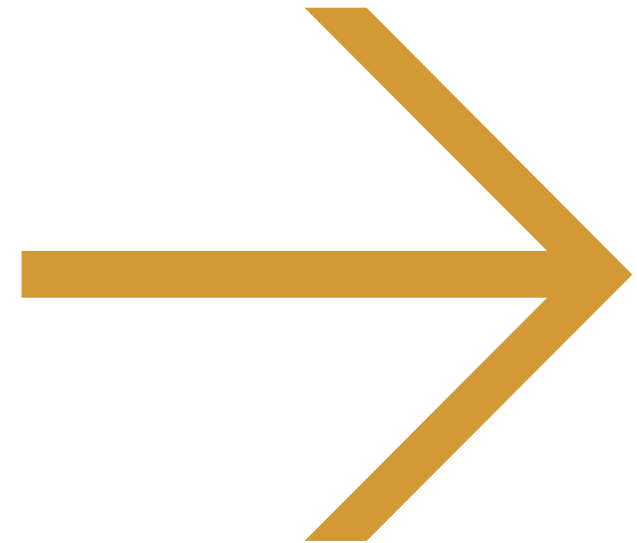


ECO-DRIVING and SPEED LIMITS saving 10% - 20% fuel in Transport IEA / ECMT workshop, Paris 2005

Martin Kroon
Ministry of the Environment
The Netherlands





Highway A13 urban hotspot speed limit





BEHAVIOUR CHANGE FACTORS

(Driving, Mode Choice, Addictions, Consumption)

1) Capacity (Can you?)

2) Opportunity (Is there?, Can it?)

3) Acceptability (Will I?, Would you?)





