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HBEFA - Status, Outlook

ERMES Plenary Meeting 2016 - Lyon, 23 May 2016



HBEFA – Overview

- 1 HBEFA – Overview
- 2 HBEFA – “Expert Version”
- 3 Outlook

HBEFA

- **HandBook on Emission FActors for Road Transport (= HBEFA) is a database for vehicle emission factors**
- HBEFA provides **emission factors**
 - for all current vehicle categories of road transport
 - for all European emission standards
 - for a wide variety of traffic situations (from free flow to stop & go)
- Emission factors for **all regulated** and the **most important non-regulated air pollutants** as well as **fuel consumption** and **CO₂**
- Emission types: EF for **«hot» emissions, cold start excess emissions** and **evaporative emissios**
- HBEFA provides **detailed emission factors e.g.** for the assessment of projects as well as **average weighted emission factors** on aggregated level (e.g. for national inventories) for six countries (D, A, CH, SE, N, F)

HBEFA

History

- HBEFA 1.1 – 1995: Germany (DE), Switzerland (CH), Austria (AT)
- HBEFA 1.2 – 1999: DE, CH, AT
- HBEFA 2.1 – 2004: DE, CH, AT
- HBEFA 3.1 – 2010: DE, CH, AT, Sweden, Norway
- HBEFA 3.2 – 2014: DE, CH, AT, Sweden, Norway, France

Motivation

- Member states' needs for **reliable emission factors** for road transport based on **harmonized methodology** and **regularly updated** database
- Field of applications: impact assessments, inventories and forecasts for local, regional as well as national level

