



12 December, COP 14 Poznan

50 BY 50: A Global Fuel Economy Initiative

Background for Establishing a Fuel Economy Initiative

Lew Fulton

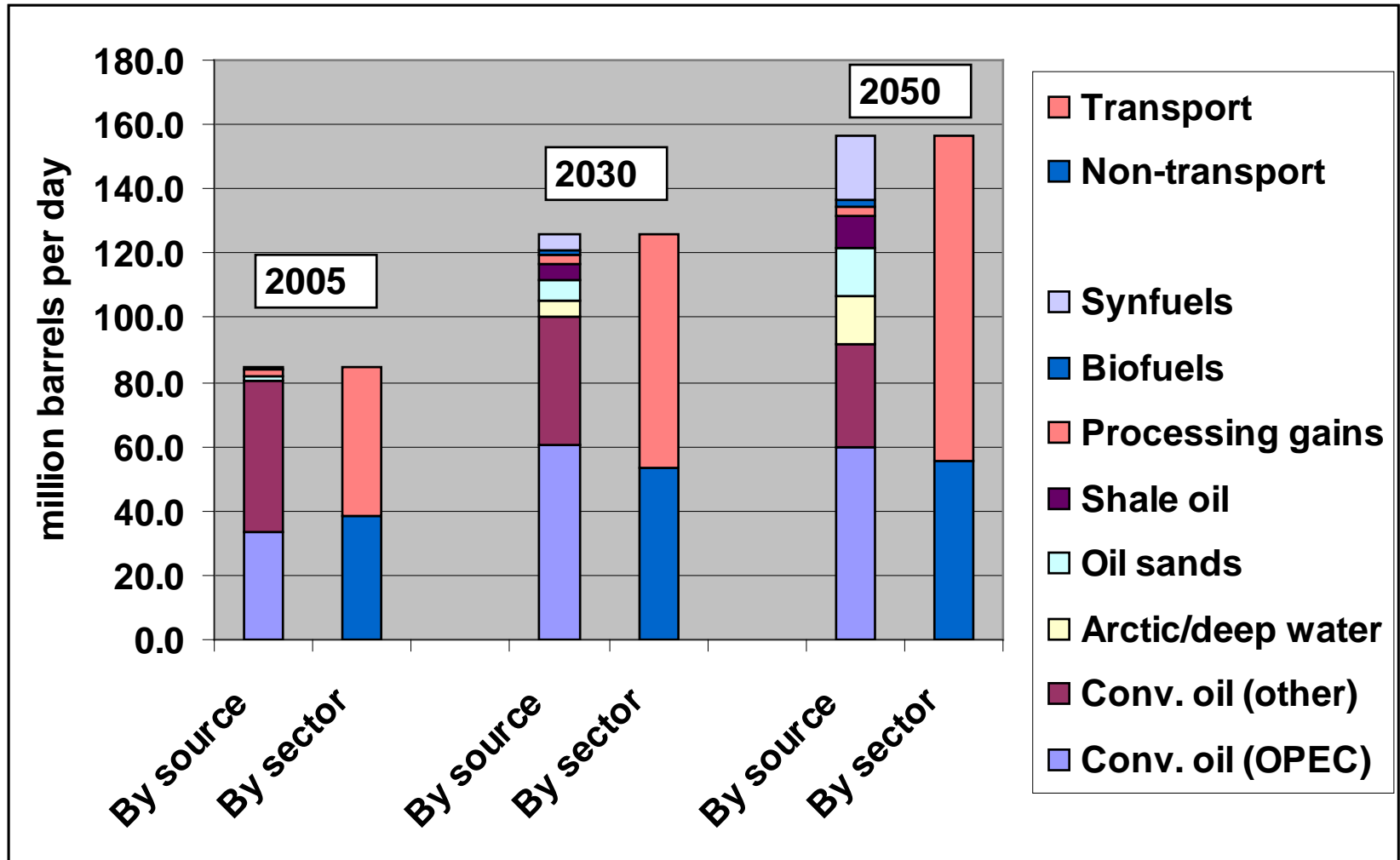
International Energy Agency, Paris

www.IEA.org



IEA Energy Technology Perspectives 2008

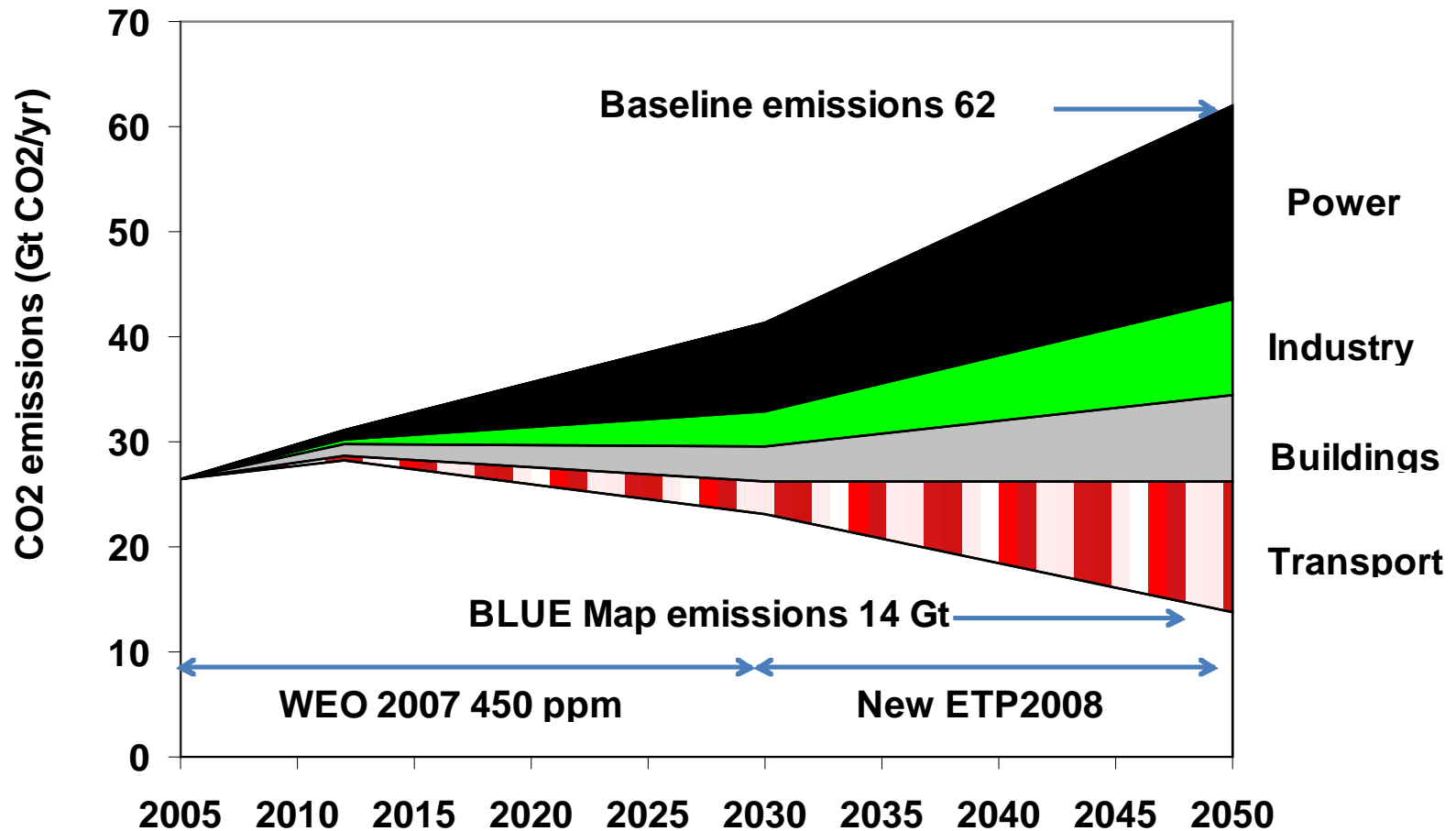
