

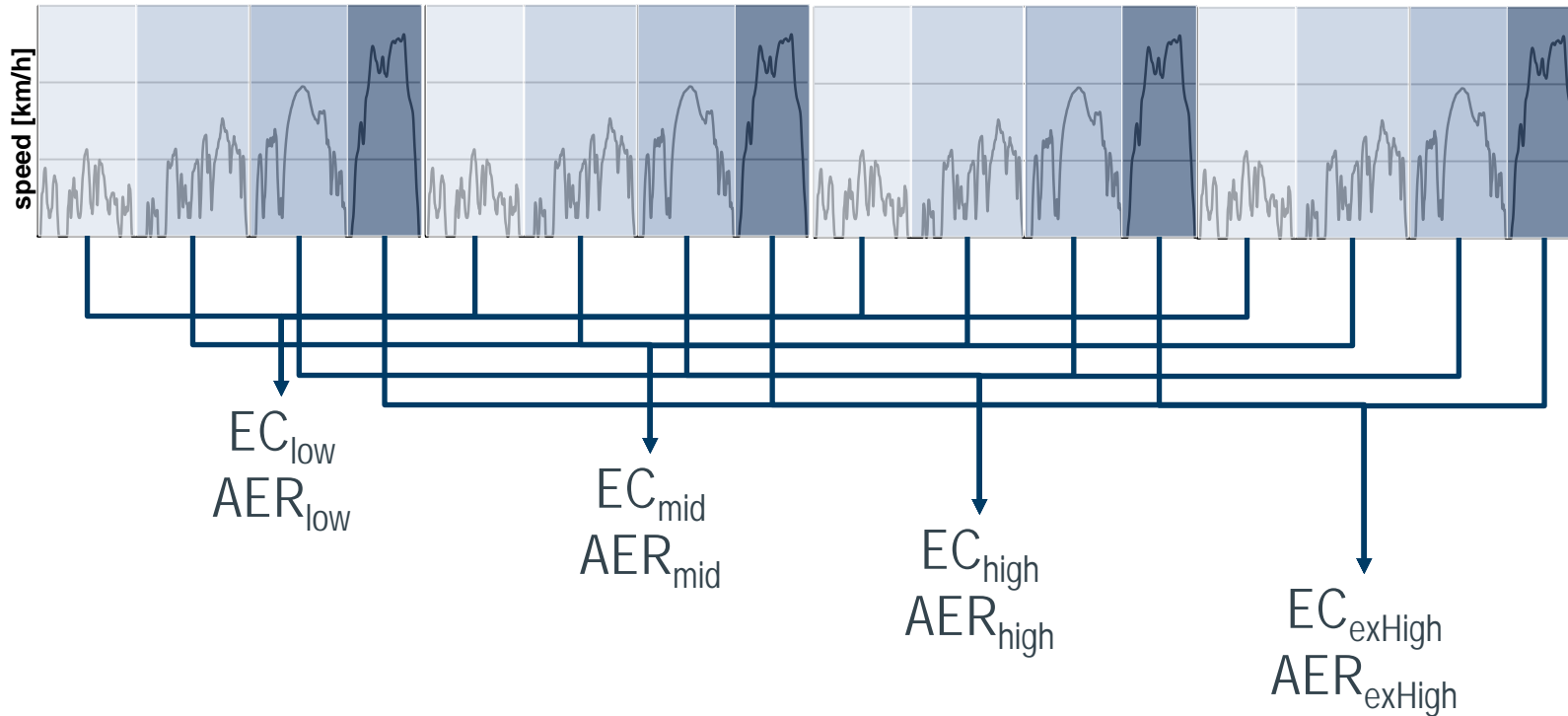
# CAPPED SPEED VEHICLES (IN CASE OF PEV)

15.06.2015

# Capped speed vehicles in case of PEV

Values	WLTC (Low + Mid + High + exHigh)	Low	Mid	High	exHigh	Description
<b>EC</b>	x	x	x	x	x	<b>Electric energy consumption.</b>
<b>E<sub>AC</sub></b>	x					<b>Recharged electric energy.</b>
<b>AER</b>	x	x	x	x	x	<b>All electric range.</b>

