

# Concept for an Environmentally Friendly Vehicle (EFV) (Examples)

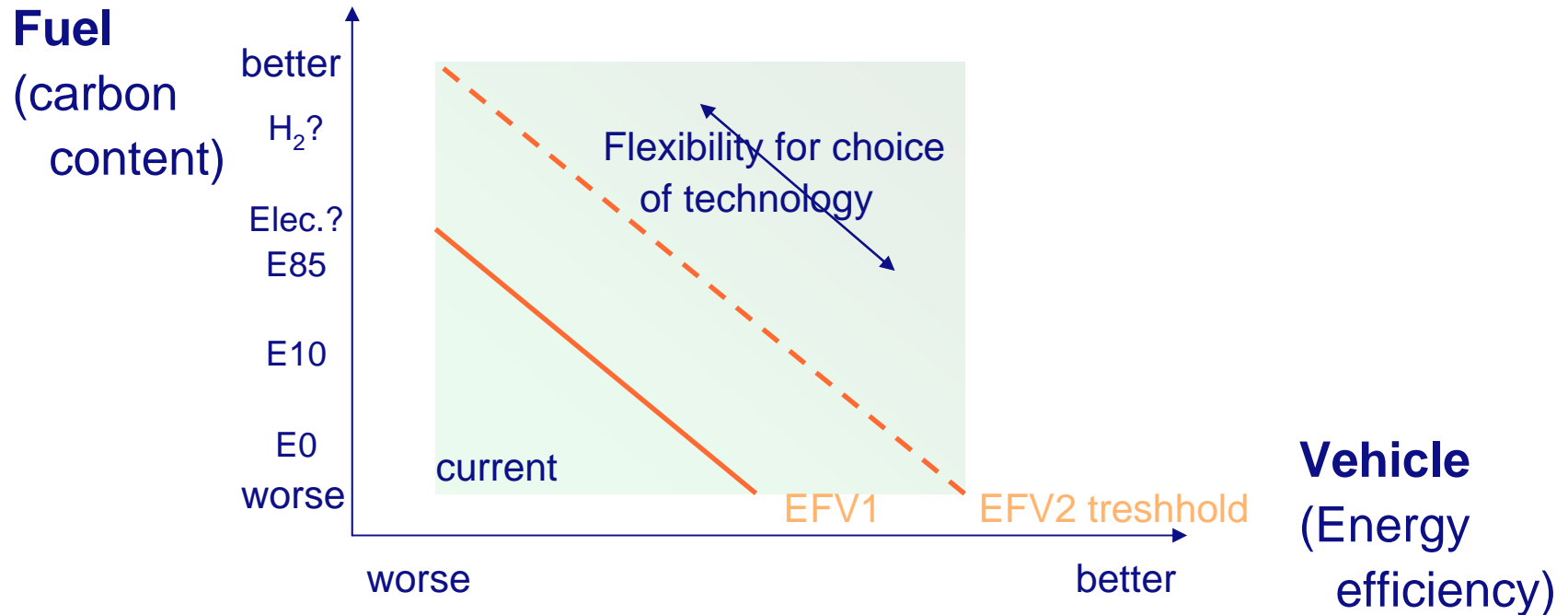
GRPE – informal meeting EFV WG  
(Bonn, 30 October 2008)

**TNO | Knowledge for business**



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# Seperate fuel & vehicle characteristics



- Further investigation of definitions is needed (***this presentation***)
- Importance of default values

# Assumptions & choices /Scope and parameters

- Focus on passenger cars first
- Pollutant emissions not considered (but need minimum standard e.g. Euro 6)
- Focus on WTW CO2 emissions & Energy efficiency
- Technology neutral (!)

Not included yet:

- Consider real world
- Utility based criteria (eg. weight parameter)
- ...

