



# CO<sub>2</sub>-differentiation in motor vehicle taxes

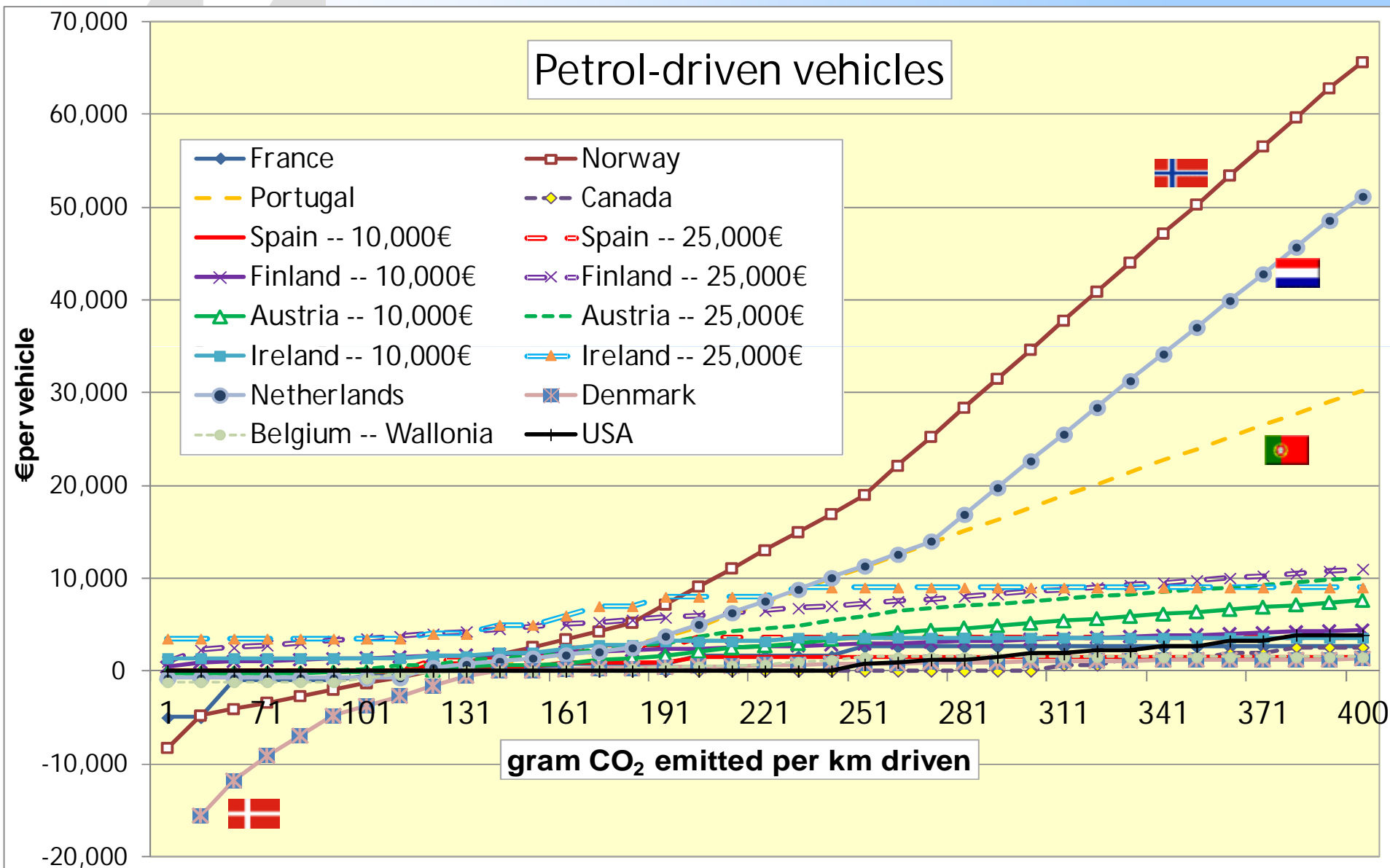
Presentation for the Danish Parliament's Tax Committee

