



Feel the difference



Eco-Driving Workshop

View of the European Automobile Manufacturers

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ACEA

Association des Constructeurs Européens d'Automobiles

- 13 companies, CEOs in ACEA Board
- 17 mio. vehicles annual production
- 1.9 mio. directly employed
- €19 bn. R&D investment
- €33.5 bn. trade surplus
- €340 bn. tax revenues

- Associated members: national associations

BMW Group

DAF

DAIMLERCHRYSLER

FIAT
GROUP

Ford

GM

MAN

PSA PEUGEOT CITROËN

PORSCHE

RENAULT

SCANIA

VOLKSWAGEN AG

VOLVO

Reducing CO₂ emissions from cars

- ACEA supports reaching EU car target of 120g/km
- ACEA agrees to major contribution via car technologies: ~75%!
- ACEA ready to overachieve EU general target of 20% reduction between 1990 and 2020
- ACEA supports revision of labelling directive
- ACEA supports CO₂ based taxation for cars & alternative fuels

→ Industry ready to make major contribution

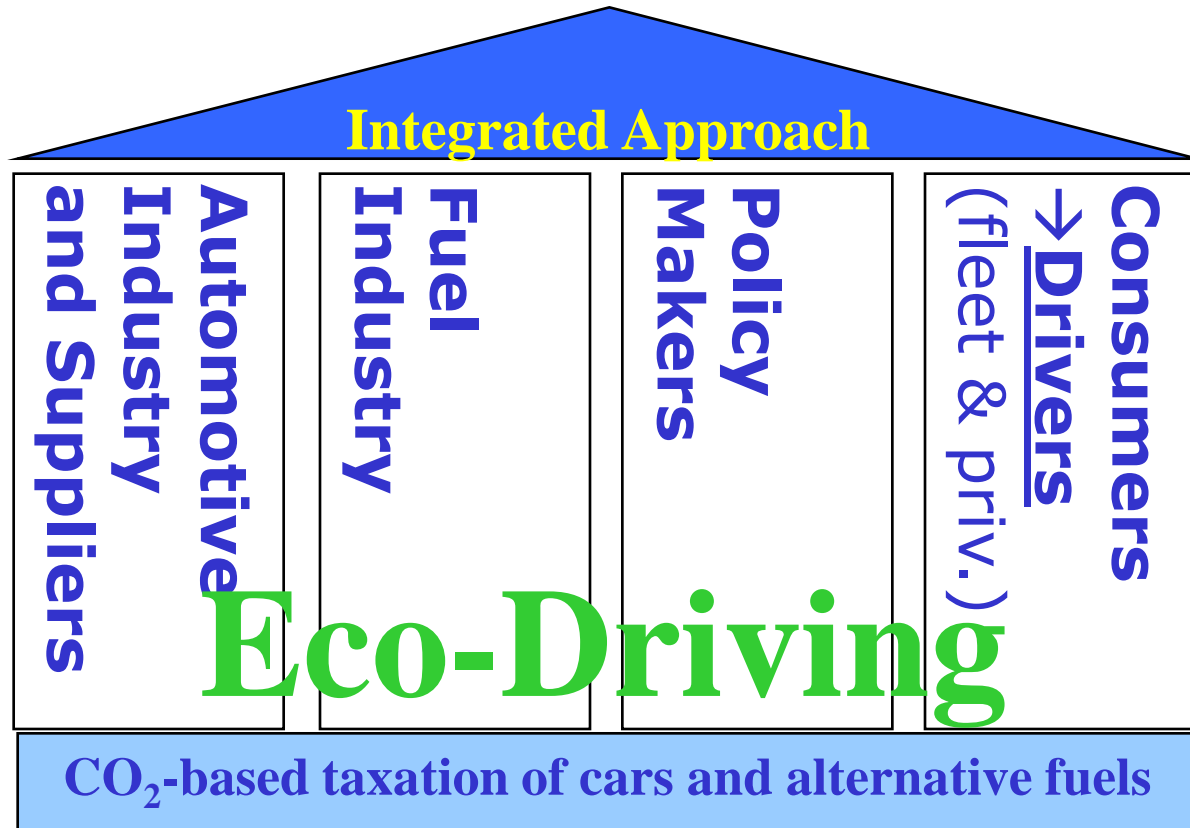
Way forward: Integrated Approach

- Automotive industry will continue making major efforts
- **Integrated Approach**
 - Car technologies
 - Alternative fuels
 - Infrastructure measures
 - Eco-Driving
- **Cost-effectiveness** means reaching environmental targets at lowest cost to society