Baseline: Liquid Fuels to 2050





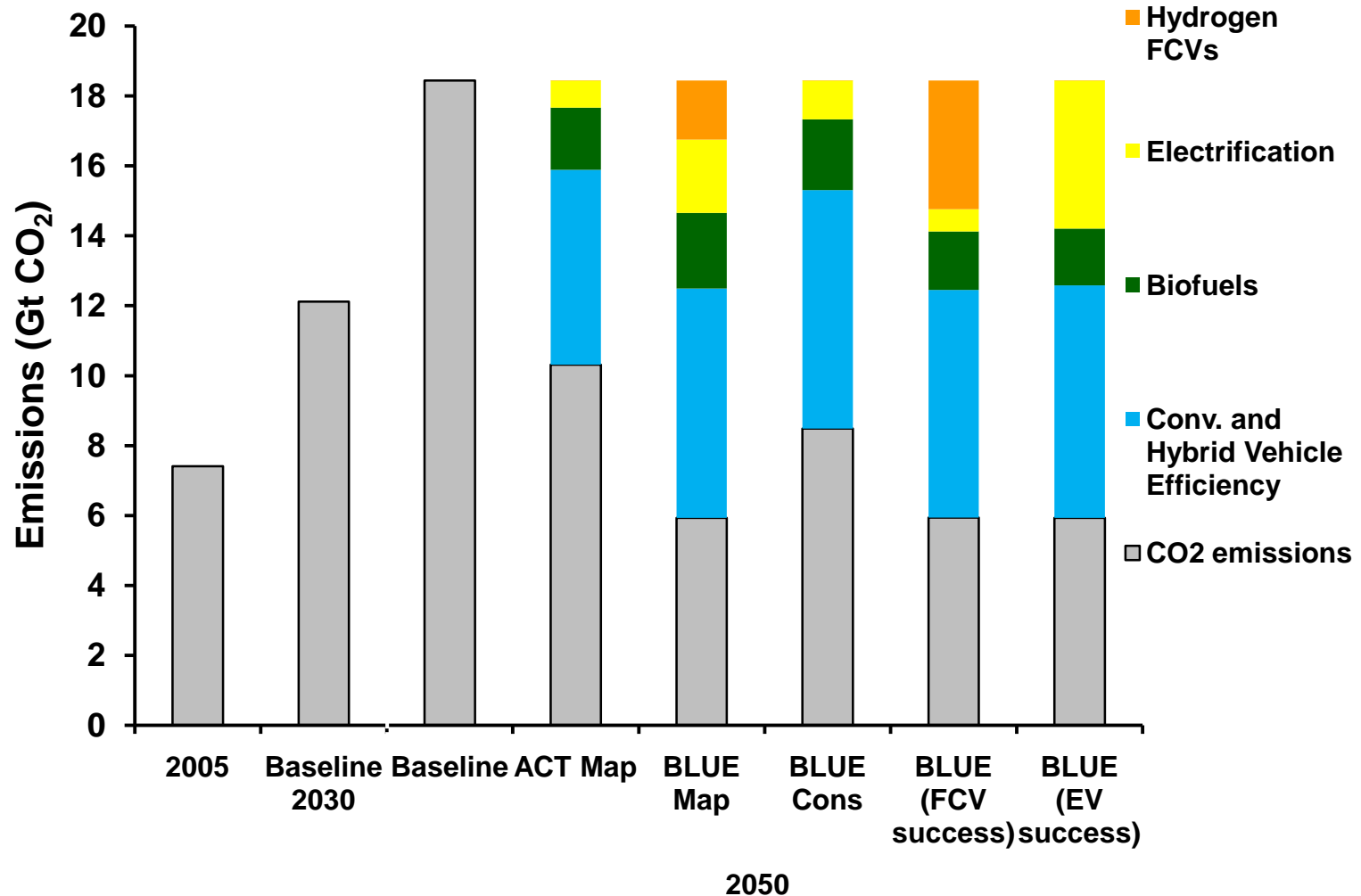
We need a global 50% CO2 cut by 2050

ETP 2008: Where CO2 reductions come from





ETP Scenarios: Transport CO₂ Emissions





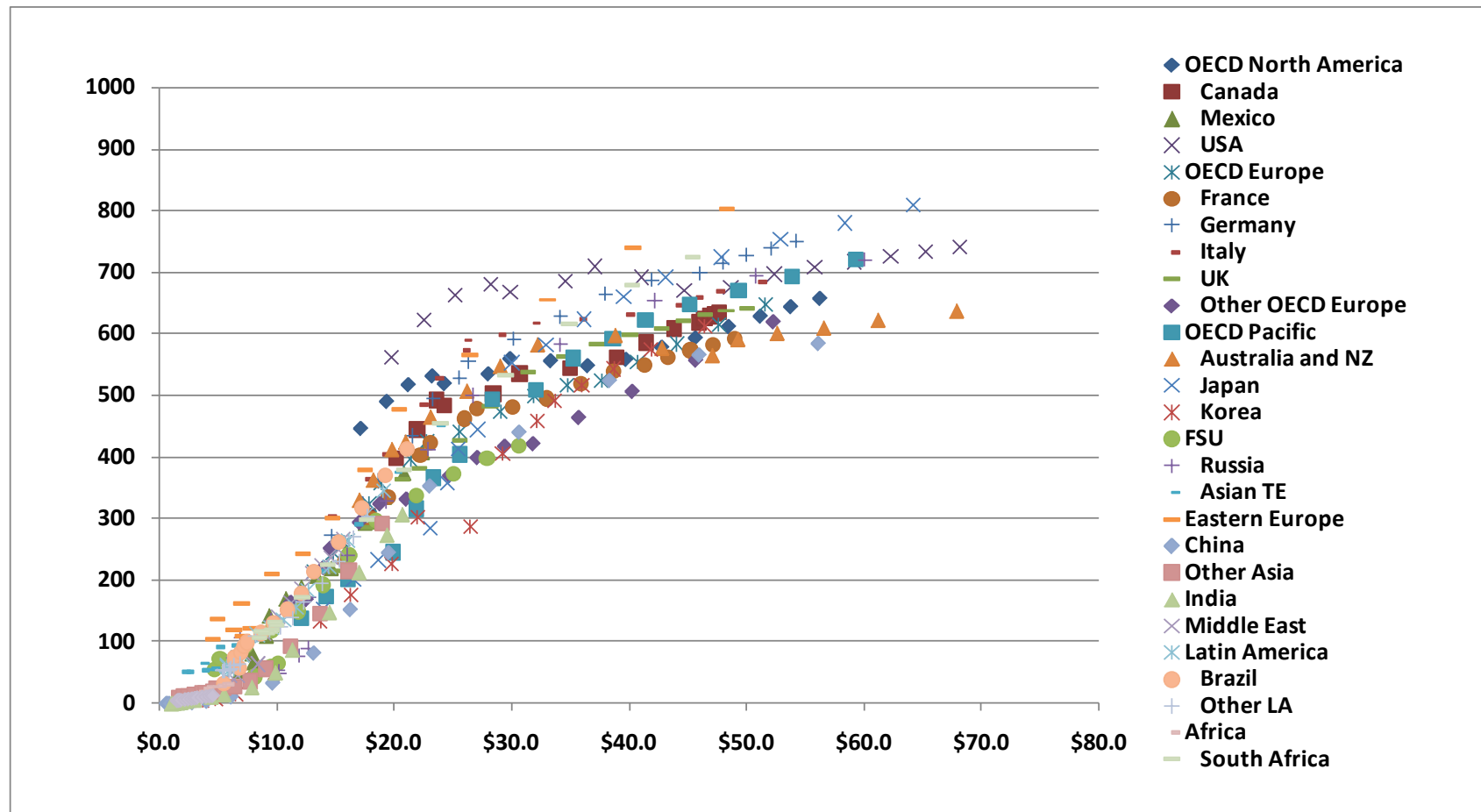
Another key concern: energy security and balance of payments