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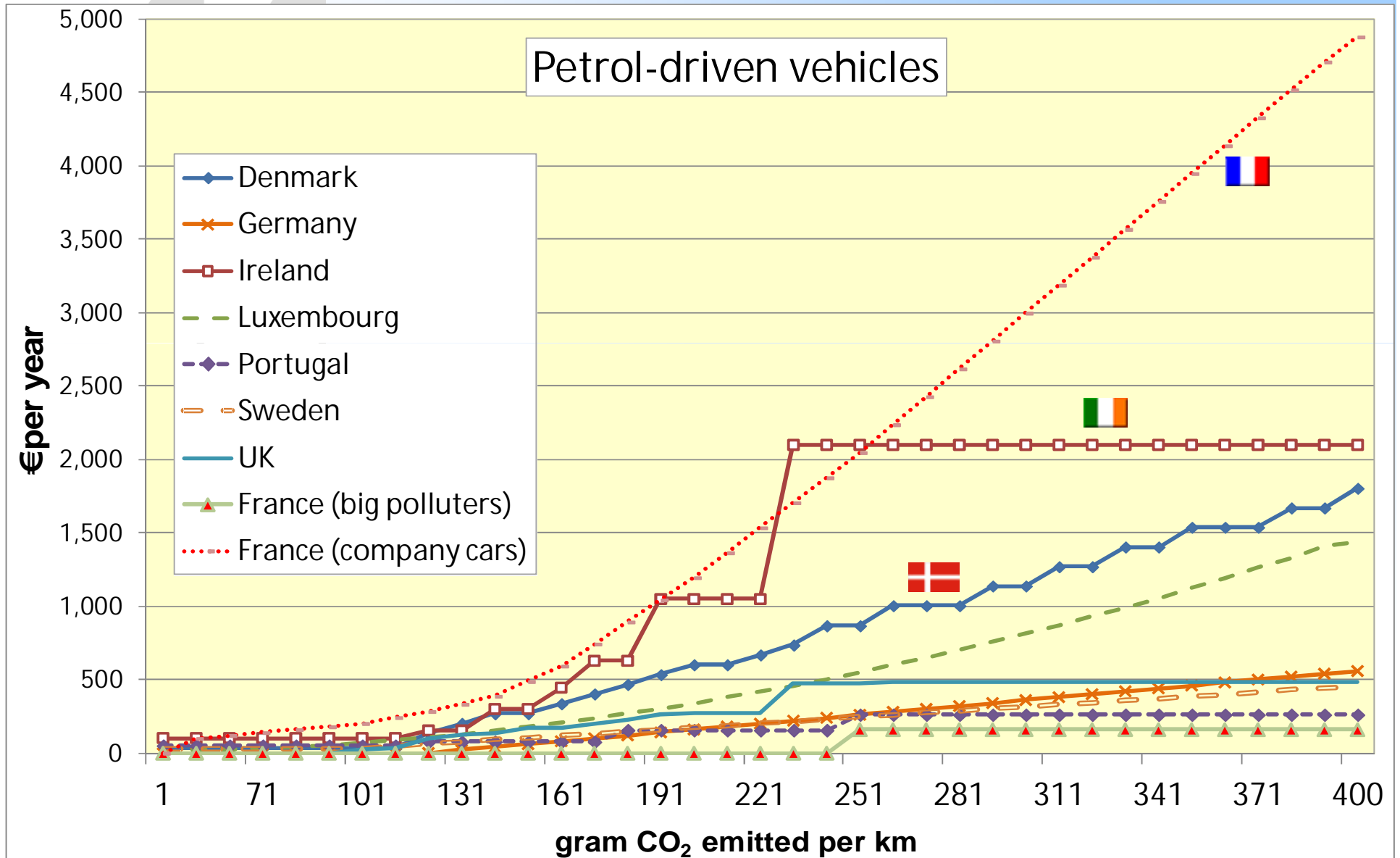
# One-off taxes on motor vehicles

€ per vehicle



# Annual taxes on motor vehicles

€ per year



## Calculating tax per tonne CO<sub>2</sub> emitted over the lifetime of the vehicle

- If one assumes that
  - all vehicles are driven 200,000 km during their lifetime
  - the lifetime of a vehicle is 15 years (for the annual taxes)
- one can calculate the taxes expressed per tonne CO<sub>2</sub> that the vehicle will emit during its lifetime.

