



WLTP-07-13-rev1e

WLTP Coasting (Sailing)

Task Force report, 04June14
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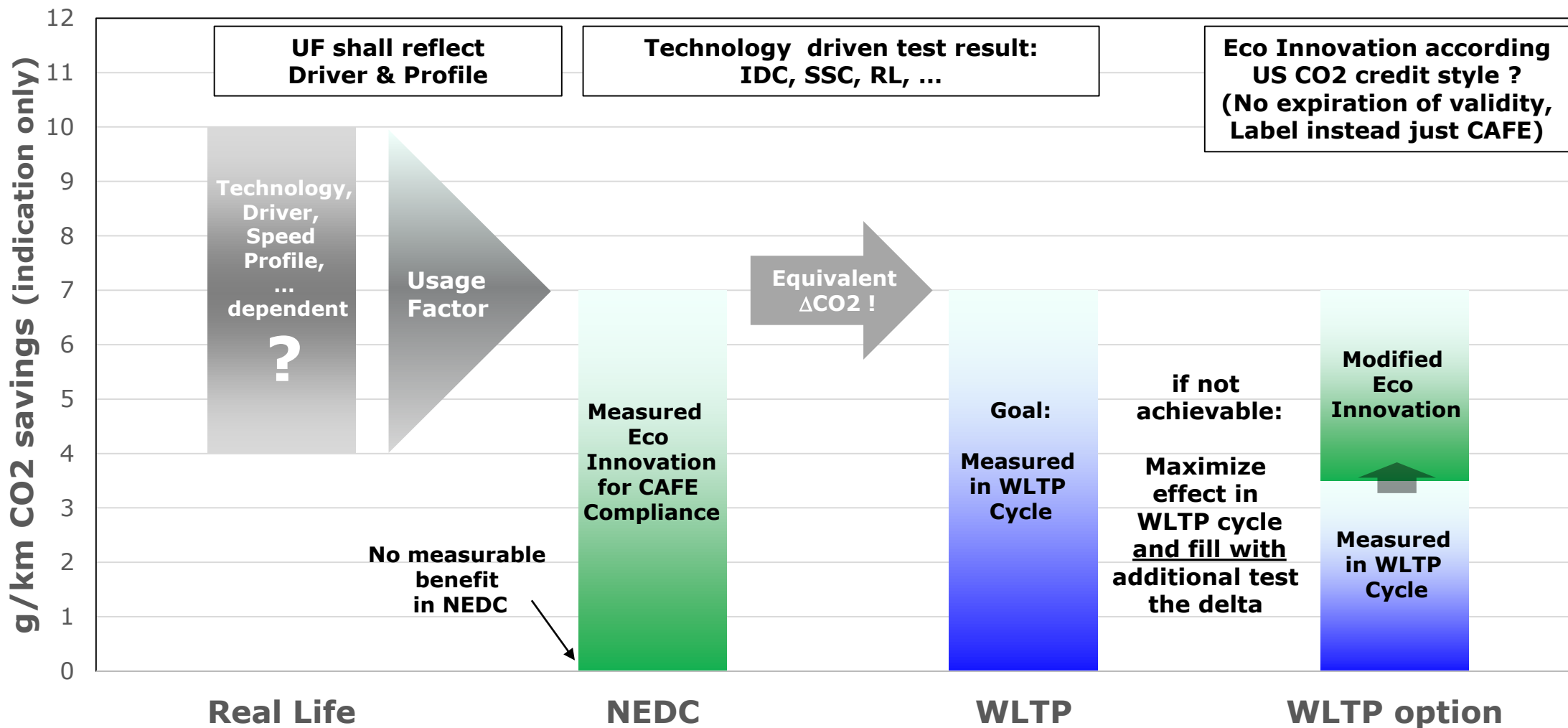


WLTP Coasting

- **2 concepts reviewed, no MT problems discussed**
- **Naming convention decided: “Sailing” vs. “Coasting”:**
 - Carry over definition from Eco innovation team: Use “Coasting” with prefix
 - Two types of coasting are distinguished:
 - ⇒ Idle Coasting (IDC)
 - ⇒ Start / Stop Coasting (SSC)
- **Next steps until 8th WLTP IWG**
 - Investigate and down select the basic sailing concepts
 - Directional decision, which concept shall be used
 - Define interference with “Normalization” task force
- **Recommendations:**
 - Proceed with task force work and solve raised concerns
 - Shift final decision to IWG 11 (Jun15)



CO2 reduction by Coasting: Transition NEDC → WLTP



ACEA Expectation: keep Eco innovation CO2 savings (real life + usage factor)



WLTP Coasting Status

- **2 concepts reviewed:** (both require a usage factor)
 - Speed trace modification concept
(NEDC Eco Innovation example)
 - ⇒ Based on cycle modification, test with modified cycle
 - ⇒ Cycle modification procedure based on equal distance
 - Post processing concept (Bosch)
 - ⇒ Keep cycle for all vehicles the same
 - ⇒ Account low power phases in test cycle with zero/idle consumption



Adobe Acrobat
Document

Measuring the benefit of coasting

Modifying the NEDC

How define the Usage Factor?

The UF calculated as distance share of usage in normal operation conditions

	Fuel efficiency or CO ₂ savings	Coasting Time share in RW	Coasting Distance share in RW	Coasting Time share in mNEDC	Coasting Distance share in mNEDC
Results	5-10%	20-35%	25-35%	JRC evaluation 25-30%	JRC evaluation 30-35%

BOSCH proposal: General outline

Idea:

- Coasting occurs whenever power demand to ICE is low!
 - Account low power phases in test cycle with zero/idle consumption!
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- Using same measurement of the vehicle on dyno according WLTP type approval testing conditions
 - Time resolved recording of fuel consumption necessary
 - Identify phases with low engine power demands using a power threshold & mark these phases as Coasting phases.
 - Choose the power threshold so that Coasting time share in cycle matches average Coasting time share in real life .
 - Subtract respective zero/idle fuel consumption for identified Coasting phases from the original fuel consumption



Bosch proposal

Pros:

- **Simple and easy to implement, no cycle change**
- **No double testing required (evtl. idle consumption)**
- **Reduction of engine low power operation physically correct**
- **Adjustable by means of a usage factor (% of time)**

Cons:

- **CO2 modal analysis measurement required**
- **CO2 saving over time not represented correct, just accumulated energy saving reasonable**



Limitations & raised concerns

- **Speed trace modification concept:**
 - No technology independent change of basic WLTC
 - No systematical speed deviations (Usage of tolerance band)
 - Define method of speed trace modification for coast vehicle only
- **Post processing concept (Bosch):**
 - Definition of relevant time intervals (double counting ?)
 - No proof of coasting functionality during TA
 - Additional family test for coasting functionality ?
- **General / Both**
 - Usage factor definition
 - 1. Define Procedure globally, Option for regional usage factor ?