Introduction Year	New CO ₂ Efficient Technology
• 1995-1996	• Direct-injection diesel engines
• 1997-2000	<ul style="list-style-type: none"> • New generation of advanced diesels, notably incorporating common rail technology • Automated Manual Transmission • Gasoline direct injection (GDI) engine models launched
• 2001	<ul style="list-style-type: none"> • Two-step variable valve timing • Valve train with roller finger followers (lower friction) • Fully variable valve lift & timing • Variable length Intake Manifold • 2nd generation diesel common rail injection (high pressure) • Exhaust gas turbochargers with variable nozzle geometry turbine • Application of advanced diesel technology to smaller engines, and consequently to small cars • 6-speed automatic gearbox • New generation of bio-fuelled vehicles
• 2002	<ul style="list-style-type: none"> • Fully variable valve lift & timing technology combined with GDI • Variable length intake manifold on small gasoline engines • Fast warm-up cooling system • Torque converter lock-up for 1st gear on automatic
• 2003	<ul style="list-style-type: none"> • Double clutch/Direct Shifting gearbox • 7-speed fuel-economy optimised automatic transmissions • Common rail injection system with 1600 bar • Unit injector of 2050 bar • Energy management control systems, including load levelling, to reduce engine idle speed • Electro-hydraulic power assisted steering system • Fully electric power assisted steering
• 2004	<ul style="list-style-type: none"> • New generation turbocharged small displacement diesel engines introduced • Variable Twin Turbo technology on diesel engines • Piezo-injection systems on diesel engines • Stop-start with regenerative braking • 2nd generation friction optimised rear-axle gearbox • Torque converter lock-up for 1st gear on automatic transmissions across model-range • High efficiency alternator • Regulated electrical fuel pump
• 2005	<ul style="list-style-type: none"> • 2nd generation Valvetronic (fully variable valve lift & timing system) • Twin-charger technology for gasoline vehicle combined with downsizing of combustion engine • Roll-out of LED technology for high volume segments with benefits concerning electric energy consumption • Hydro-high-pressure forming for high strength structures with weight advantages • Advanced cooling system with electric water pump • Electronically controlled oil pump • 3rd generation common rail injection system

Energy Efficiency Action Plan & CARS 21 endorsed Integrated Approach, including Eco-Driving