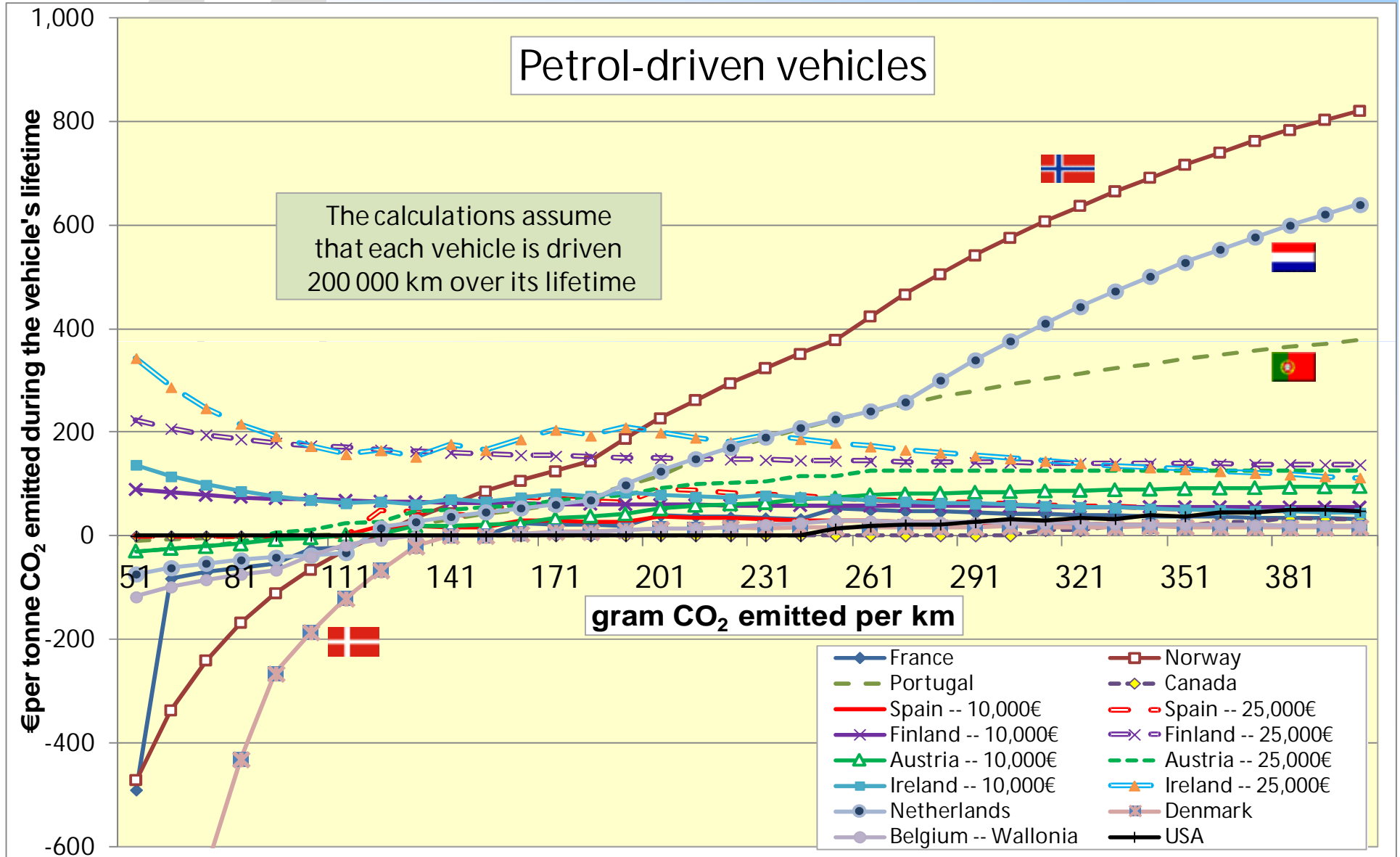
# Calculating tax per tonne CO<sub>2</sub> emitted over the lifetime of the vehicle II

