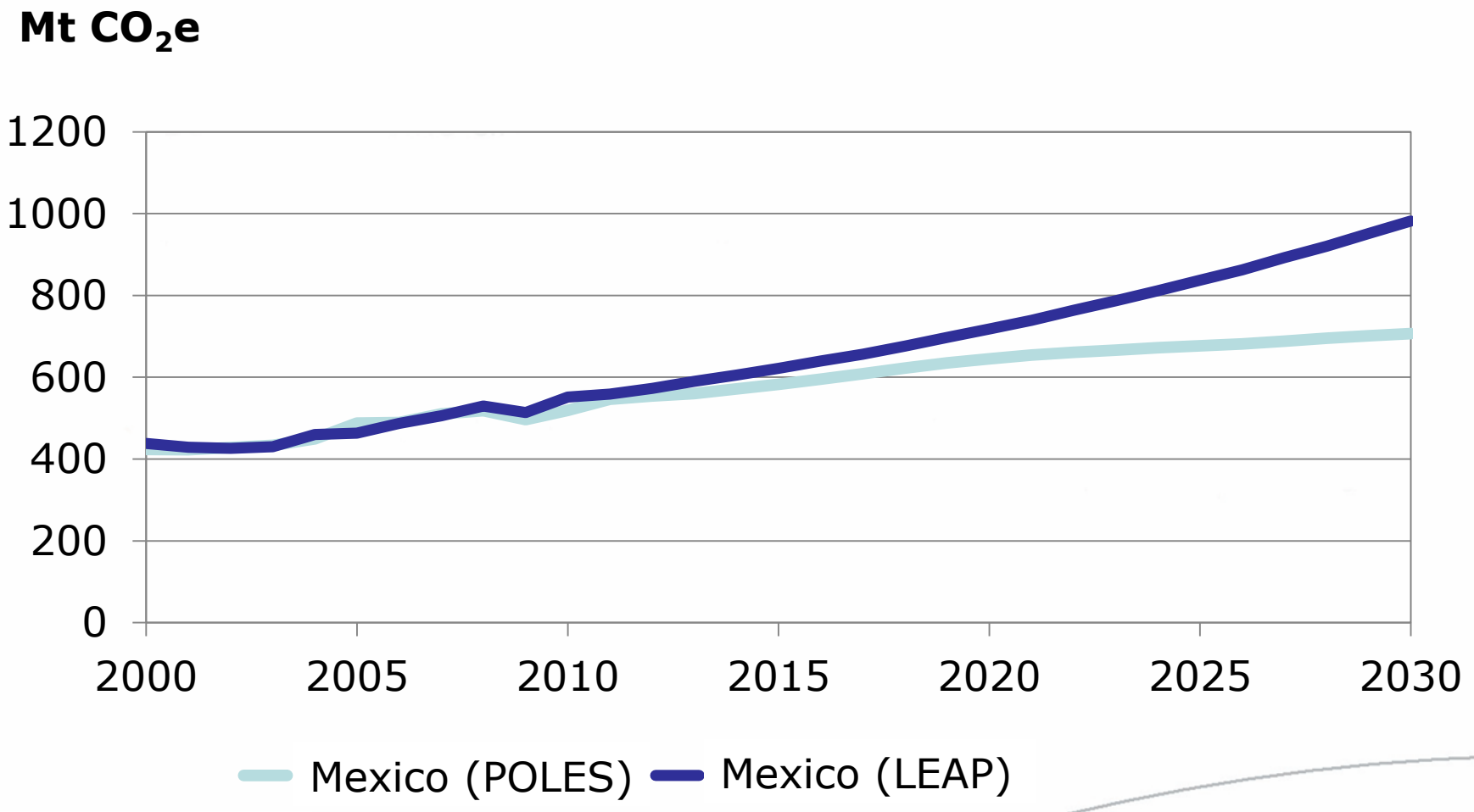
Modeling capacity in the LCTU

- Two tools based on MAC curves from POLES/Enerdata

1. COMPARE
   - Global emissions trading
   - Was build up to the COP15

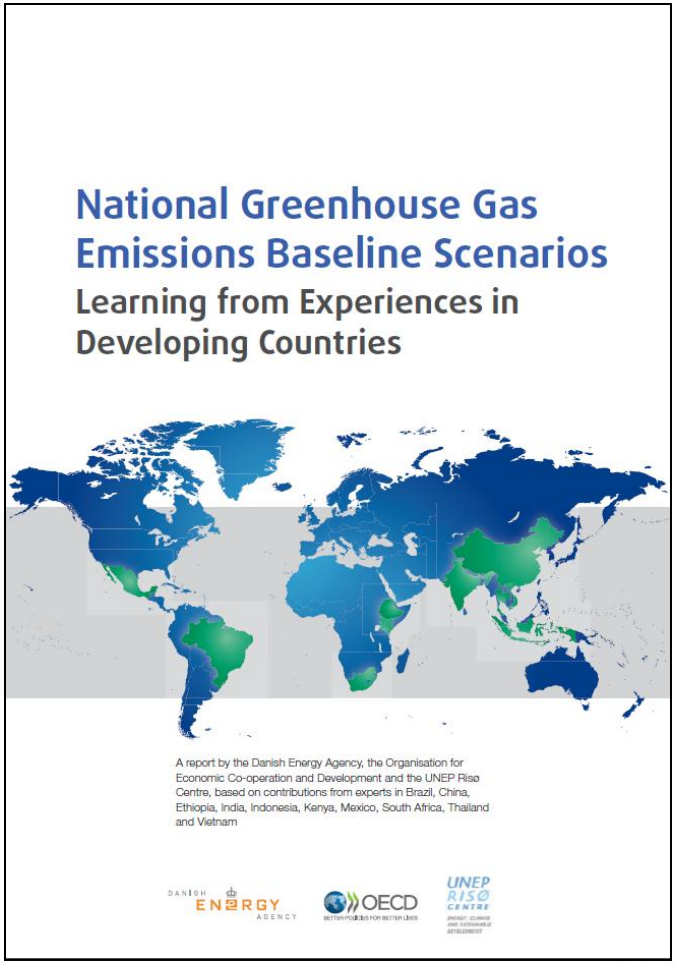
2. Emissions Reduction Tool
   - Going beyond the MAC
   - Cost efficient reduction potentials

Baseline comparison in Mexico



New publication

- Sharing experiences and practices
- Suggestions for good practice principles
  - Transparency
  - Key Drivers
  - Sensitivity analysis



2013 Mexico's GHG baseline exercise

Why was it necessary to update Mexico's 2009 baseline?

- Transparent and replicable
- Traceable: assumptions, methods and source of data
- Historical data from 1990 to 2010
- More disaggregation of the data if information is available
- Flexible to change key assumptions and easy to use