Shared Responsibility: Integrated Approach

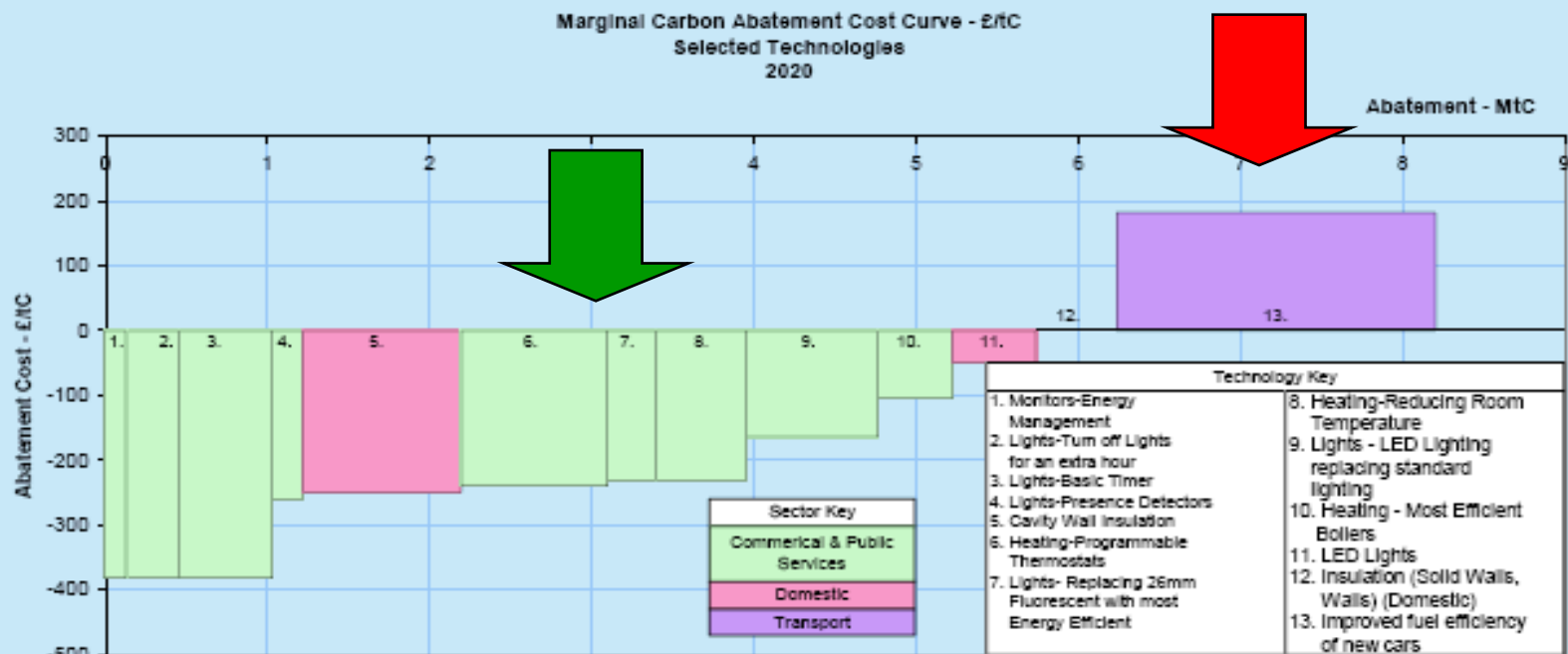


Multi-stakeholder Contribution

Cost-effectiveness

- Stern Review: car technology is high-cost measure compared to other sectors of society/industry

Figure 9.2 Aggregate carbon abatement cost curve for the UK – annual carbon savings by 2020²⁸