- **International oil costs will account for transfers on order of USD 2 trillion during 2008**
- **Dramatic price swings will probably continue**
- **Consumers are unlikely to address the problem without government help**
 - ◆ **Higher prices will have only a modest effect on demand for efficient vehicles**
 - ◆ **Market failure associated with consumer lack of information, uncertainty and loss aversion**



ETP vehicle ownership projections

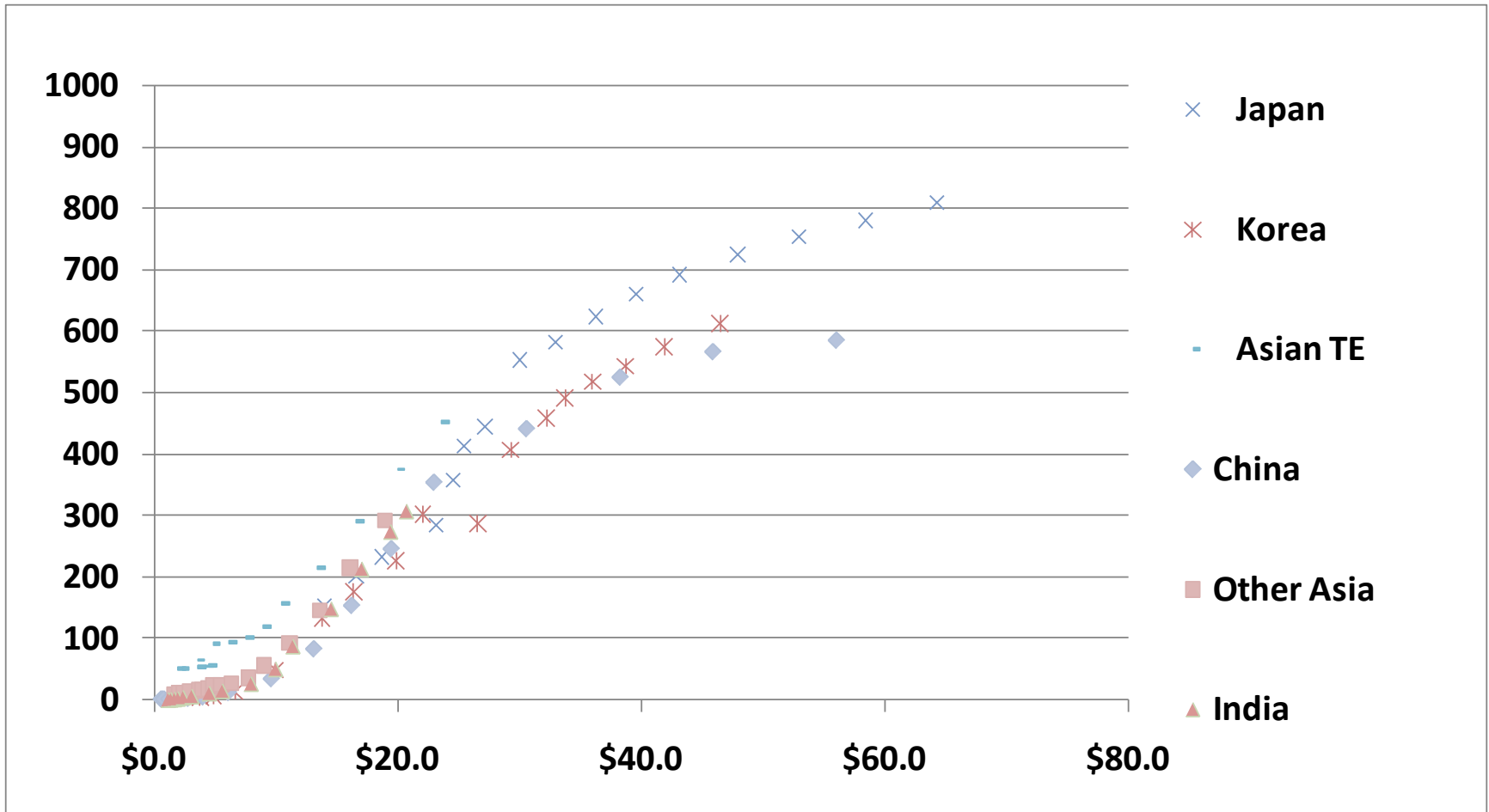
Cars per 1000 as a function of GDP/cap



*Based on a scenario where ownership/income relationships in non-OECD countries track those in OECD countries; Income growth based on OECD/WB projections