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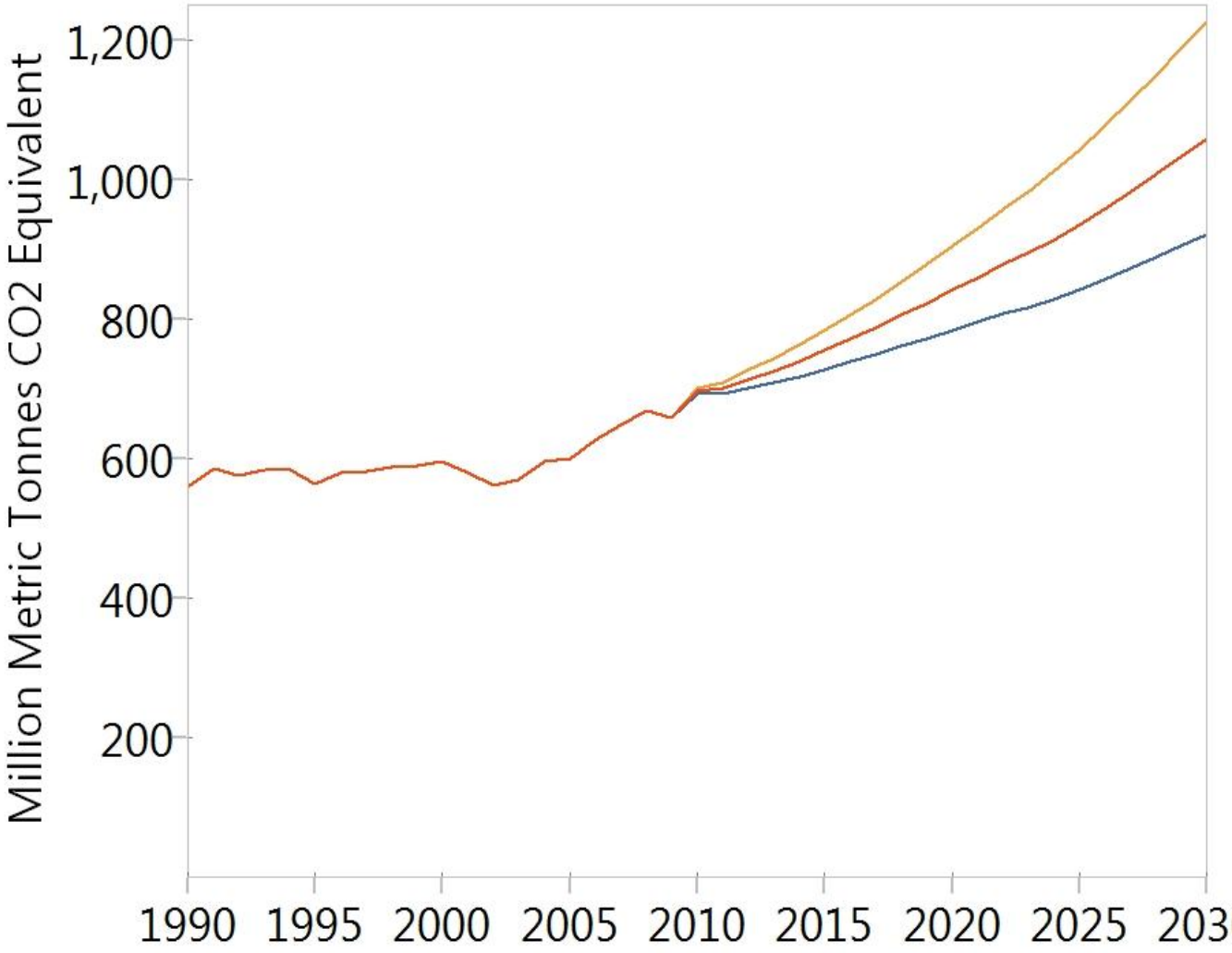
Sensitivity analysis