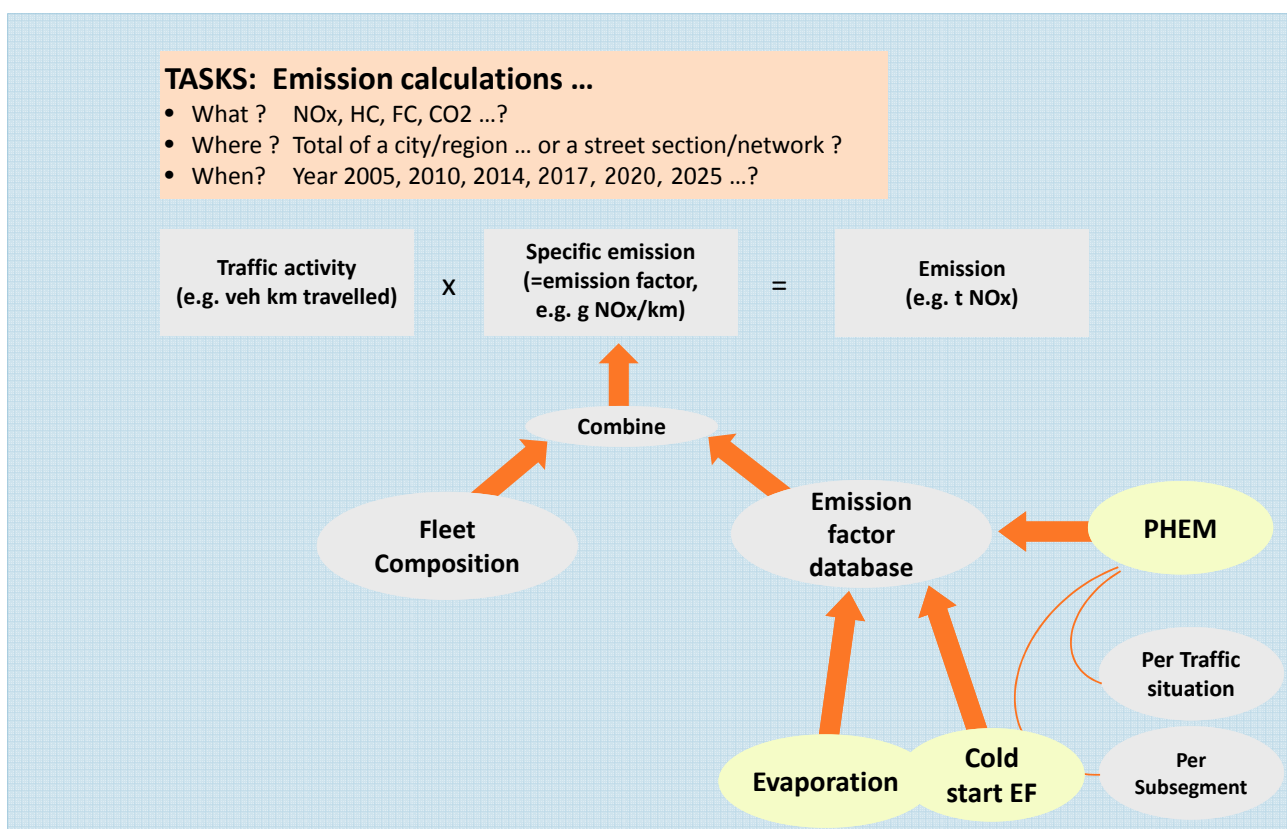
Access

- Actual version: 3. 2 (since July 2014)
- HBEFA “public version” is publicly available (download from www.hbefa.net)
- HBEFA “online version” (simplified, aggregate EF) (www.hbefa.net)

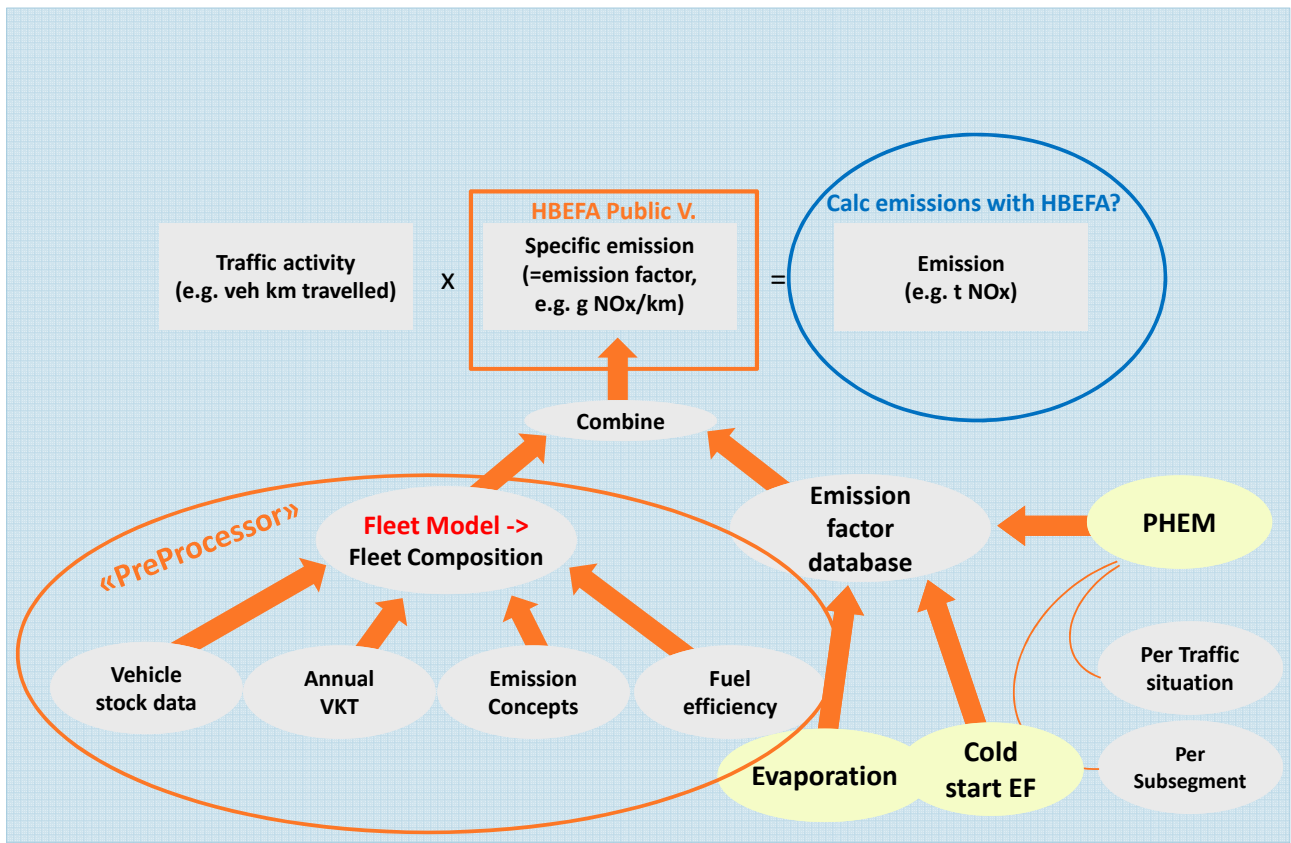
HBEFA – “public version” vs. “Expert version”