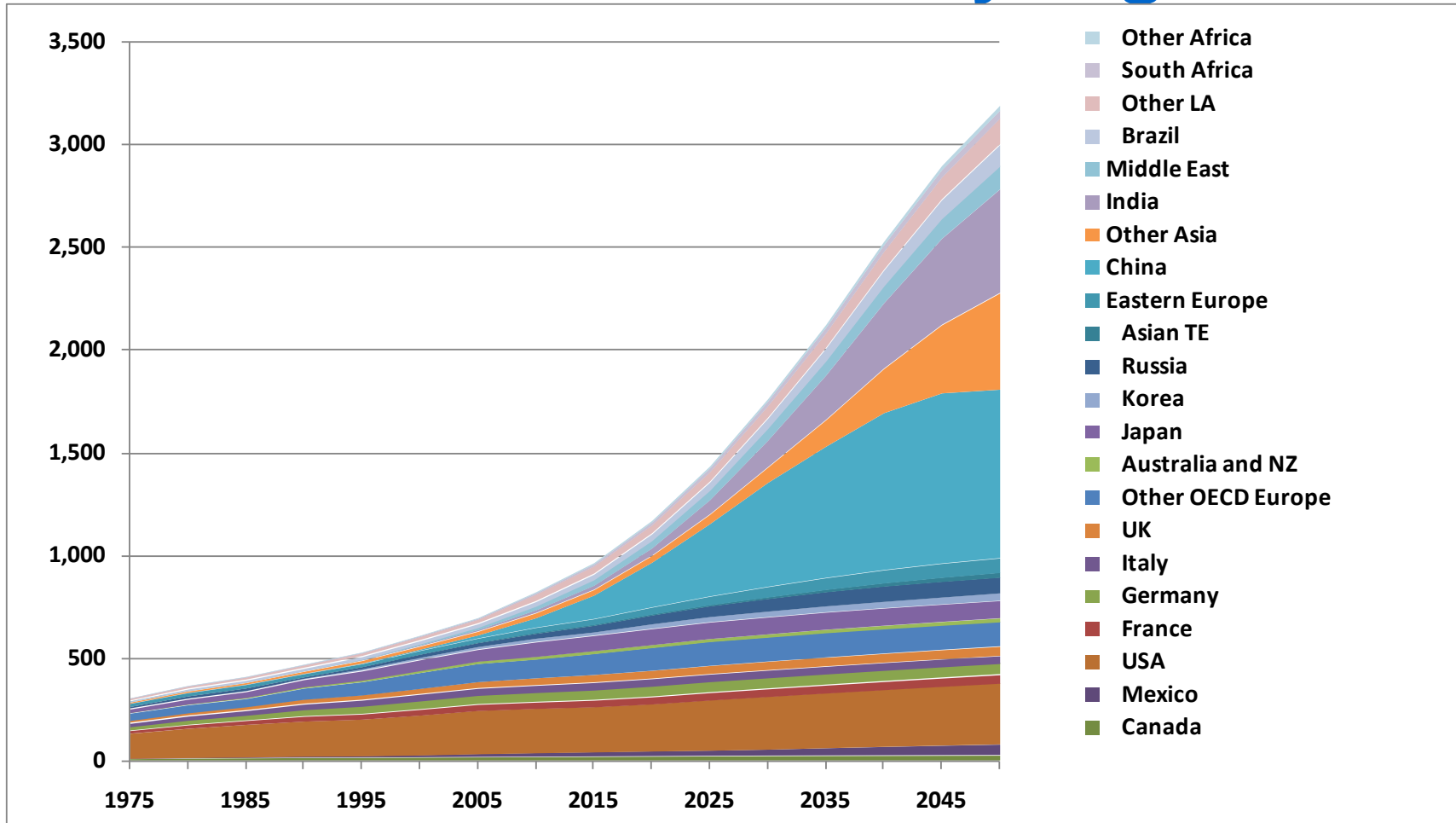
Ownership close-up for Asia





ETP vehicle ownership projections

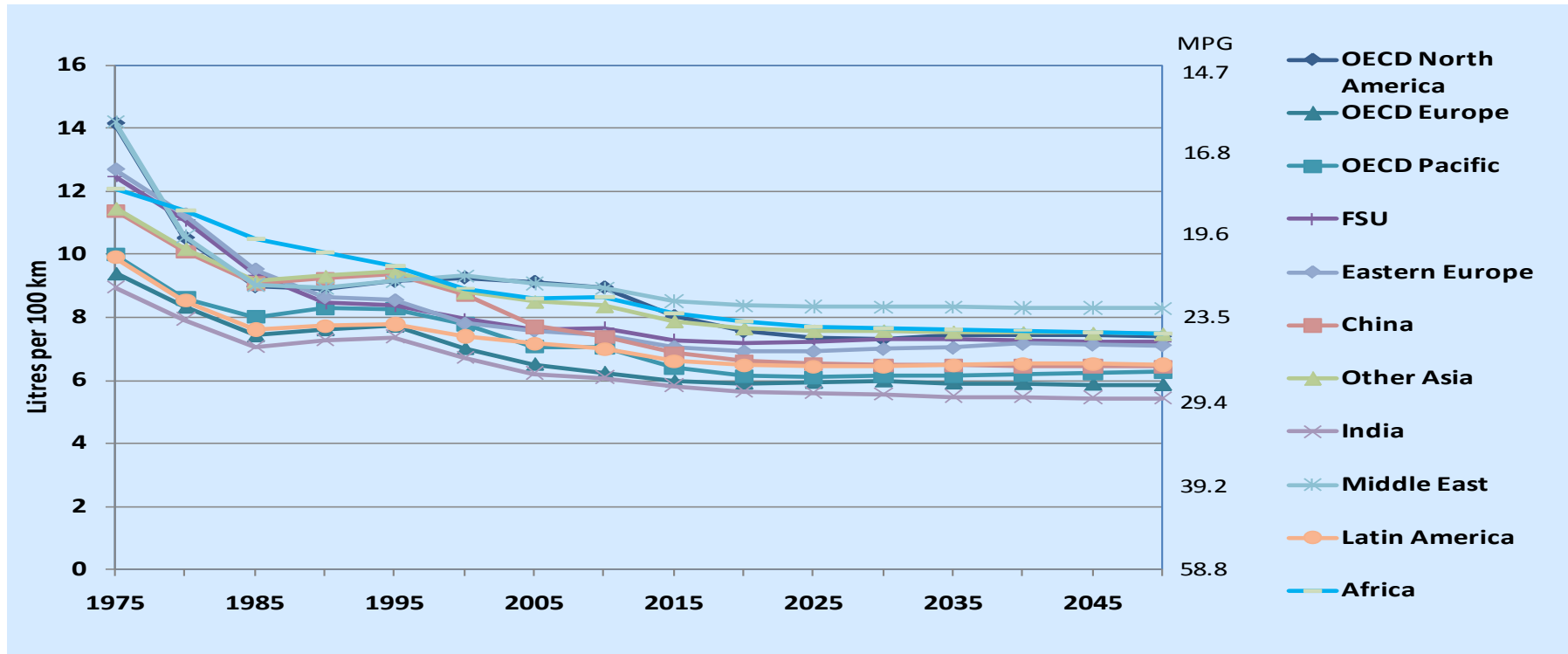
Total car stocks by region





Vehicle fuel economy, new sales

Baseline ETP

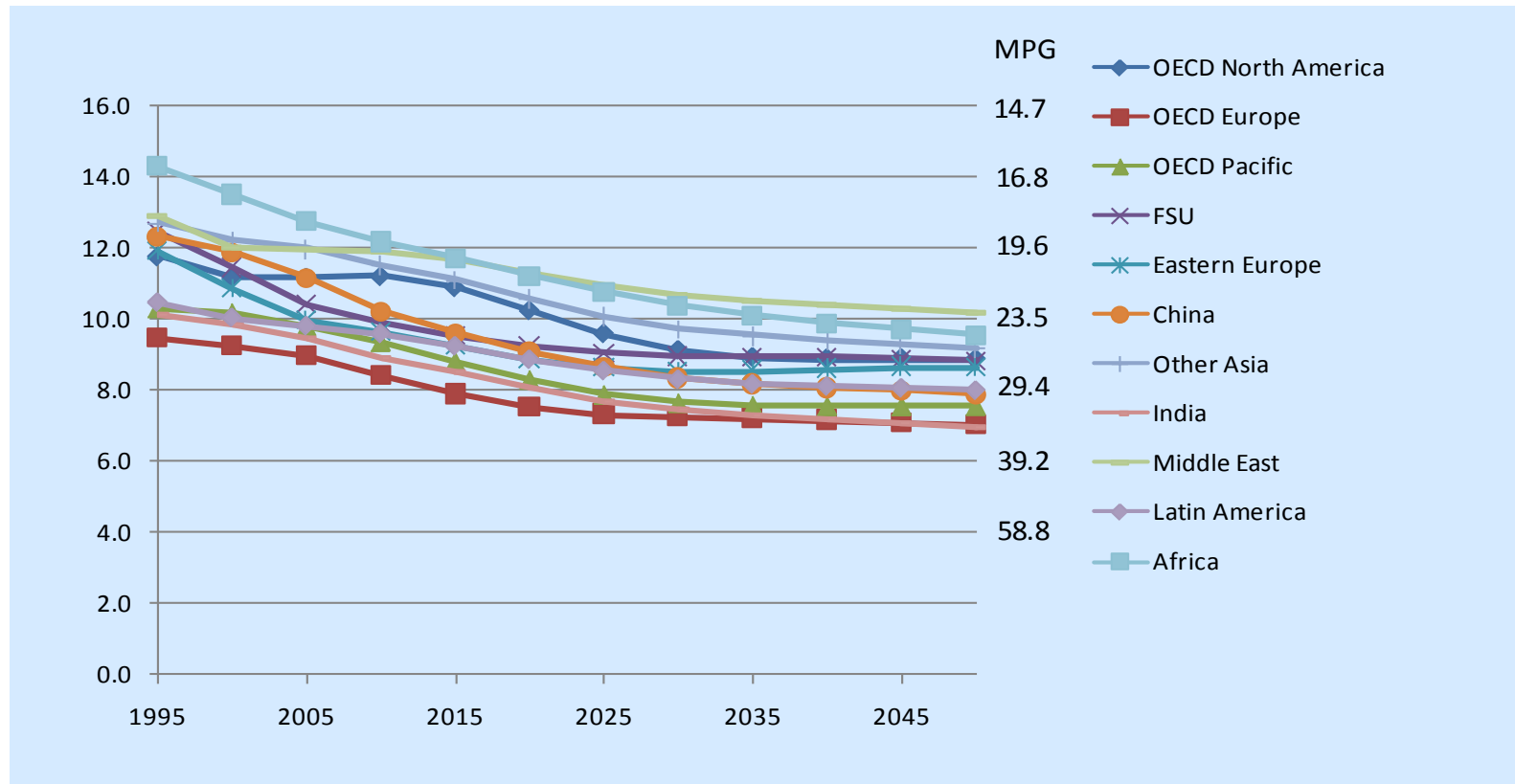


- Fuel economy does improve in the baseline scenario, but not much after 2015
