How to incorporate EV emissions into the regulatory construct post 2020?
EU regulations on CO$_2$/LDVs

Brussels, 30 June 2011
EVs in regulations on CO$_2$ from light-duty vehicles

- Scope of Regulation (EC) 443/2009 (CO$_2$/cars) and Regulation (EU) 510/2011 (CO$_2$/vans):
  - Fleet-wide CO$_2$ standards
  - Tailpipe emissions
  - Conventional vehicles, alternative fuels and alternative powertrains covered by the regulations
EVs in regulations on CO$_2$ from light-duty vehicles

Special treatment of EVs:
- Upstream emissions ignored
- Super-credits for vehicles emitting below 50g/km (cars):
  - 1 vehicle counted as 3.5 vehicles in 2012 and 2013,
  - 1 vehicle counted as 2.5 vehicles in 2014
  - 1 vehicle counted as 1.5 vehicles in 2015
  - the scheme expires as of 2016
EVs in regulations on CO$_2$ from light-duty vehicles

- Super-credits for vehicles emitting below 50g/km (**vans**):
  - 1 vehicle counted as 3.5 vehicles in 2014 and 2015,
  - 1 vehicle counted as 2.5 vehicles in 2016,
  - 1 vehicle counted as 1.5 vehicles in 2017,
  - the scheme expires as of 2018.

- Cap on number of vans able to benefit from the scheme of **25 000** vans per manufacturer over 4 years
EVs in regulations on CO$_2$ from light-duty vehicles

• Advantages of special treatment of low emitting vehicles
  – Extra incentives for OEMs to invest in alternative powertrains
  – Greater market offer of low emitting vehicles
EVs in regulations on CO₂ from light-duty vehicles

• Risks
  – Depend on market take-up of low emitting vehicles
  – Super-credits weaken the effectiveness of regulations: high emissions of conventional vehicles compensated by the multipliers for vehicles below 50g/km– risk: fleet targets met only ‘on paper’
  – No incentives for EVs to improve efficiency
Future review of regulations

- CO$_2$ regulations post-2020:
  - Conventional engines expected to prevail on the market
  - Market uptake of EVs expected to increase
    - incentives like super-credits more likely to undermine the CO$_2$ targets
  - Questions of growing importance:
    - How to treat EVs upstream emissions?
    - How to incentivise EVs efficiency?
Future review of regulations
Possible policy approaches

• No change
  ▪ Advantages: EVs receive further incentives
  ▪ Disadvantages:
    - targets for conventional vehicles potentially compromised if EVs incentivised as today;
    - upstream emissions continue to be ignored

• Limit the scope of CO₂ regulations to conventional vehicles
  ▪ Advantages: targets for conventional vehicles not compromised
  ▪ Disadvantages:
    - no incentives for investments in alternative powertrains in CO₂ regulations;
    - no strict borderline between hybrids/plug-ins/range extenders
Future review of regulations

Possible policy approaches

- Keep EVs in the scope of regulations and include additional EV efficiency targets
  - **Advantages**: targets for conventional vehicles not compromised
  - **Difficulties**:
    - no strict borderline between hybrids/plug-ins/range extenders
    - upstream emissions still not included

- Keep EVs in the scope of regulations and complement it with additional energy efficiency legislation (incl. transport)
Future review of regulations

Possible policy approaches

• Enlarge the scope of regulations to well-to-wheel emissions
  ▪ Advantages:
    - targets for conventional vehicles not compromised;
    - upstream emissions taken into account
  ▪ Difficulty:
    - interaction with other legislation
    - responsibility for meeting the targets (OEMs but what about upstream emissions)
Future review of regulations
Possible policy approaches

• Change of metrics: from CO\textsubscript{2} to energy efficiency standards
  ▪ Advantages:
    - EVs and conventional vehicles treated equally;
  ▪ Disadvantages:
    - CO\textsubscript{2} not the focus of the regulation;
    - ignores upstream energy use and CO\textsubscript{2} emissions;
    - not necessarily technology neutral (tank to wheel energy efficiency of conventional vehicles vs. EVs difficult to compare; hydrogen)