- HBEFA “public version”
a database for vehicle emission factors (EF)
- HBEFA “Expert version”
-> HBEFA’s underlying structure

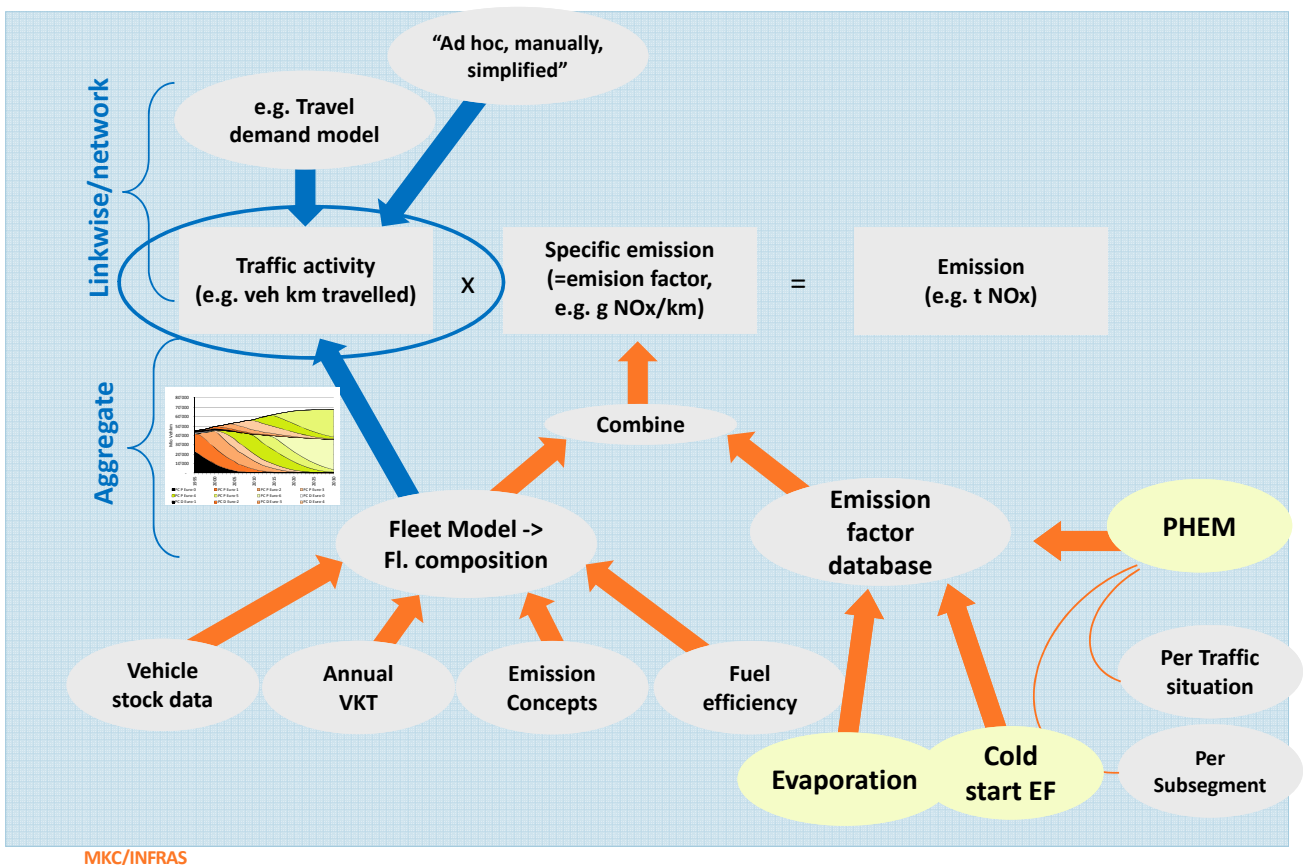
The Structure of HBEFA



The Structure of HBEFA



HBEFA – Emission calculation -> how to handle traffic activity ?