1,226 (4.2%) BAU high

1,059 (3.2%) BAU medium

921 (2.2%) BAU low

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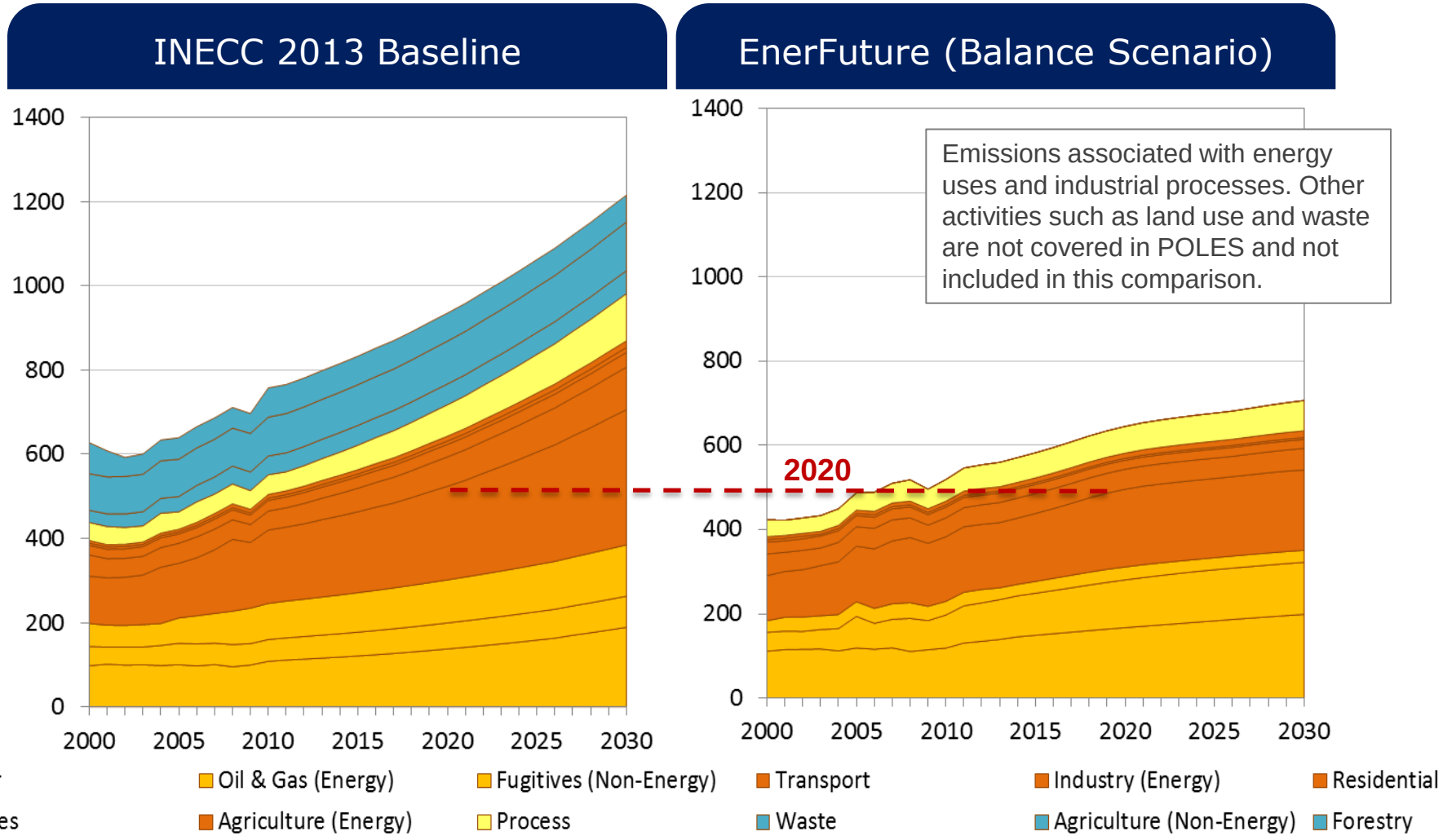
The POLES reference scenario forecasts lower emissions than LEAP after 2020



Comparison between POLES and INECC baseline

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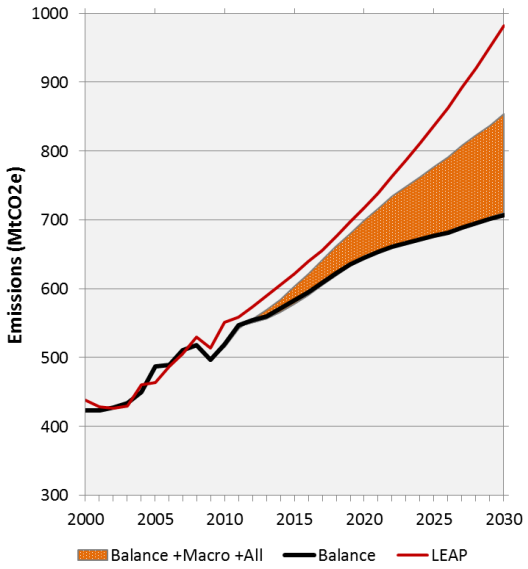
All macro-economic and activity assumptions

- The combined differences in macro-economic (population, GDP, and value added in industry) and activity assumptions (steel production, number of dwellings, and transportation parameters) between the models can explain the majority of emissions differences to 2020

- There is a widening gap after 2020 due to steadily rising emissions in LEAP and a leveling off in POLES; this leads to the macro-economic and activity differences only accounting for half of the gap by 2030