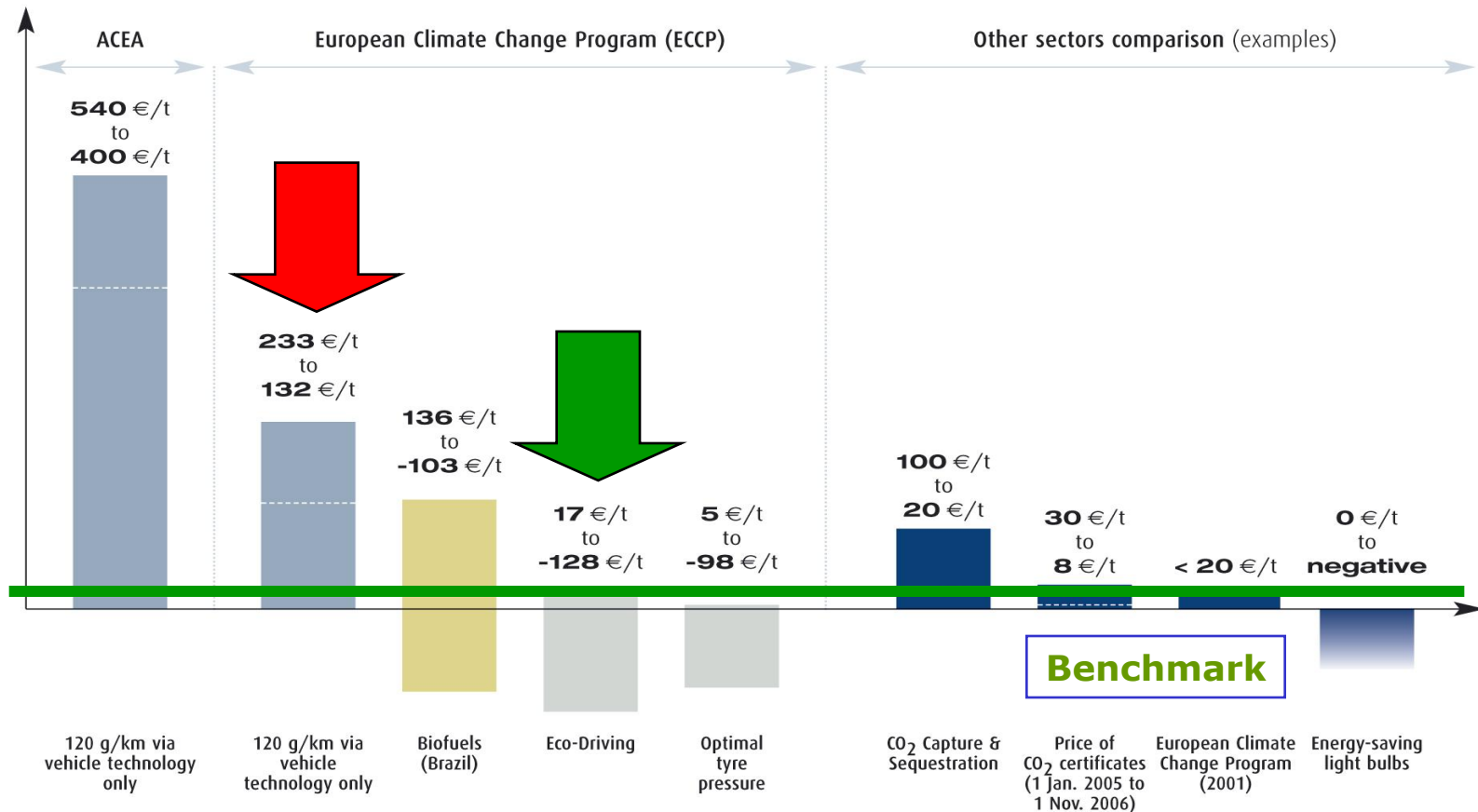


Source: See notes

Cost-effectiveness

- European Climate Change Programme: car technology is high-cost