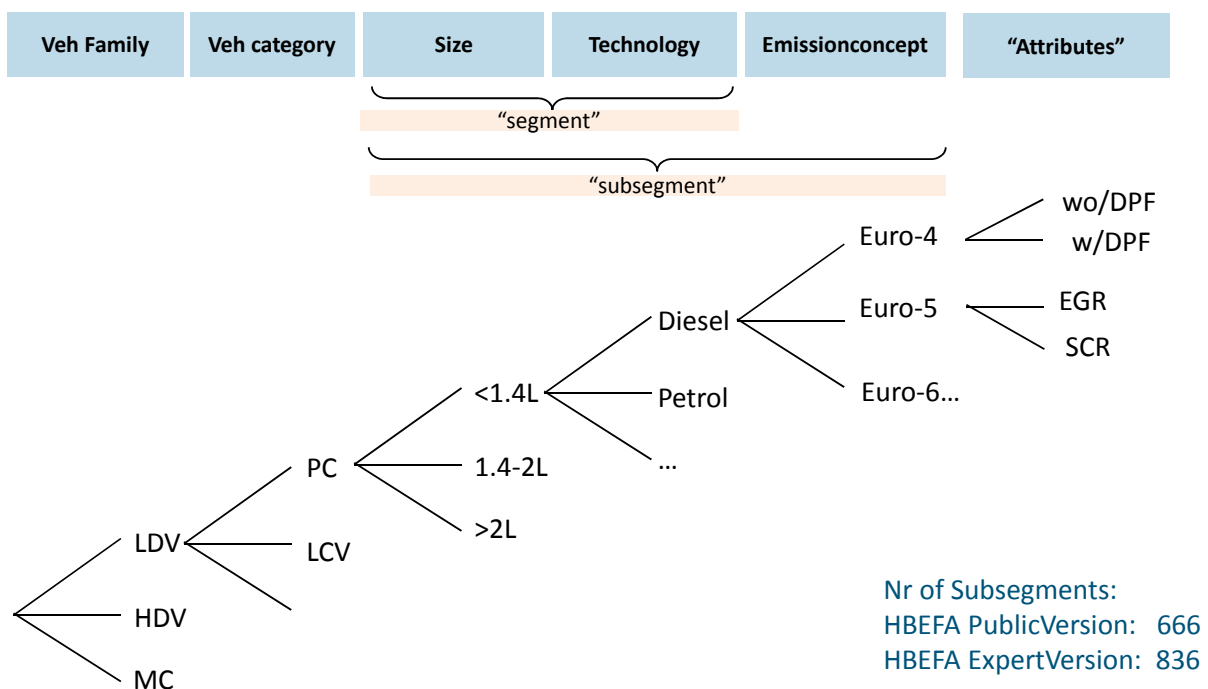
HBEFA – “public version” vs. “Expert version”

- HBEFA “public version”
a database for vehicle emission factors (EF)
- HBEFA “Expert version” - [scenario tool](#)