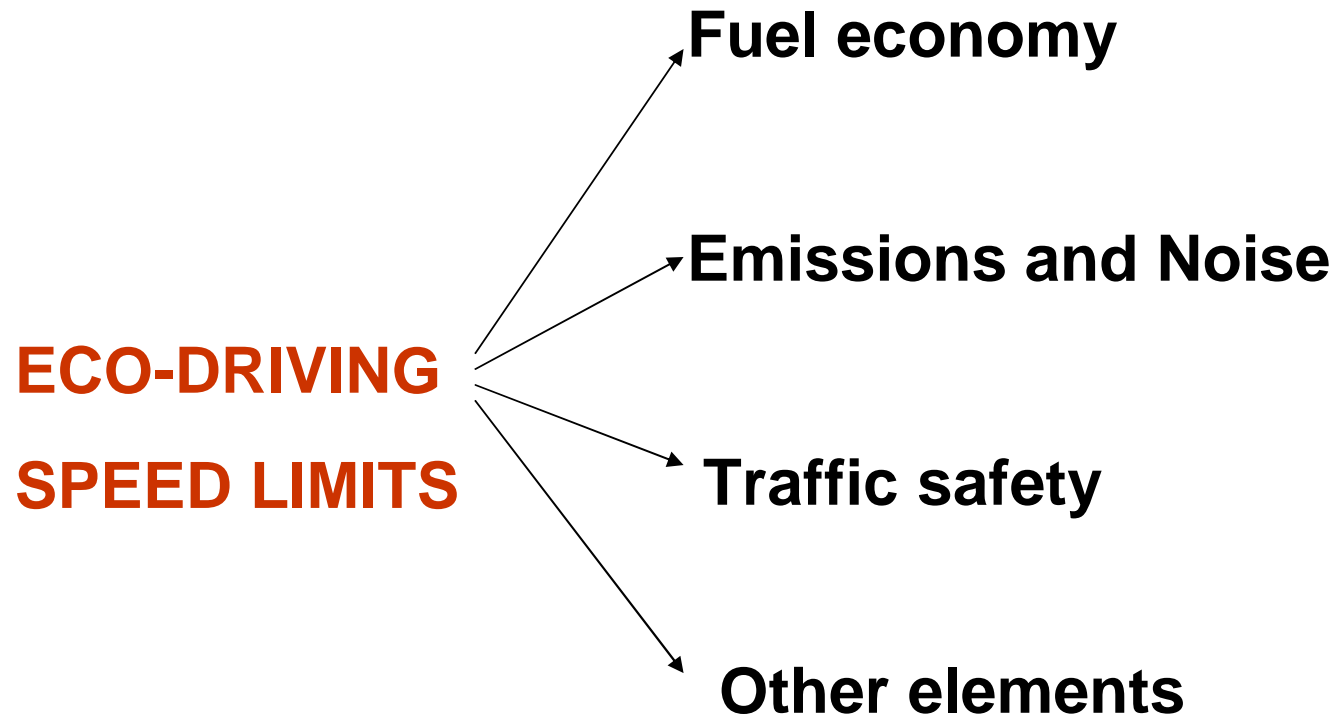
HIGHWAY SPEED LIMIT POLICY

- **Vehicle/Engine Speed & Pollution [3rd track]**
- **100 or 120 km/hour general speed limit?**
- **Policy goals, measures and instruments**
- **Implementation, cooperation and evaluation**
- **1999 policy stepping-up “CO2 enforcement”**
- **Conditions for achieving good practise,**
- **Lessons to be learned**
- **Air quality speed reduction to 80 km/h**
- **Future solutions: in-car, traject c., EPD, ISA**





ECO-DRIVING and SPEED LIMIT Benefits





Fuel economy (1)

ECO-DRIVING training

↑10% to 25% savings on average

↑10% in practice

HOW?

Gear change at 2000 – 2500 RPM, less vehicle dynamics (acceleration/deceleration/speeding), less idling and cold start short trips

In-car devices

(on-board computer, cruise control, RPM, MDD, GSI)