- The new CAFE law in US and the Top runner in Japan are included. In Europe fuel economy reaches 130g CO₂ per km by 2015



Vehicle fuel economy, stock

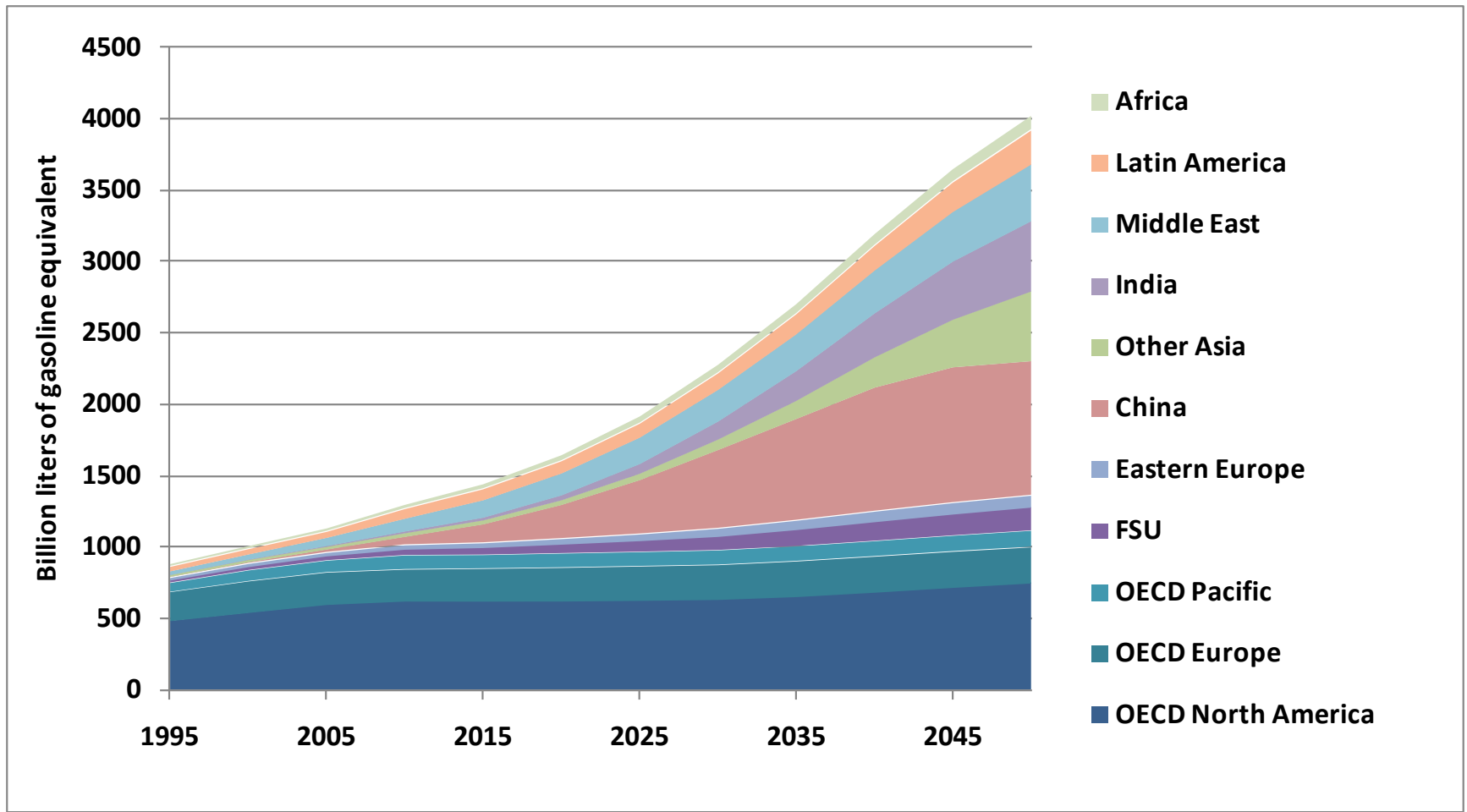
Baseline ETP



- New car improvements are passed on to the total stock, but stock turnover takes time