measure compared to eco-driving, which leads to cost-savings!

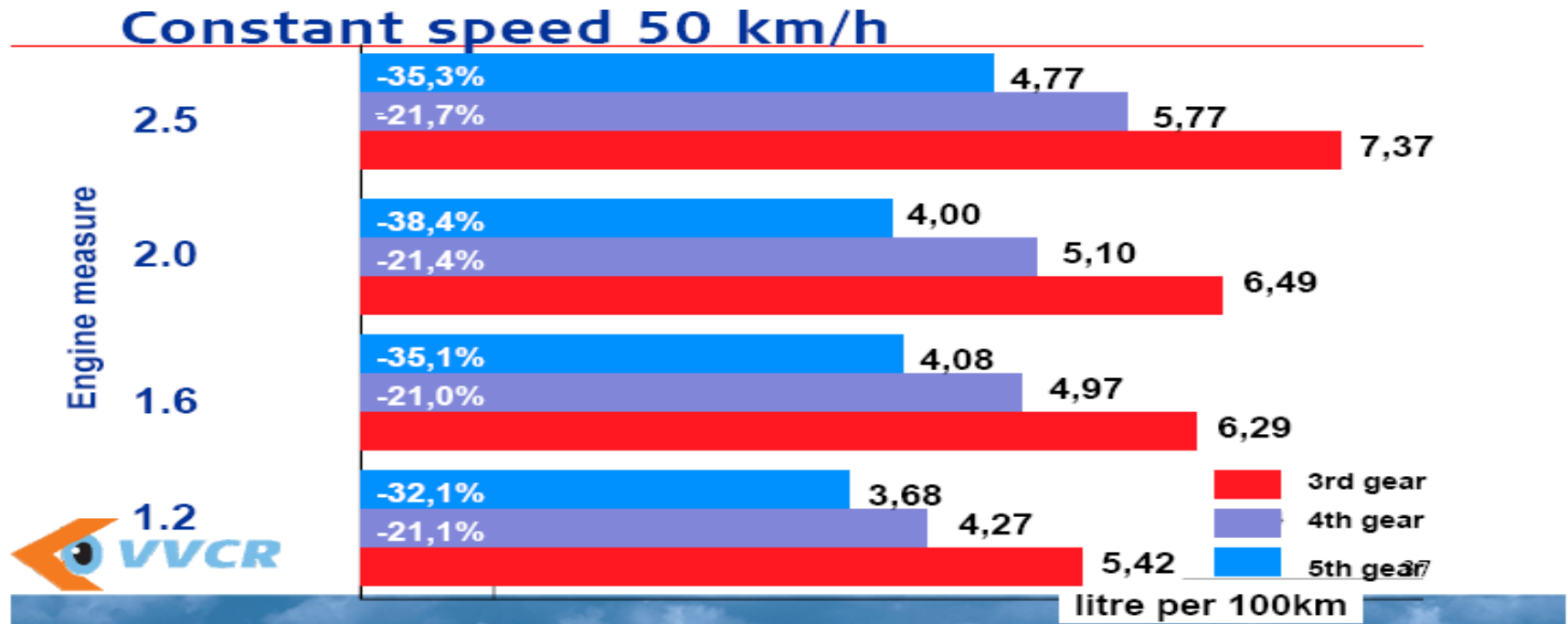
Estimates of Societal Costs for CO₂ Reductions