## Example 1:

- The Danish one-off tax for petrol-driven vehicles is reduced 4000 DKK per km the vehicle can be driven per litre petrol, over and beyond 16 km per litre – and it is increased by 1000 DKK per km less than 16.
- 16 km per litre ~ 6.25 litre per 100 km ~ 146 gram CO<sub>2</sub> per km
- A car that goes 20 km per litre (5 litre per 100 km, ~117 gram CO<sub>2</sub> per km), gets a subsidy of 4\*4000 DKK ~ 2150€
- 200,000 \* 117 = 23,400,000 gram = 23.4 tonne
- 2,150€ / 23.4 ~ 92 € in subsidy per tonne CO<sub>2</sub> this vehicle will emit over its lifetime.
- This car will emit 5.8 tonne CO<sub>2</sub> less than a car that goes 16 km/l.
- 2,150€ / 5.8 = 371€ per tonne CO<sub>2</sub> “saved”.

# One-off taxes on motor vehicles

€ per tonne CO<sub>2</sub> emitted over the lifetime of the vehicle



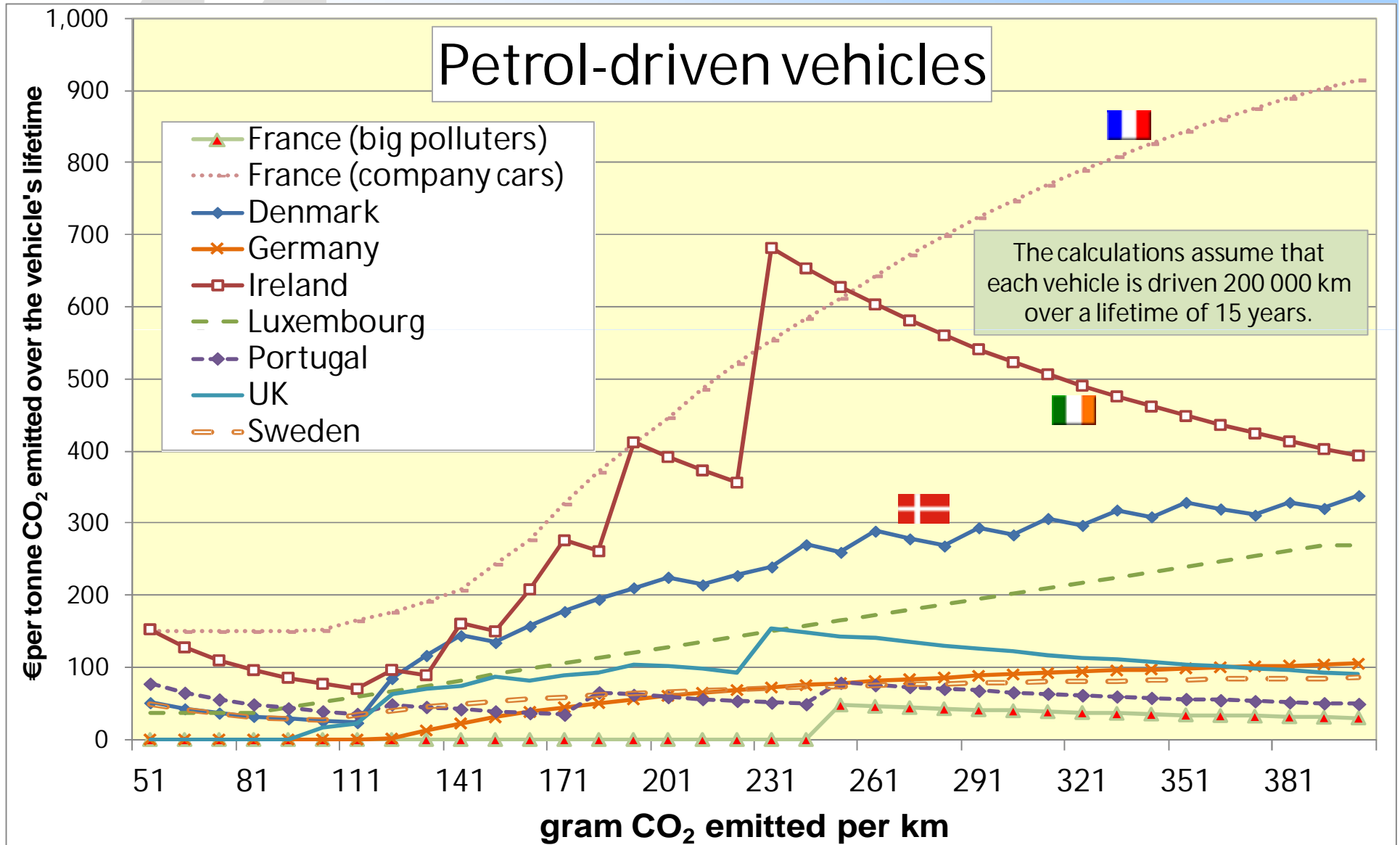
## Calculating tax per tonne CO<sub>2</sub> emitted over the lifetime of the vehicle III