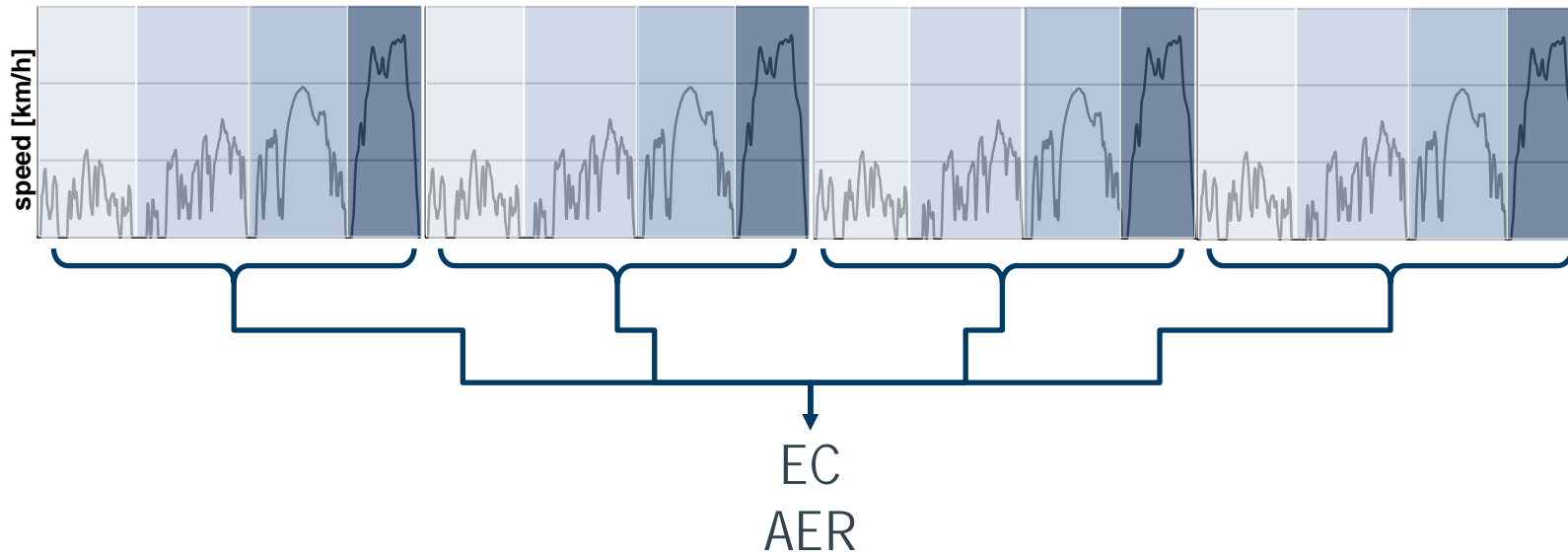
PEV → Consecutive cycle procedure



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PEV → Consecutive cycle procedure

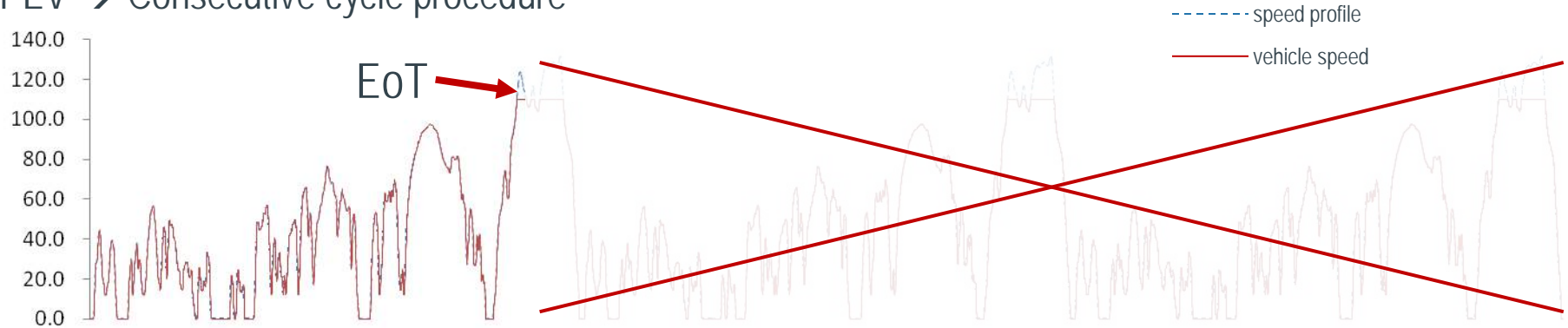


# Capped speed vehicles in case of PEV

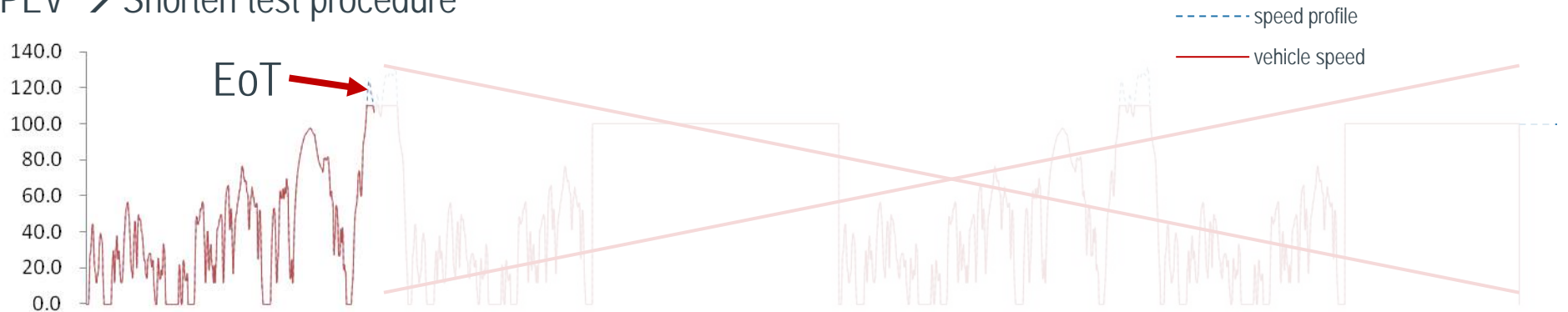
## Current situation in the GTR:

If a pure electric vehicle has a maximum capped speed below 132 km/h because the end of test criteria has to be applied in the extra-high-phase of the first cycle. The end of test criteria is a deviation from speed profile for more than 4 seconds.