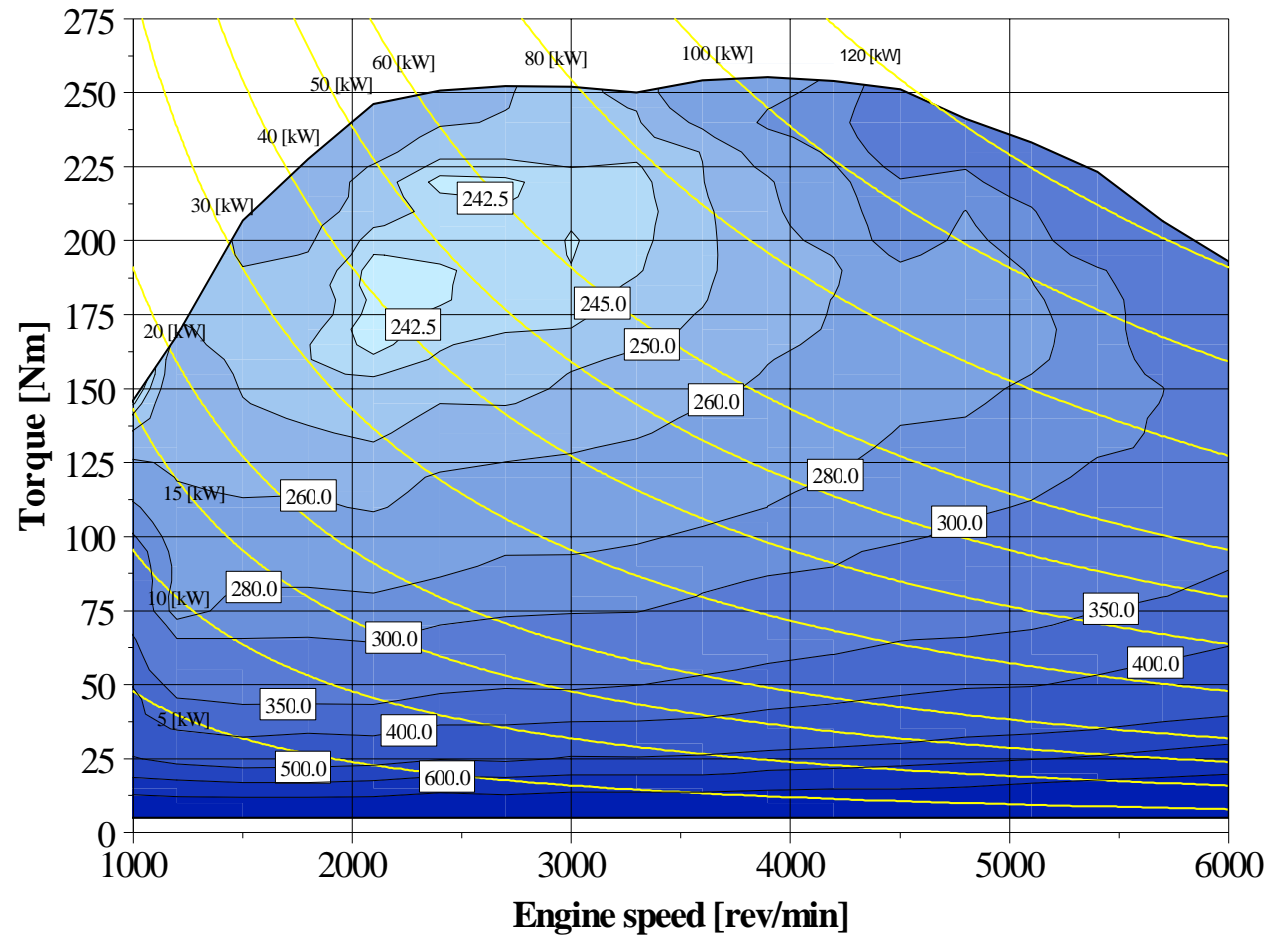
↑ 5% to 10% on average

NL: 10% of fuel costs = 1 billion litres = EUR. 1100 M