### Example 2:

- A petrol-driven passenger car able to go between 9.1 and 10.0 km per litre petrol is in Denmark taxed 6480 DKK per year ~ 870€ per year.
- $870\text{€} * 15 = 13,050 \text{€}$  in tax payments over the lifetime.
- Assuming it goes exactly 10 km per litre, it emits ~234 gram CO<sub>2</sub> per km driven.
- $200,000 \text{ km} * 234 \text{ g CO}_2/\text{km} \sim 46.8 \text{ tonne CO}_2$  emitted over the lifetime.
- $13,0510 / 46.8 = 279 \text{ € per tonne CO}_2$  emitted over the lifetime.

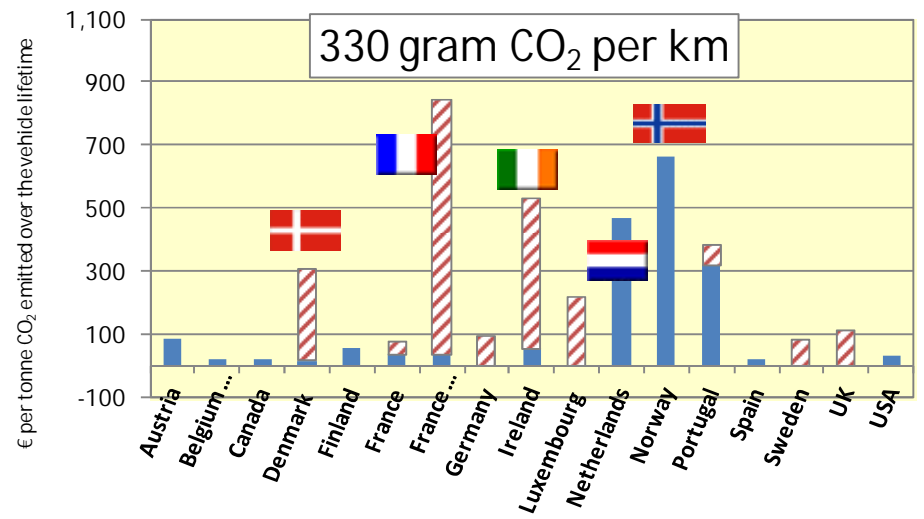
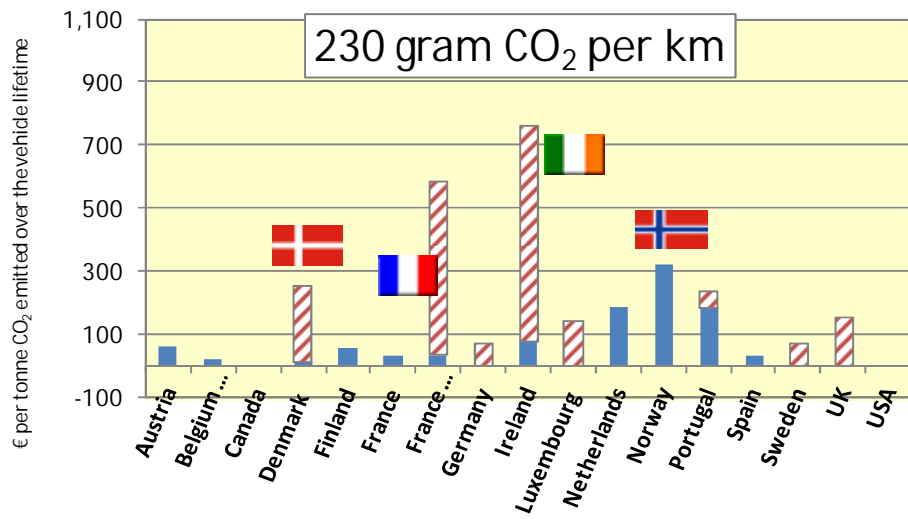
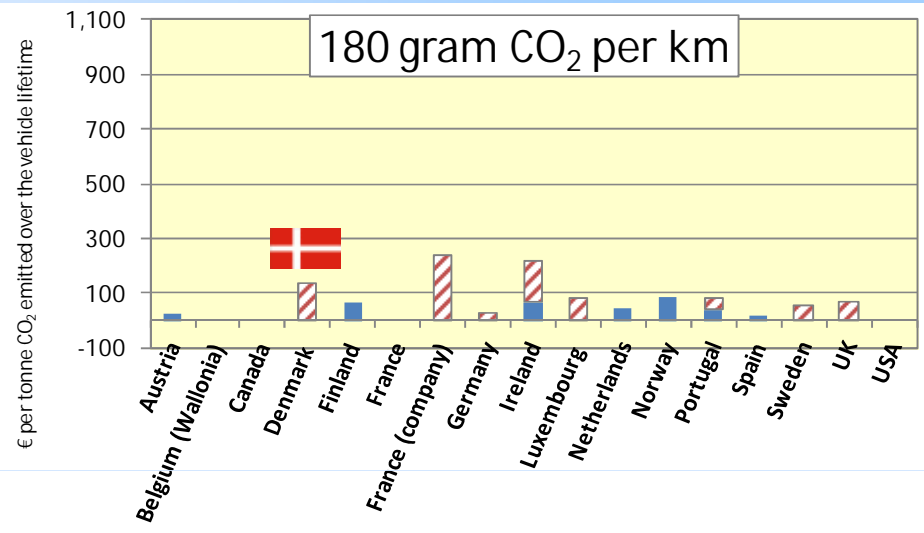
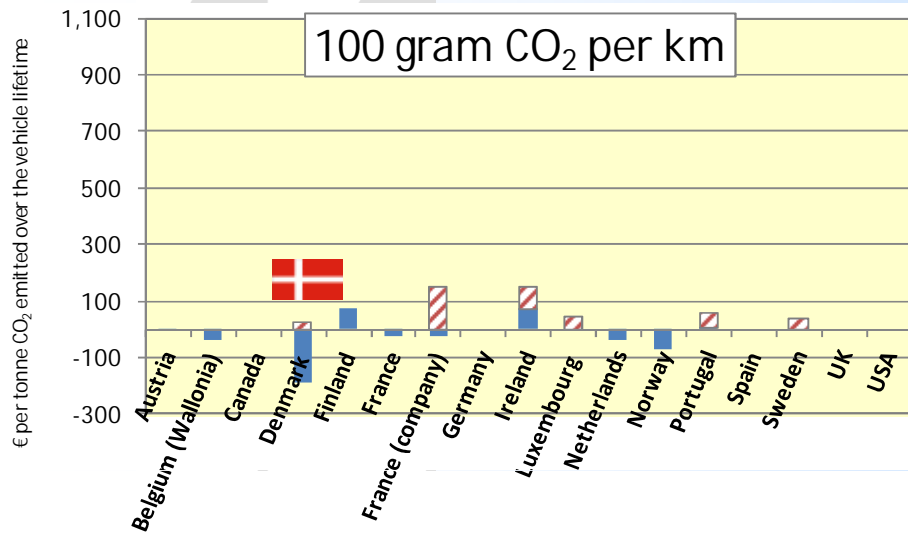
# Annual taxes on motor vehicles

€ per tonne CO<sub>2</sub> emitted over the lifetime of the vehicle





# Total tax per tonne CO<sub>2</sub> emitted over a vehicle's lifetime



■ One-off

▨ Recurrent