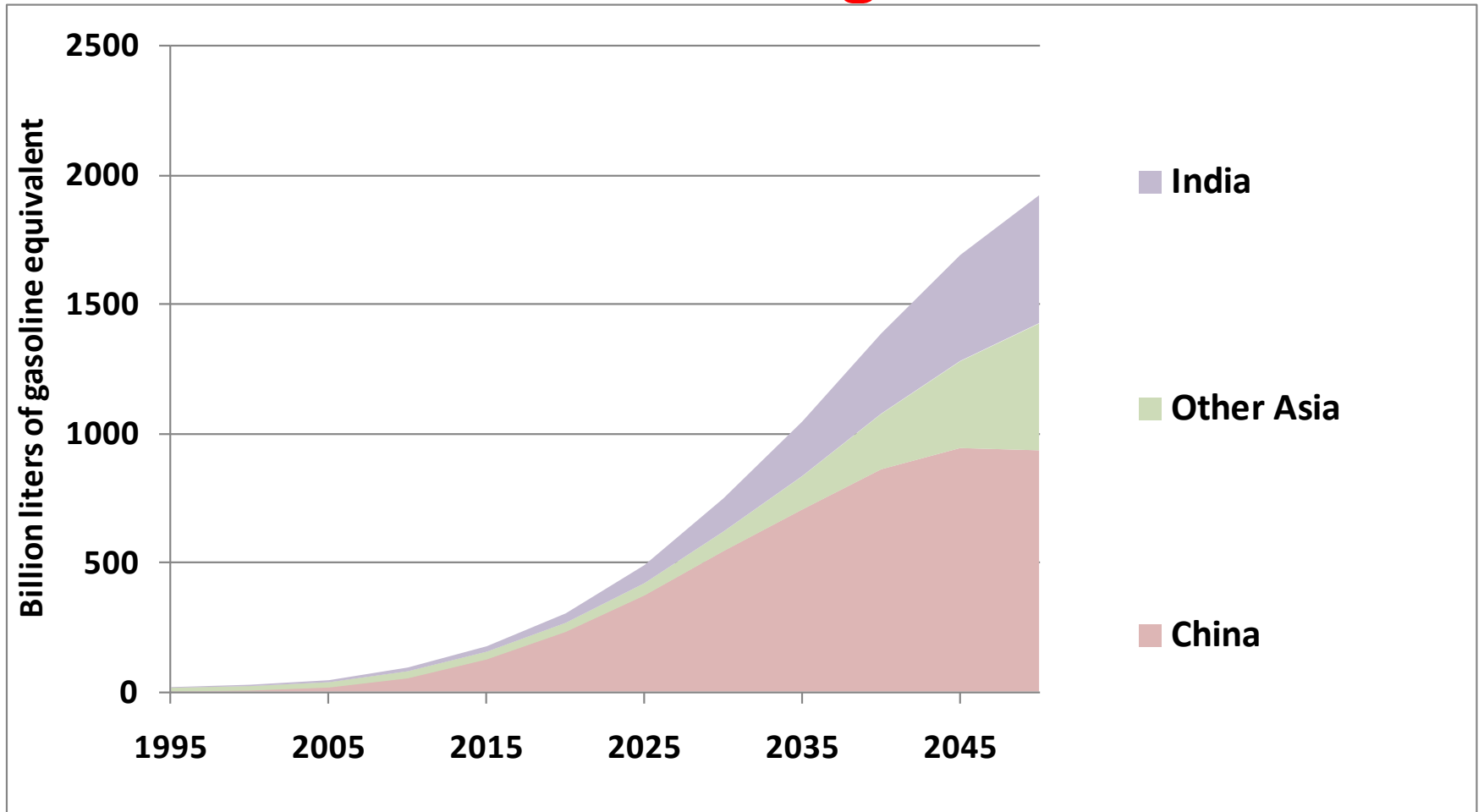


ETP Projections for LDVs: Resulting Fuel Use by Region





Close-up: Resulting LDV Fuel Use in Asian Regions





How LDVs can achieve large oil use and CO₂ emissions reductions

- **Efficiency improvement generally is our cheapest option**
 - ◆ Clearly our most important near term option
- **Electric and hydrogen vehicles are important medium/long-term options, but will take time**
 - ◆ Plug-in hybrids are a likely first step
- **Biofuels could be important, but only if sustainable and really deliver CO₂ reductions – big questions**

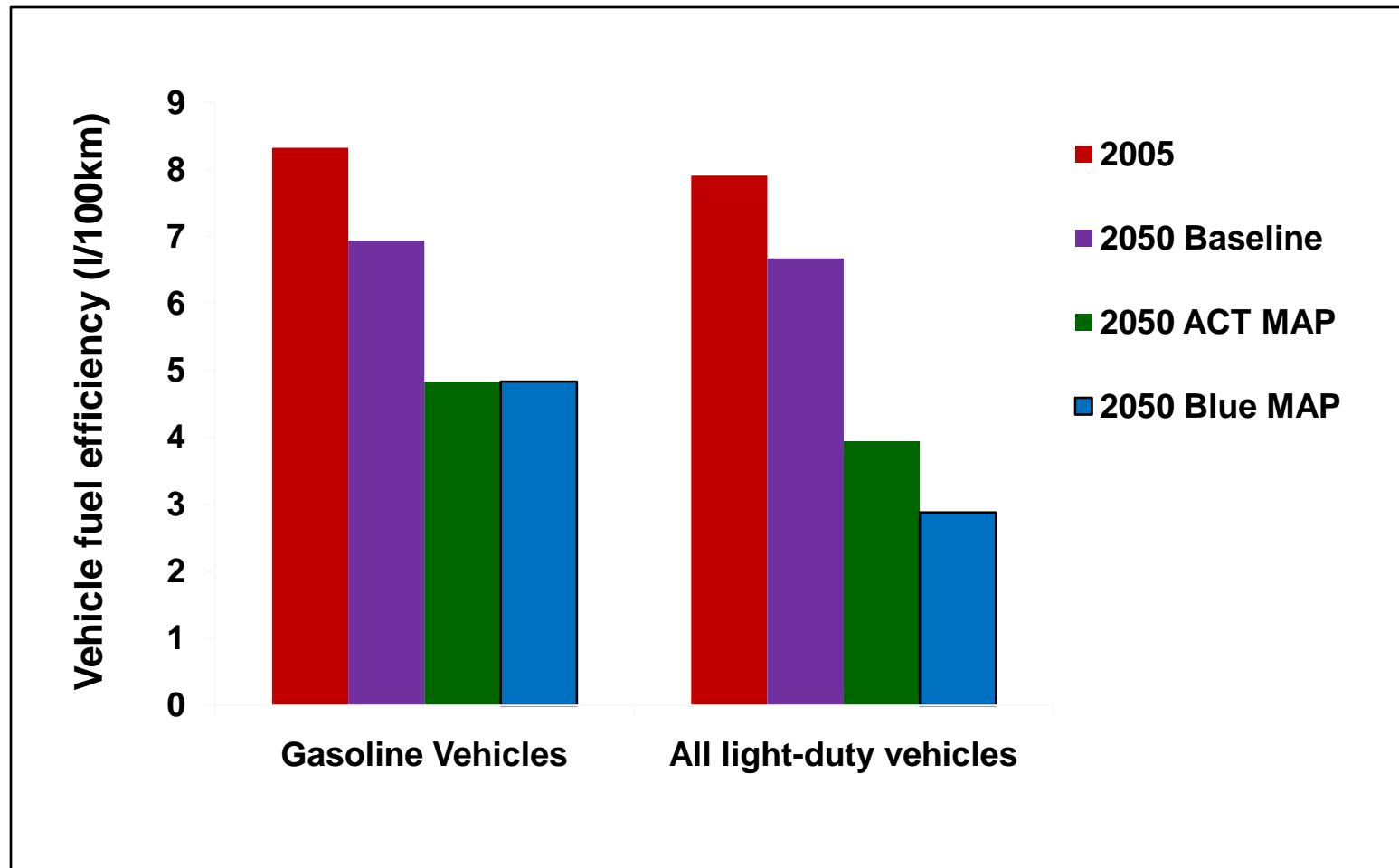


New LDVs can become 50% more efficient by 2030

- **In some countries, progress toward this 50% target has already begun**
 - ◆ **This is, very roughly as a global average, moving from 8 L/100 km to 4. Some countries are above 8 and some are already well below 8.**
 - ◆ **Some individual vehicles, like Prius are there already**
- **Involves maximum use of available technology, including hybrids**
- **Important to constrain increases in vehicle size, weight and power**
- **Plug-in hybrids may play a significant role if battery costs come down further**