Remark: WTT energy efficiency values not finalised

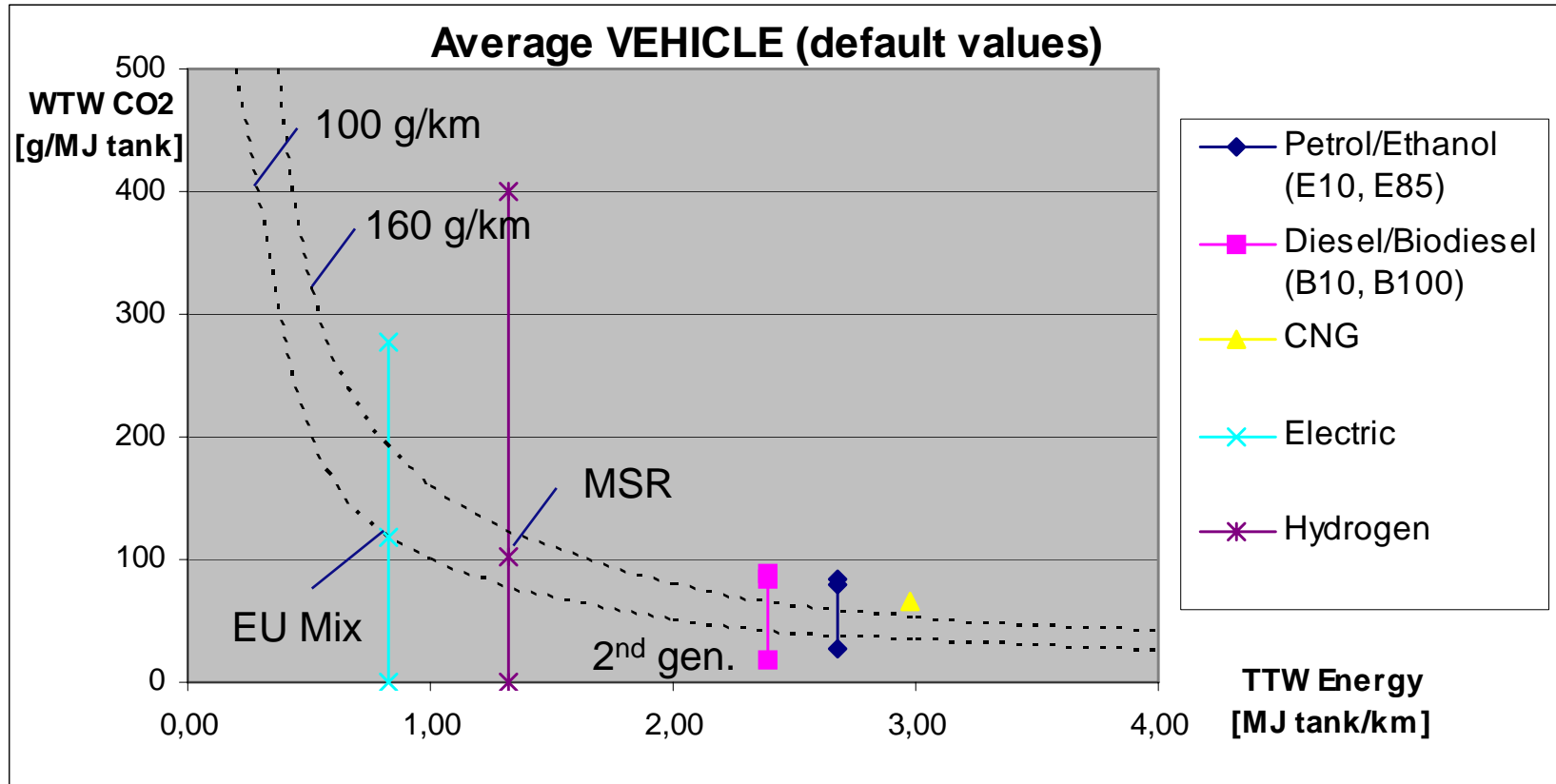
# Objective

- Give insight in relative position of vehicles and fuels regarding WTW CO<sub>2</sub> emissions and energy efficiency (NOT to present solution for definition of EFV)