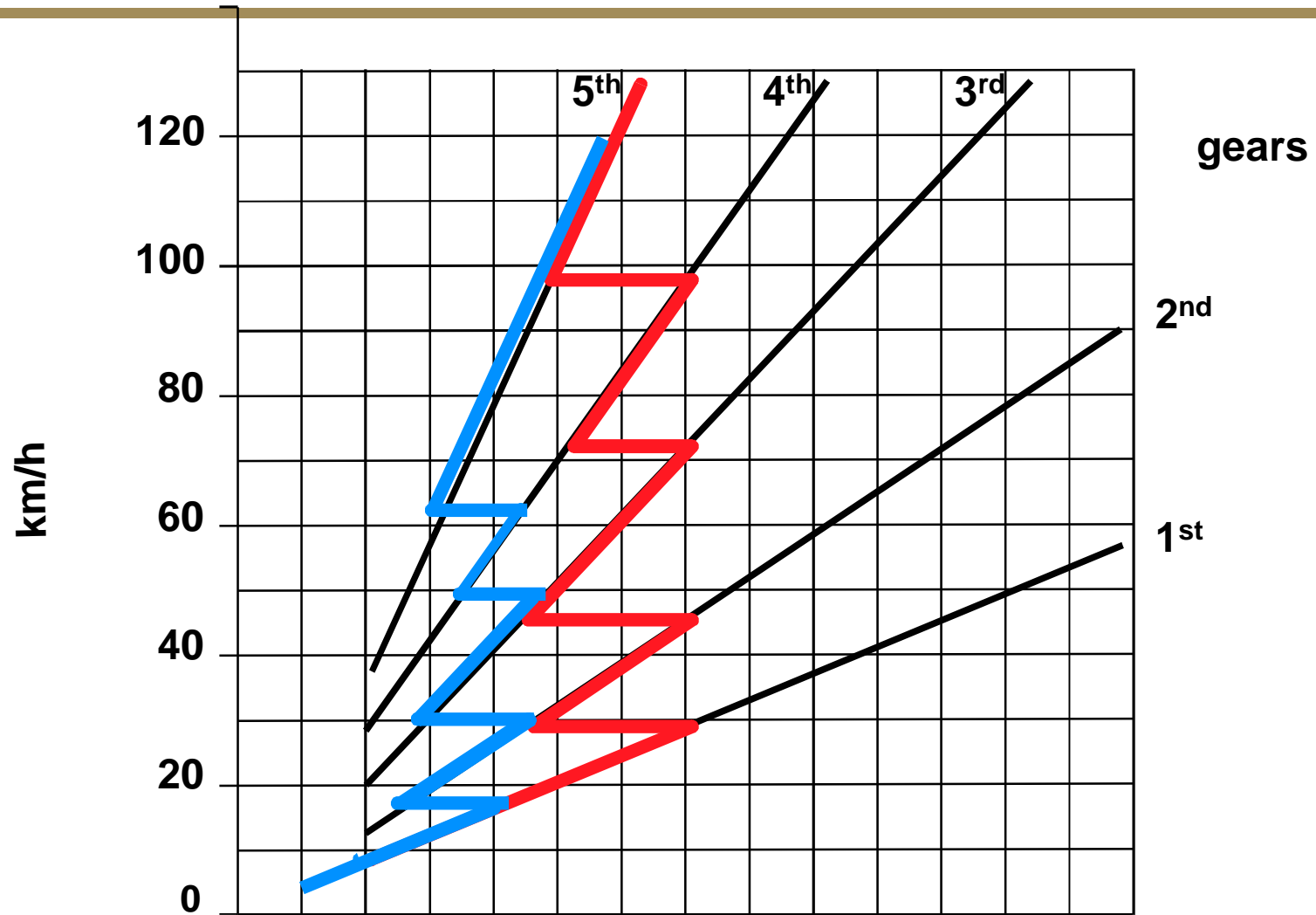


Relative fuel efficiency engine map [petrol]





Fuel economy (2)