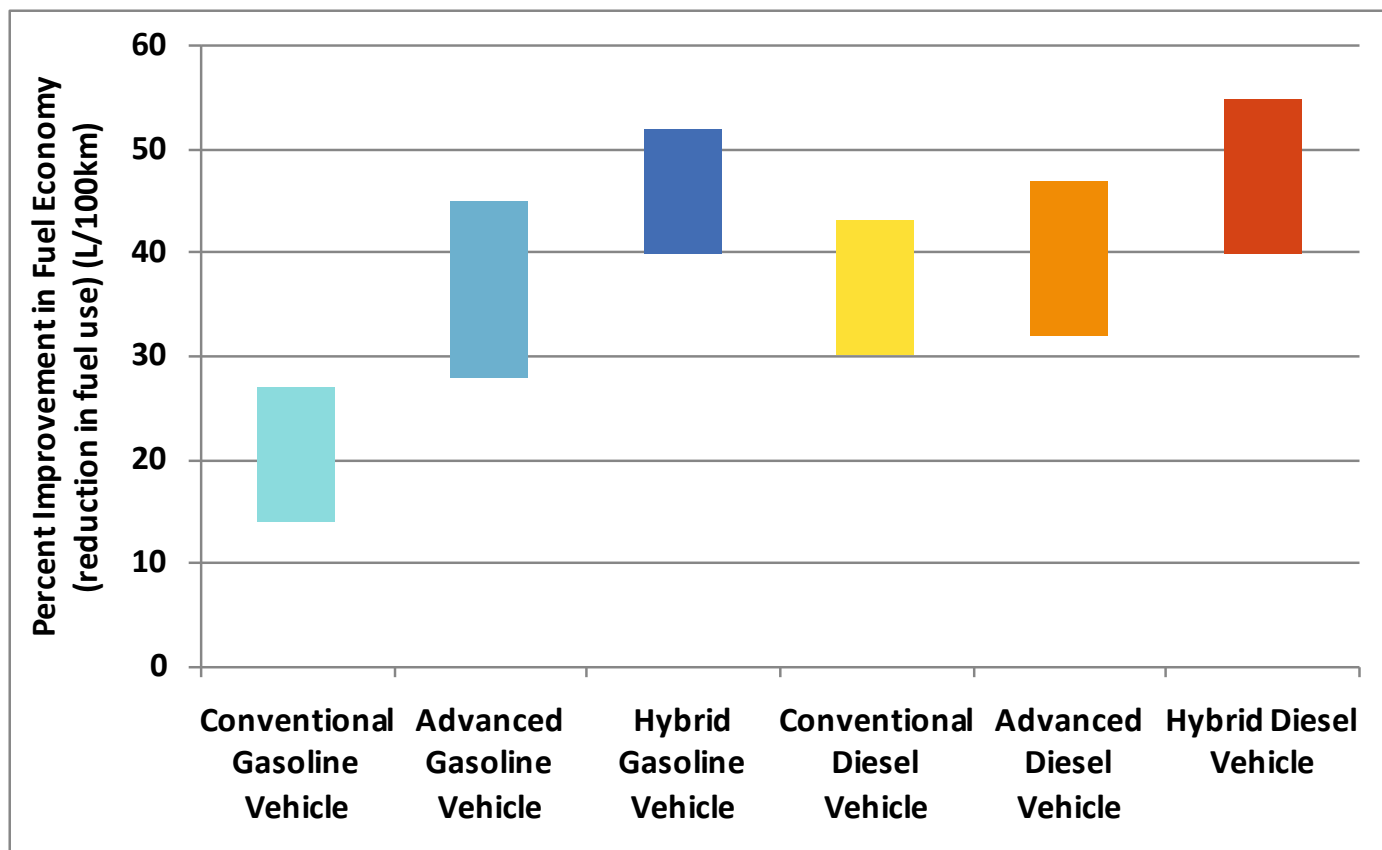


IEA ETP 2008: New LDV Fuel Economy





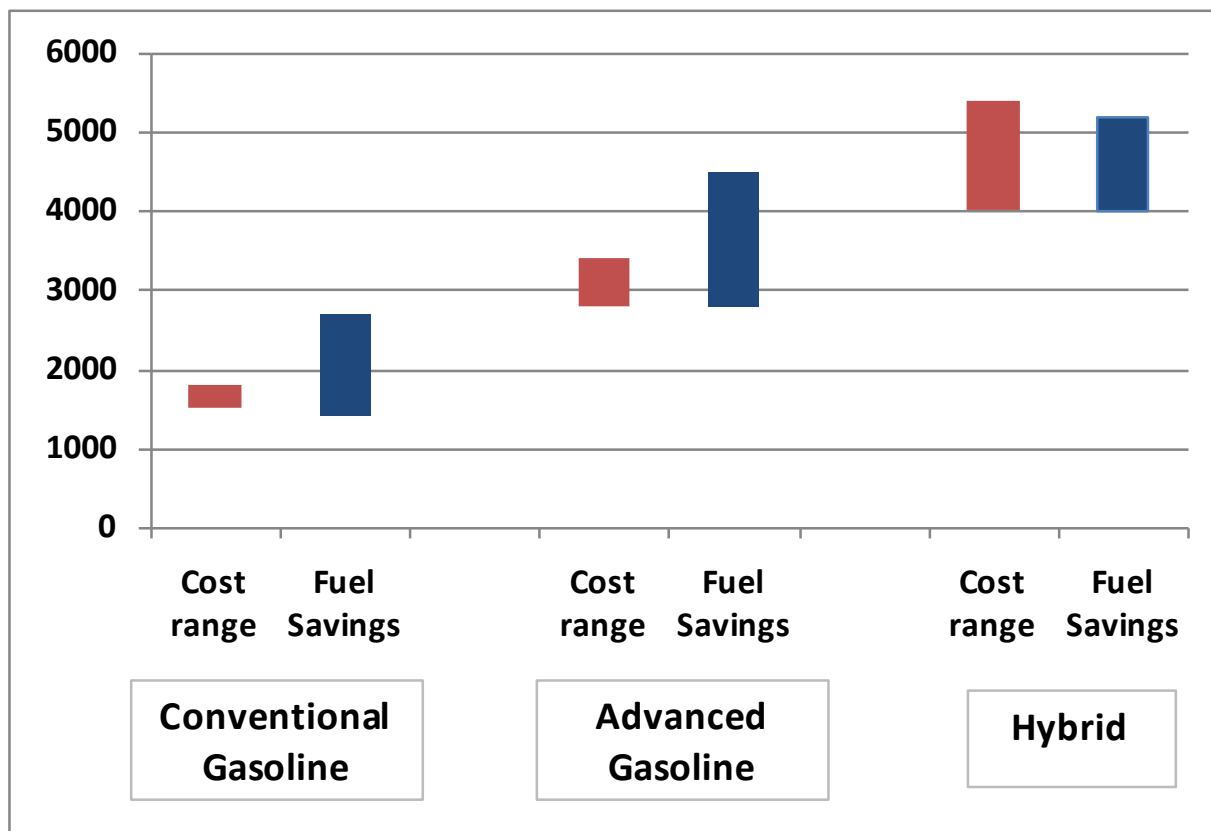
IEA Estimates: FE improvement potential in OECD Countries