Emission wedge



Comparison between POLES and INECC baseline

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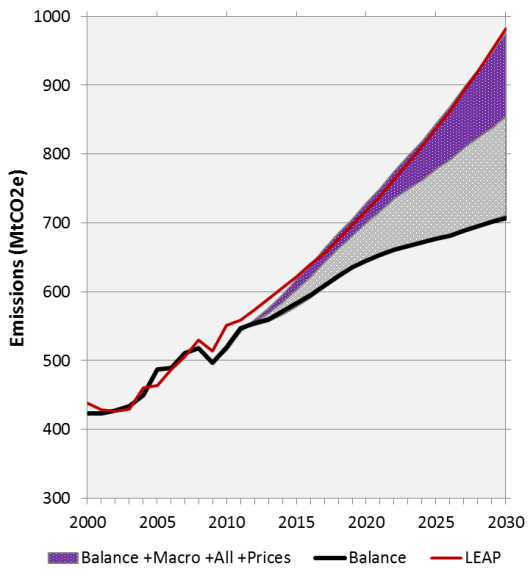
Effect of freezing national fuel prices

- POLES includes both international market prices and national wholesale and final user prices, all of which contribute feedback effects; LEAP does not explicitly include price effects
- In this scenario, only the national fuel prices inside Mexico are fixed by applying a varying subsidy/tax relative to international fuel prices, so that constant (2009) prices for consumers and industry are maintained
- A very large emissions increase in this scenario vs. the baseline including all macro-economic and activity effects is due to increased fuel usage in several sectors: transport (increased gasoline and diesel), electricity generation (more oil and gas vs. renewables), and the oil & gas sector (increased auto-consumption)
- By 2030, this effect is roughly equivalent to providing oil subsidies in the transport sector 4-5 times greater than those applied today in Mexico

Emission wedge



Comparison between POLES and INECC baseline

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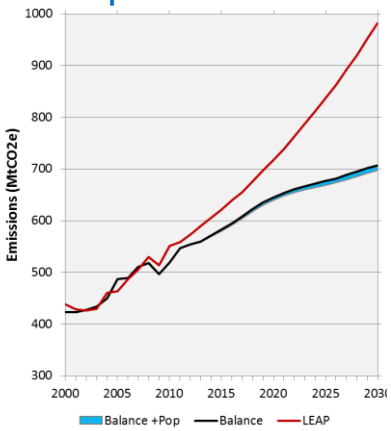
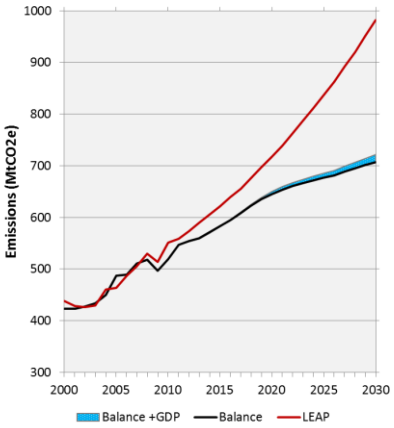
Relative effects summary