## PEV → Consecutive cycle procedure



## PEV → Shorten test procedure



## Consequence:

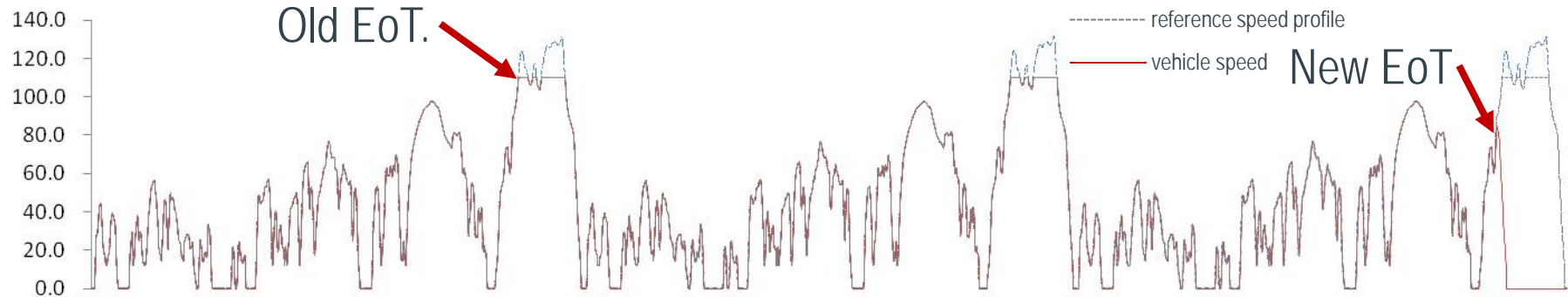
- Data base for the calculation of phase specific values (e.g. city-values) consists of the first three phases only.
- Data base not representative (cold start impact → less recuperation → unrealistic values).

# Capped speed vehicles in case of PEV

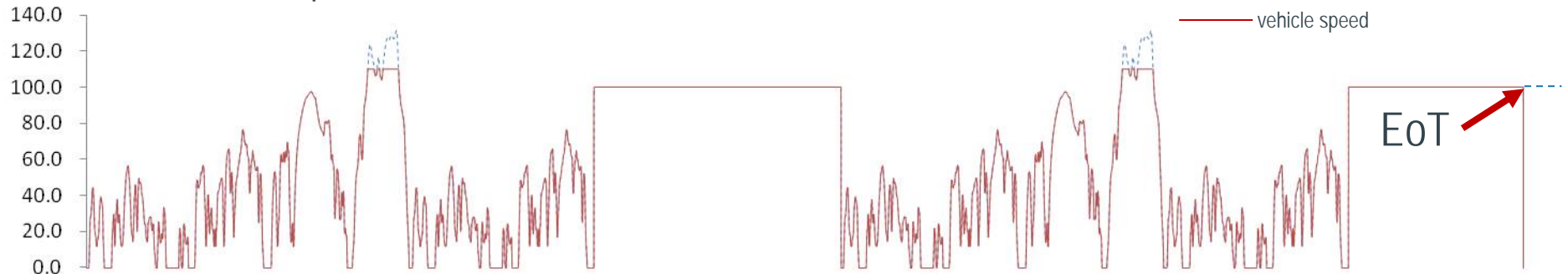
## Approach 1:

- The 4 second end of test criterion is related to the speed capped reference cycle.
- Due to the data base for the calculation of phase specific values, the test shall not be stopped at this stage, but the test shall be continued up to the point when the 4s-criterion as end of test criterion has to be applied on the speed capped reference cycle.
  - ➔ Phase specific values are based on a representative data base.
  - ➔ For calculation of phase specific values only these phases shall be used, that the vehicle was able to follow the speed profile (in the example below: values for low, mid and high phase only)
  - ➔ No values for the whole cycle and for phases, that the vehicle was not able to follow the speed profile (in the example below: no values for exHigh phase and for the whole cycle)

## PEV → Consecutive cycle procedure



## PEV → Shorten test procedure



# Capped speed vehicles in case of PEV

## Approach 2:

Range or energy compensation shall be applied for the phases, where the vehicle was not able to follow.

Capped speed has to be driven up to the point either the cycle energy or the cycle distance is equal to the „normal non-capped“ cycle.

- ➔ Adjusted cycle is the cycle which has to be applied for the test (valid for CCP and STP) → applicable test cycle
- ➔ All phase specific values and the whole cycle value are available, but cannot be directly compared with values from vehicle that was able to follow the original speed profile.