## Overview graphs:

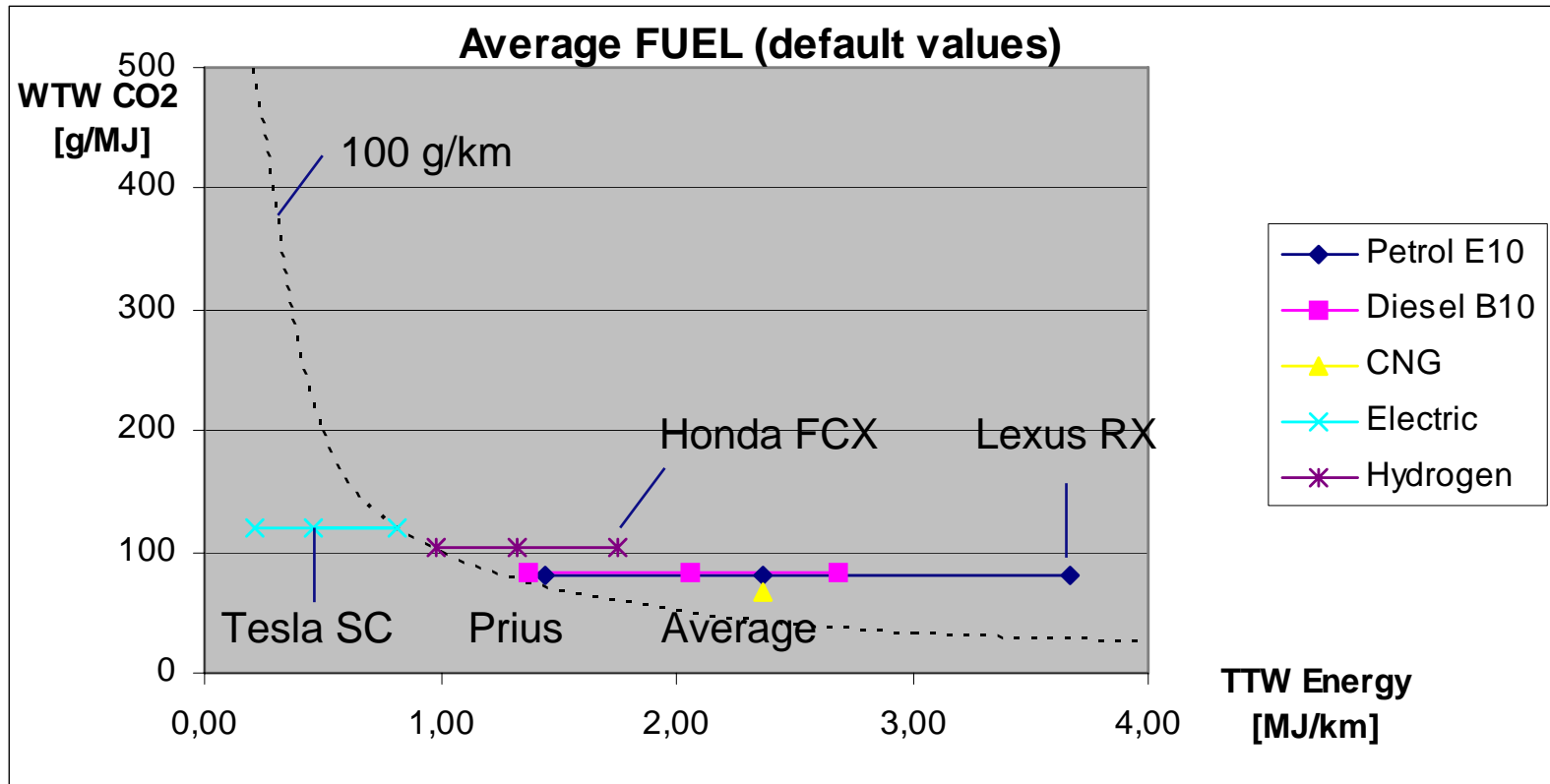
- WTW CO<sub>2</sub> [g/MJ tank] vs TTW Energy use [MJ tank/km] (average car)
- WTW CO<sub>2</sub> [g/MJ tank] vs TTW Energy use [MJ tank/km] (average fuel)
- WTW CO<sub>2</sub> [g/MJ primary] vs. WTW Energy use [MJ primary/km]
- WTW CO<sub>2</sub> [g/km] vs WTW Energy use [MJ primary/km]