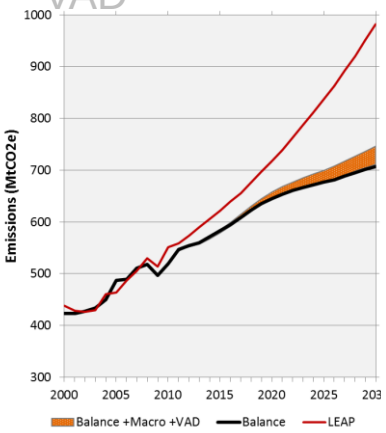
Population



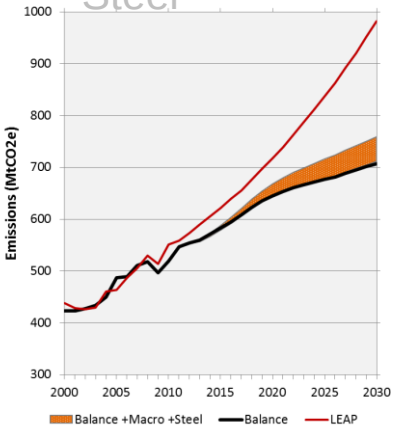
GDP



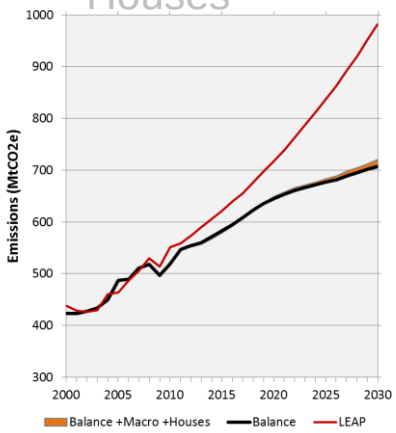
VAD



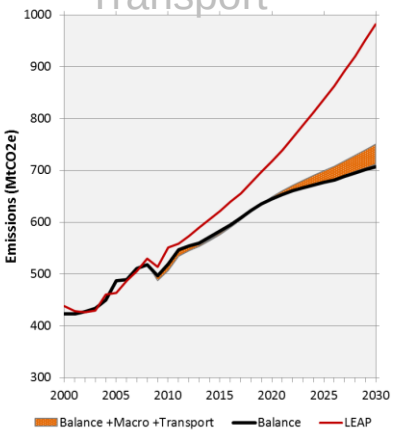
Steel



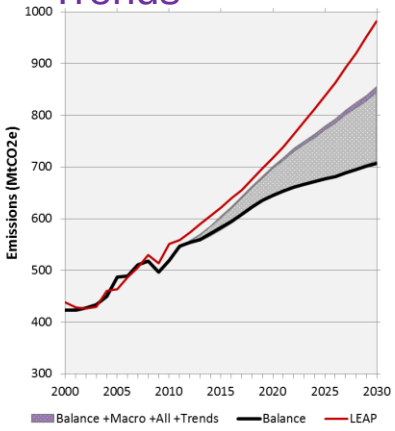
Houses



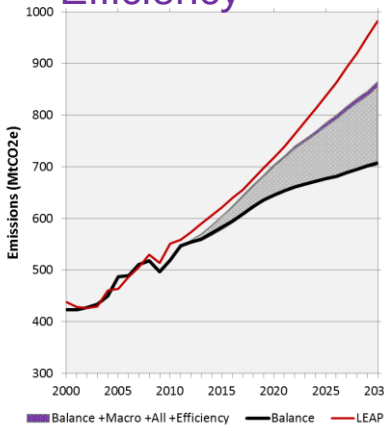
Transport



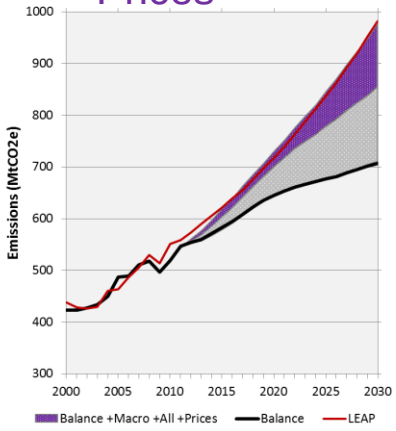
Trends



Efficiency



Prices



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Conclusions

- Many of the differences in this study can be attributed to small variations in conversion factors, exchange rates, re-publication and conversion of the same data by different providers, as well as mis-interpretations of sector perimeters and years of data. Overall, for most sectors the historical data used between the models agrees well and a forecast can be generated in POLES that includes most of the broad features from *"Revisada Mas"*

- The differences in activity assumptions have a very strong effect, especially in later years and specifically assumptions about steel production and number of cars and distance travelled

- While the effect of freezing prices appears to be one of the only drivers capable of bridging the remaining gap between emissions calculated in POLES and LEAP, we feel that incorporating some forecast of future prices is extremely important (whether through endogenous modelling or exogenously when creating consumption forecasts)

- We recommend using a final baseline incorporating INECC's assumptions for population, GDP, value added, activity variables (e.g. steel production, number of dwellings, transport), no autonomous consumption trends, and frozen power technology efficiencies is proposed as the final result from the baseline comparison

THANK YOU!

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