Strategic Module: Eco-Driving

Eco-driving should be part of strategy

- Large difference in CO2 emissions due to driver behaviour
- Cost-effective & can be applied across existing car park

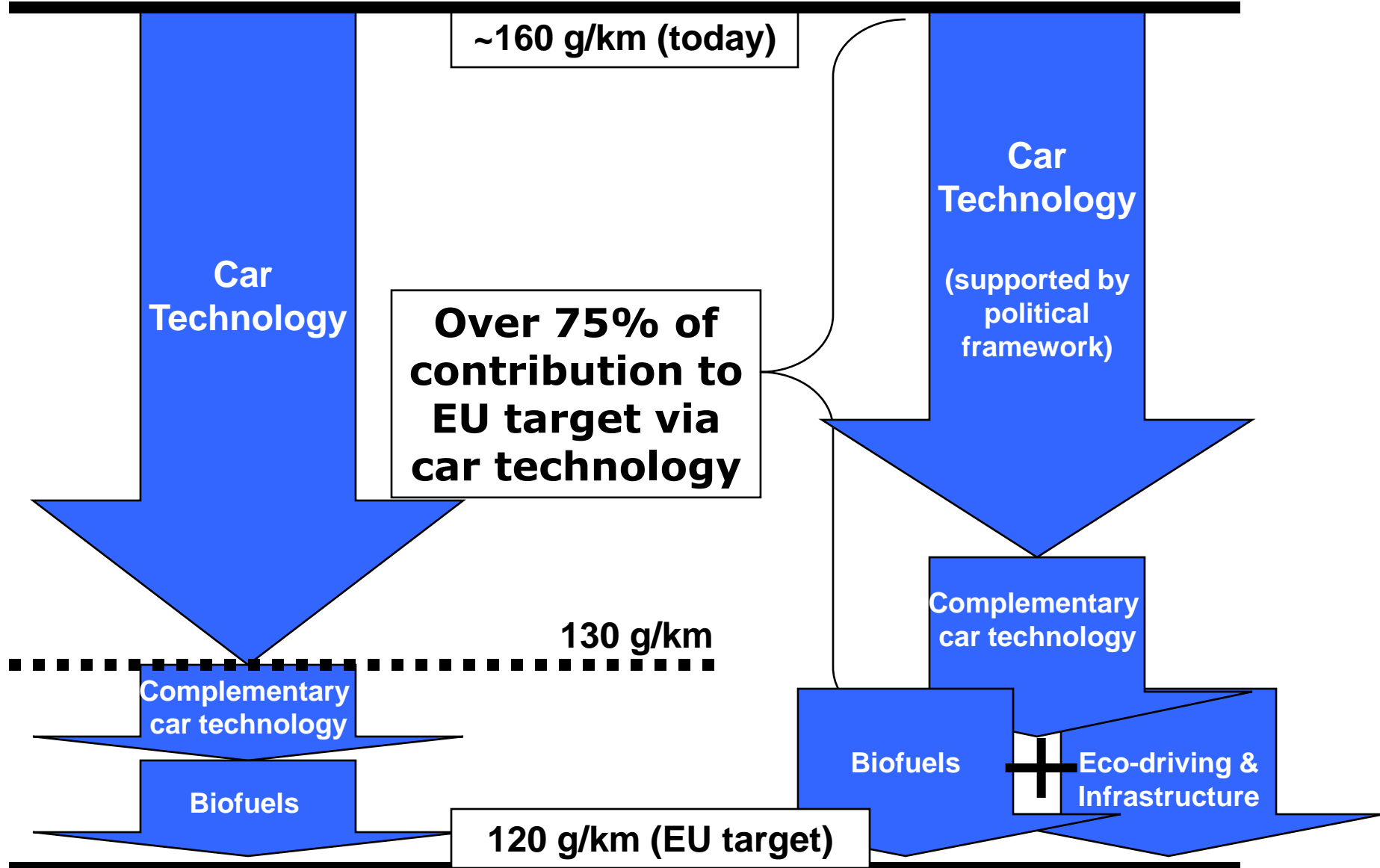


ACEA supports EU-wide eco-driving campaign

Reaching target in a smarter way

Commission proposal

ACEA proposal



Eco-Driving Characteristics & individual / societal Benefits

- Defensive, relaxed & smart / 'cool' driving style
- Riding at low revs – in the 'green area'
- Fluent driving / 'cruising' with minimum braking
- Better driving quality: less stress, higher comfort
- Increased fuel economy / saving resources
- Reduced CO₂ emissions (plus others)
- Less noise
- Improved road safety

OVERALL: New Driving Culture



UNEP: Eco-Driving is an important step towards sustainable mobility.

Eco-Driving Awareness & Education

Approaches: Driver Awareness & Education

1. **Communication Tools** / Media: print, electronic & web
2. **Virtual Training**: Online & Simulators
3. **Real-World Training**: group & individual

Questions: Which way to go? Effectiveness? Costs?

- ***SYSTEM & SYNERGIES of ALL Approaches***
- ***Stakeholder Involvement & Target Groups***
- ***Monitoring & Evaluation***

Advanced Training Concepts (Ford, DVR)

MOST PROMISSING: Short Training Concepts

- a) **1 hour Mini-Training** (also fleet customers)
- b) **1/2 hour 'Test Ride' & 'Eco-Rally'**

ADVANTAGES / BENEFITS:

- **'Edutainment' = fun, practical value & emotions**
- **Mass Training = broad public approach**
- **highly cost-effective**
- **PR Opportunities, highly visible Events**
- **Variety of high-level Venues, like Motor Shows**
- **Retail Business Link** (dealers, garages, fuelling stations)

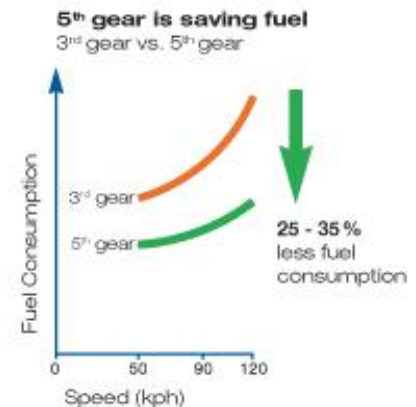
→ **Short, Smart, Effective Training & Motivation**

Ford Consumer Research: Key Findings

- **Initial Doubts** of participants before the training...
- **Surprise and Delight** after the training
- **Real-world Eco-Driving is convincing!**

- **Fuel savings: 25% (short-term) → 10%+ (long-term)**
 - Emotional benefits: 'feeling better' at various levels
 - Sustainable style change / experience of success

Top-Tip: 'Low revs at high gear'



'...doing little, saving a lot...'

'...a new and ingenious driving style...'

'...more relaxed motoring...'

CONCLUSIONS

- **ACEA members support 120g/km target**, and will continue being **major contributor**
- **Integrated Approach** required for **cost-effectiveness**, including **Eco-Driving**
- **Synergies with technologies** should be looked at, e.g. gear-shift indicator
- **Eco-Driving activities should count** towards target achievement, particularly where paid for by OEMs
- **Energising Eco-Driving activities and sufficient incentive for EU-wide Eco-Driving campaign as a multi-stakeholder approach**

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