# Score fuels (for average car)



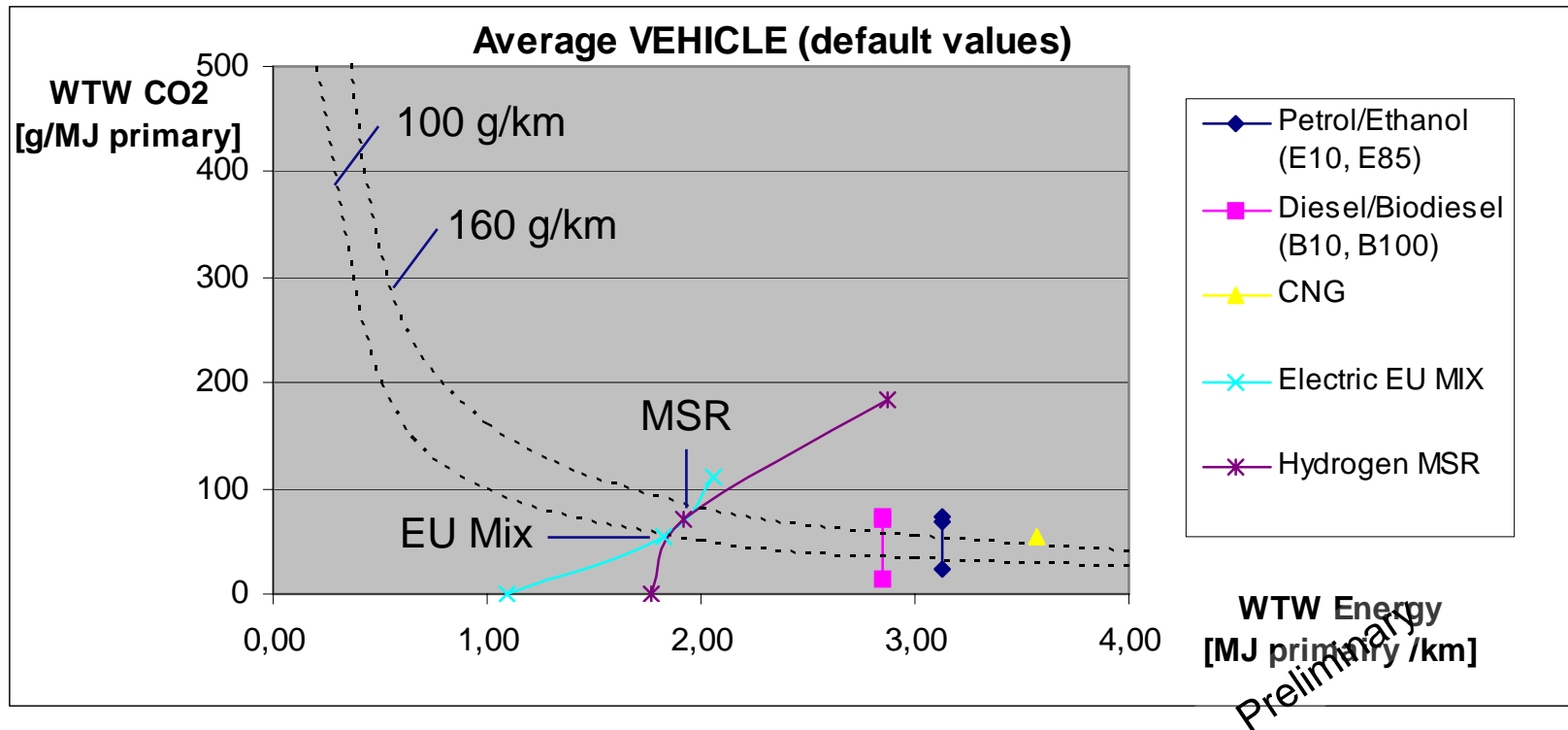
- Possible to score fuels
- Score on WTW CO2, both in [g/MJ tank] and [g/km]
- BUT WTT energy efficiency not included

# Score vehicles (for average fuels)



- Possible to score vehicles
- Score on WTW CO2 in [g/km] and TTW Energy use in [MJ tank/km]
- BUT WTT energy efficiency not included