- Based on an analysis of technology potential and current market penetrations for engines, drive-trains, components, weight reduction and aerodynamic improvements



IEA Fuel Economy Estimates: Costs and Fuel Savings per Vehicle

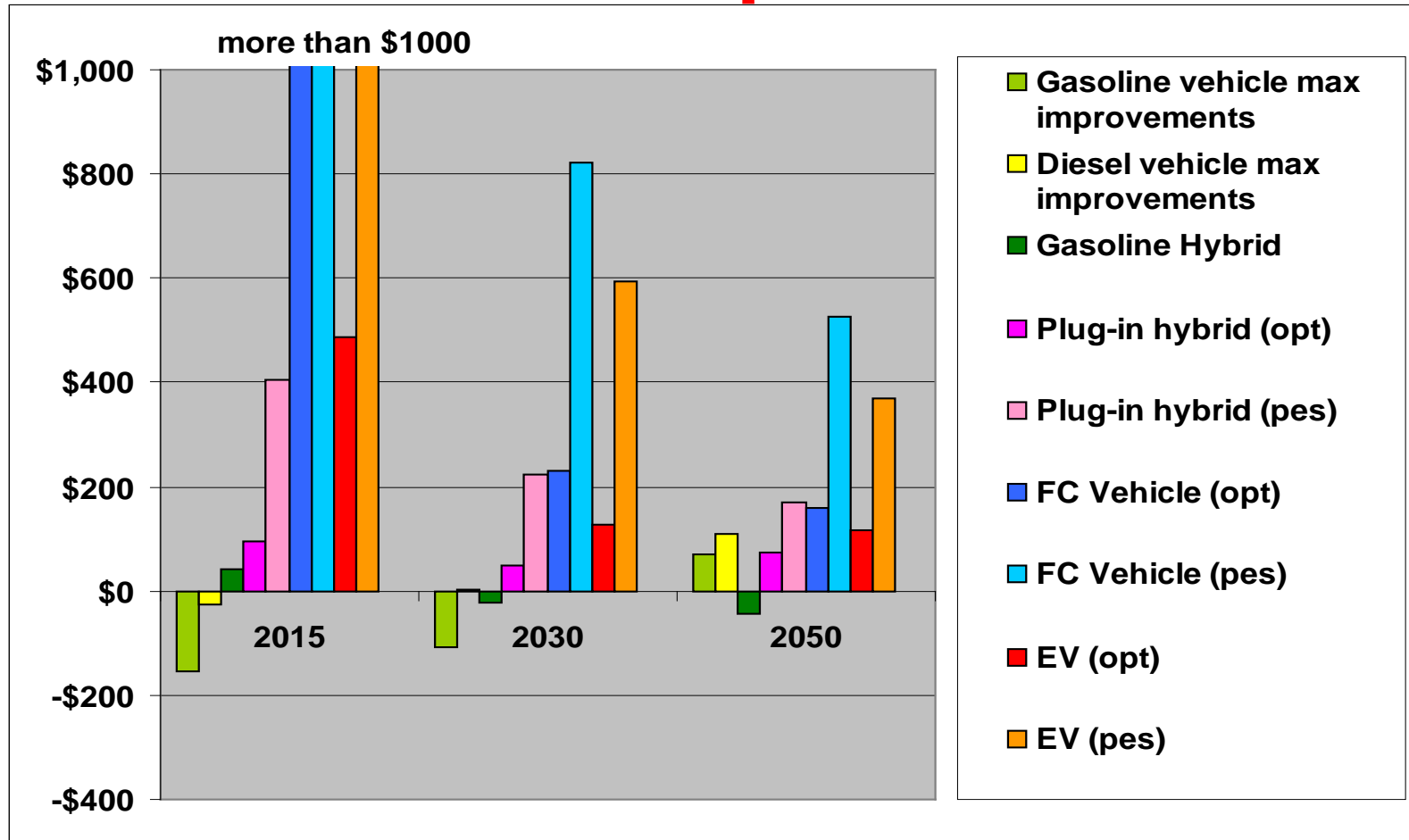


The fuel savings values in this figure can be obtained from FE improvement estimates in previous figure and either of: a) fuel saved over 200k km of driving, oil at \$60/bbl, no tax; or b) fuel saved over 100k km of driving, \$100/bbl, \$0.25/litre fuel tax.



LDV Technology Costs

ETP: Net cost per tonne CO2



Opt: optimistic, pes; pessimistic; based on \$60/bbl oil and undiscounted vehicle and fuel costs



Fuel Economy Policy Considerations: OECD

- We have or will have LDV efficiency/CO₂ regulations in several OECD countries
 - ◆ US, Japan, Korea, EU and Canada will have them by 2010
 - ◆ US, Japan and several EU countries also have efficiency/CO₂-differentiated vehicle tax policies
- We will need to keep tightening regulations over time in order to achieve 50% reduction potential
 - ◆ And perhaps support regulations with fiscal incentives
- Current regulatory systems are quite different
 - ◆ Different test procedures and stringency
 - ◆ Different regulatory design including lead time
 - ◆ Different supporting fiscal measures
- Do we need to eventually align these systems?
 - ◆ Would benefits justify such an effort?



Considerations in Developing Countries

- **Define Goals:**
 - ◆ **Economic efficiency**
 - ◆ **Push new technologies; avoid discouraging key technologies**
 - ◆ **Encourage mix shift? (or prevent shift to larger, heavier, more powerful vehicles)**
 - ◆ **Fairness**
 - ◆ **Encourage safety and cleaner air**



Tax v. Regulatory Approach

- Taxes encourage/discourage but do not require
 - ◆ Taxes set maximum cost per unit fuel economy improvement, but not outcome
 - ◆ Regulatory approach sets FE outcome, but not cost
- Taxes can be used as a complement to standards



Domestic production v. imports

- More influence is possible over vehicles produced in-country
 - ◆ But a domestic vehicle industry will also be an important stakeholder
- Similar treatment is possible for imported vehicles
 - ◆ For both new and used vehicles
- A regional block could combine to have a bigger influence



Setting stringency of the target

- How hard to push?
- Possible approaches
 - ◆ Assessment of technology potential
 - ◆ “Top runner” approach – current and projected vehicles
 - ◆ Comparable rate of improvement – based on historical rates
- Time frame also important



Conclusions

- Without policy interventions oil use in many countries will expand by an order of magnitude by 2050
- It appears reasonable to target a 50% reduction in vehicle energy intensity, on average around the world by 2030
 - ◆ However we need better data on baseline values and current trends in individual countries
- We need to identify information gaps, the optimal forms of policy, the role for different actors



Global Fuel Economy Initiative

FIA Foundation, IEA, ITF, UNEP

- IEA and its partners are soon launching a “Global Fuel Economy Initiative”
- This initiative will feature four key elements:
 - ◆ Data development and analysis of fuel economy potentials by country, region
 - ◆ Support for national and regional policy-making efforts
 - ◆ Outreach to stakeholders (e.g. vehicle manufacturers)
 - ◆ Information campaigns around the world to educate consumers, stakeholders
- What happens next? Shape of national, regional initiatives
 - ◆ IEA and its partners are ready to help