VROM



0

1000

2000

3000

4000

5000

6000

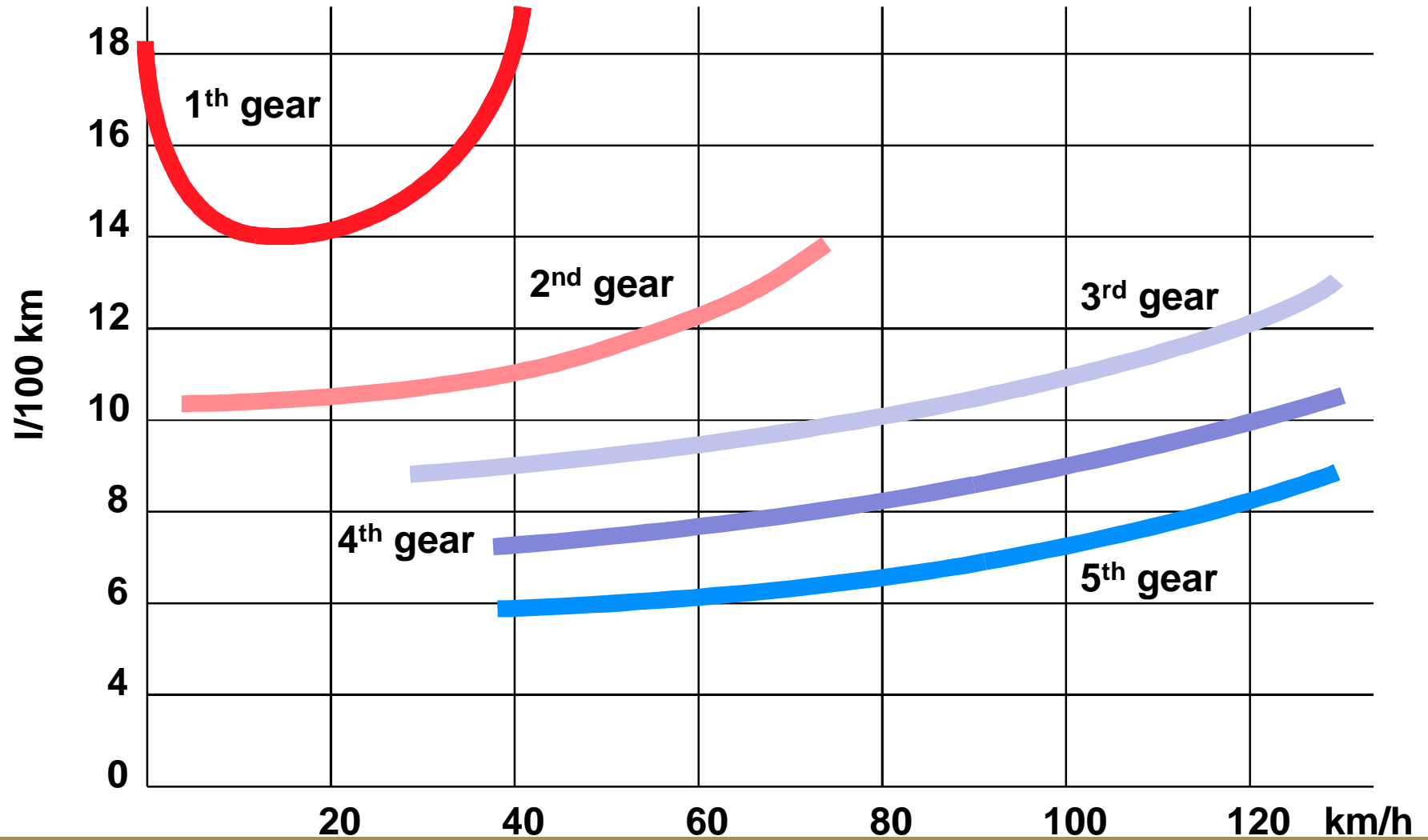
7000

revs/min





Fuel economy (3)



How Gear Shifting Affects Fuel Consumption

Seat Ibiza 1,4 l. 55 kW at 50 km/hr:

in 2nd gear = 3600 RPM = 8 km/l

in 3rd gear = 2600 RPM = 12 km/l

in 4th gear = 1900 RPM = 17 km/l

in 5th gear = 1400 RPM = 20 km/l



→ In-car devices



Feedback unit

Communicating eco-driving now

“You can save 10% - 25% fuel today when you:”

- 1) Keep your engine speeds between 1200 – 3000 RPM
- 2) Change gears (up) at 2000 – 2500 RPM
- 3) Avoid strong accelerations and full throttle
- 4) Use your rev.counter / board computer / cruise control
- 5) Live up to (highway) speed limits c.q. 90/100 km/hr
- 6) Add 10% to standard (man. manual) tyre pressure
- 7) Don't use your airco [=plus 10%-20% f.c.]
- 8) Use your bike for short trips [cold start = 300% f.c.]
- 9) [Use your brains before using your car!]





NL ECO-DRIVING programme

- CO₂ policy measures since 1988 a priority
- ECO-DRIVING programme and large network
 - ↑ Driving style of (professional) drivers
 - ↑ Driving license schools and trainers
 - ↑ Fuel efficiency labelling
 - ↑ Tyre pressure
 - ↑ Fuel saving in-car devices
- Communication and mass media campaign
- Engine/performance downsizing still taboo
- International co-operation
- Cost effectiveness: € 7-8 per avoided ton CO₂
- Goal 2010: 1 Mton of avoided CO₂ emissions per year





More information

Networks

- www.eurotra.org
- www.ecodrive.org
- www.hetnieuwerijden.nl
- www.senternovem.nl