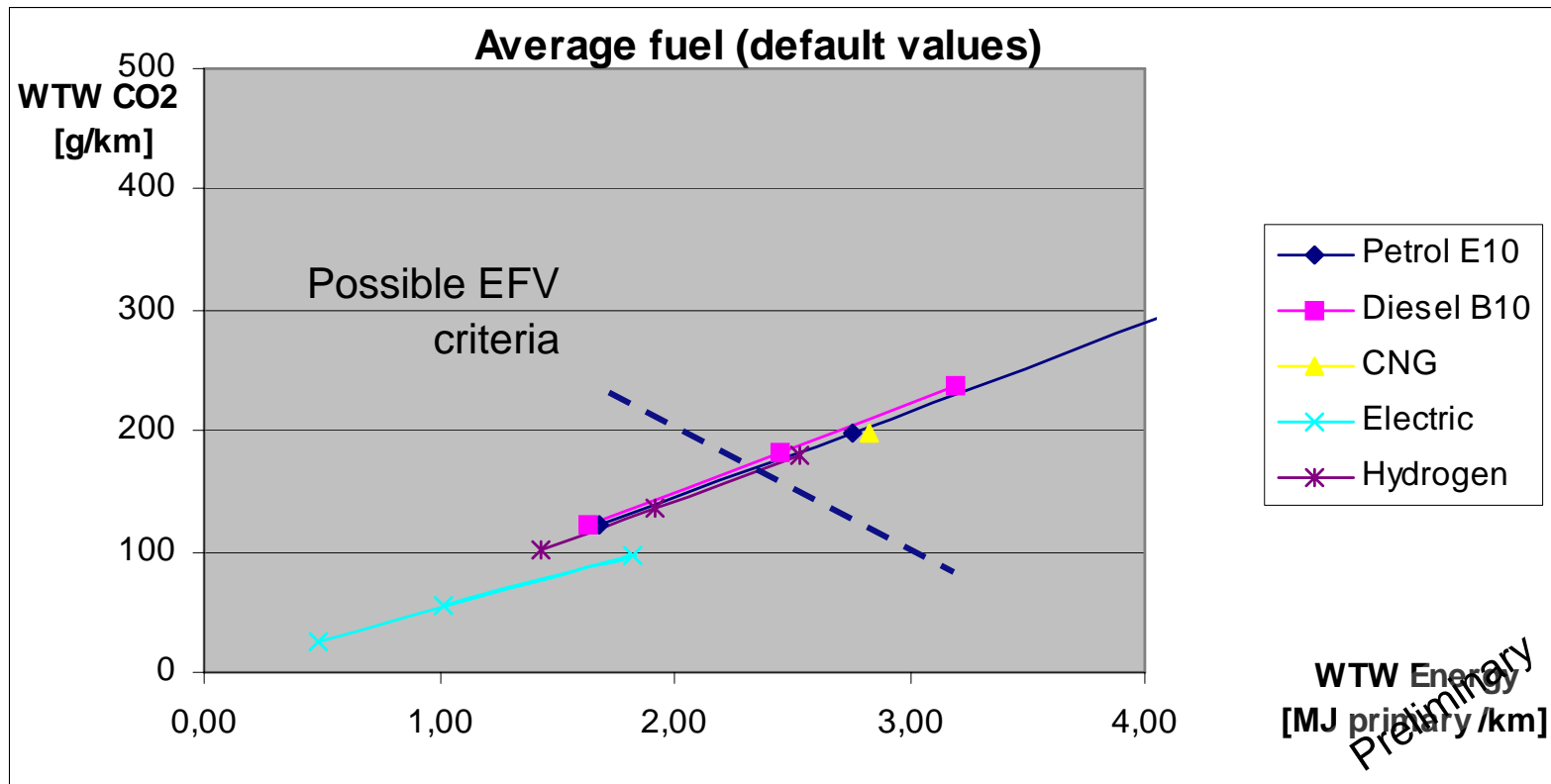
Include WTT energy efficiency, both in:  
 WTW CO2 [g/ MJ primary] and WTW Energy use [MJ primary/km]



- Possible to score both vehicles and fuels
  - BUT [g/MJ primary] not suitable for (bio-) fuels ?
- Remark: WTT energy efficiency are preliminary data

# Score vehicles on:

WTW CO2 [g/km] and WTW Energy use [MJ primary/km]



- Seems best graph to score vehicles

Remark: CNG scores relatively poor due to 10% lower engine efficiency



# Conclusions

- Type of criteria determine the most suitable graph; The best graph to score vehicles seems to be WTW CO<sub>2</sub> in [g/km] vs WTW Energy use [MJ primary /km]
- Also possible to score Energy use for vehicles TTW [MJ tank/km], but then need to include WTT energy efficiency in specific criteria per fuel

## Next actions:

- Further investigate criteria for EFV vehicle
- Compare more example vehicles such as hybrids

Thank you !