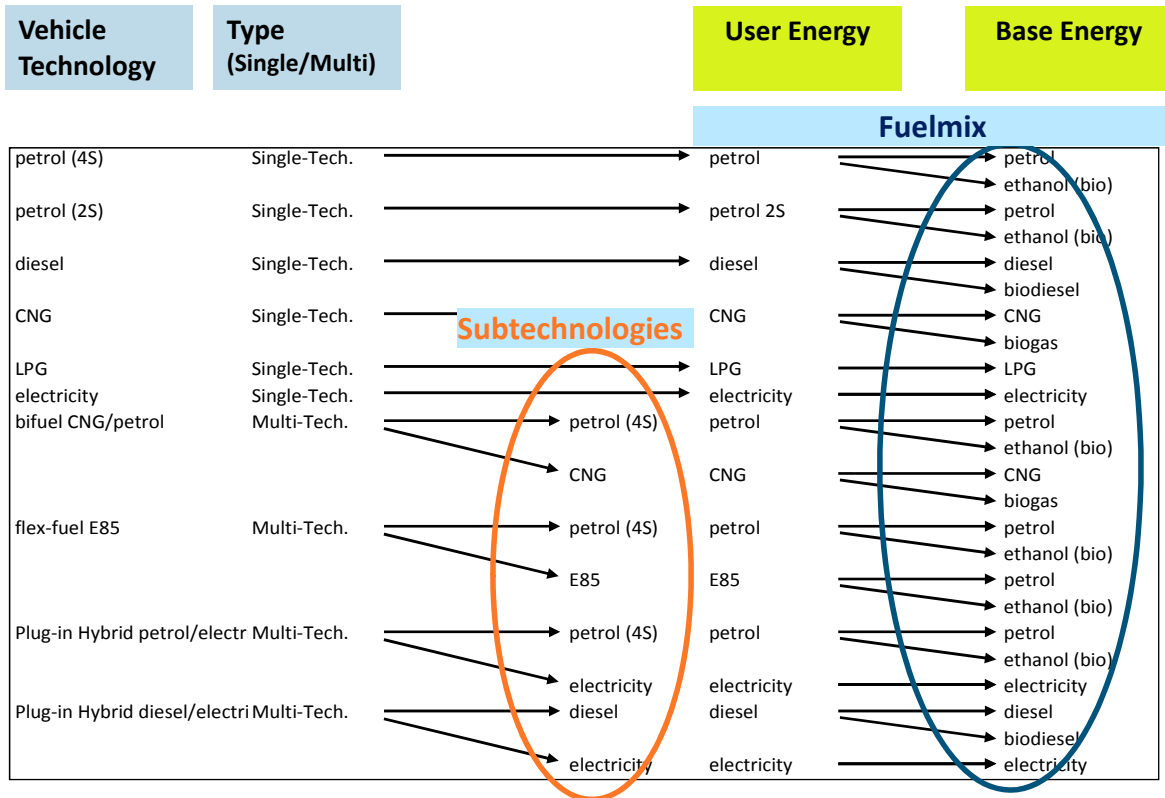
contains

- 1 Definitions (fleet segmentation, traffic situations, pollutants, etc)
- 2 Fleet Model („PreProcessor“)
- 3 Emission factors DB (as „HBEFA public“)
- 4 Emission model – aggregate & street level
(incl. TDS [„traffic data sets“] = def of traffic activity)
- Presently under discussion whether “expert version” will be made publicly available with HBEFA Version 4.

Particularity: Fleet Segmentation



Connection technology / energy



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HBEFA – Outlook: “Version 4” – per 2018

«Quick update» - version 3.3
focus on EF NOX PC D Euro 6
(presently under discussion,
per autumn 2016)

Main topics (“prio 1”)

- Verify EF of Euro 6 / VI -> update emission factors PC, HDV (standard program)
 - Improve / extend empirical basis -> measurement programs
 - Verify influence of RDE (real world driving emissions)
 - Temperature effects for hot EF?
- Methodological issues due to new data sources
 - PEMS (portable emission measurement system) -> as new source for EF
 - RSD (remote sensing data)
 - for validation of EF
 - For particular influencing factors (e.g. deterioration)
 - New concept of CO2 emission calculation
- New technologies
 - Electric vehicles (Hybrids, BEV, PHEV)
 - Measurement programs
 - Methodological issues (utility factors, driving patterns)
 - Implies Upstream emissions

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HBEFA – Outlook: “Version 4” – per 2018

Additional topics

- EF of other vehicle categories
 - LCV
 - MC
- Particularities (special emission factors / influencing factors)
 - Deterioration (RSD)
 - EF for BC
 - Review Benzene, NO₂, N₂O, NH₃
 - PM Non-exhaust
- Traffic activity / national data (fleet model/ compositions)
 - Establish common approach/data structure
 - New data sources about %vehkm among traffic situations (“big data” level of service)
- HBEFA operational issues (under discussion)
 - “Expert version” publicly available: partial (emission model) or full capabilities ?
- PS: HBEFA for China



Thank you!

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