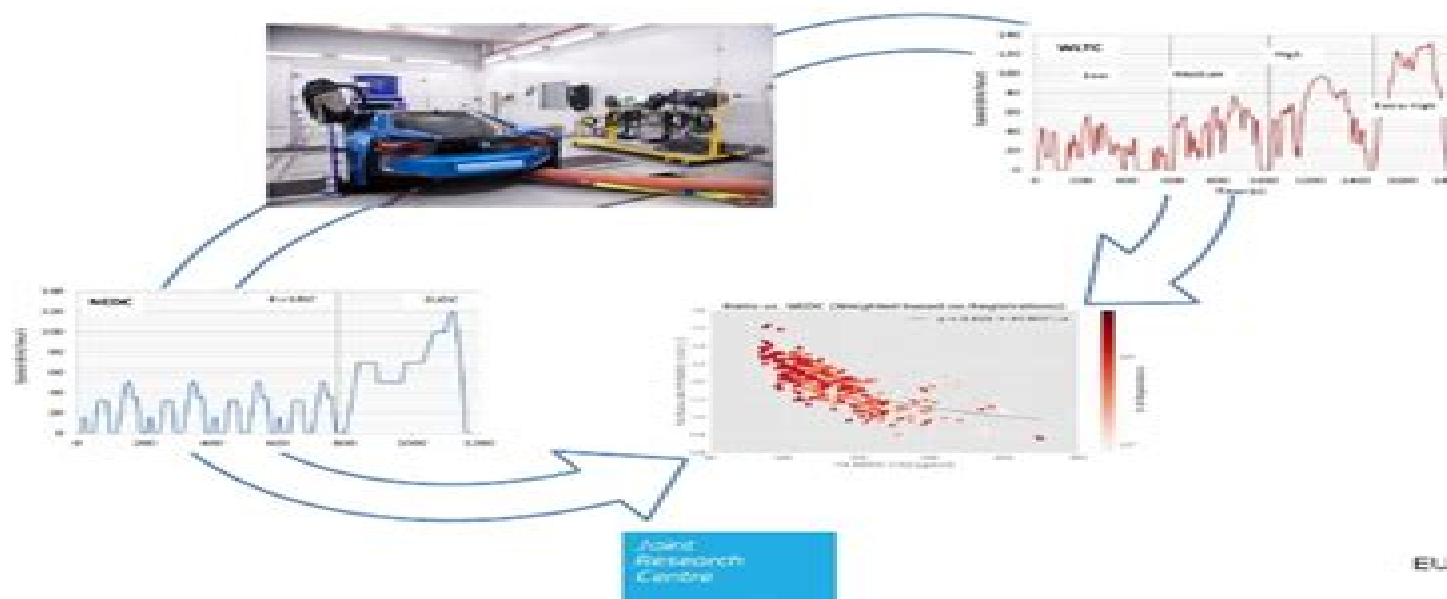


JRC SCIENCE FOR POLICY REPORT

From NEDC to WLTP: effect on the type-approval CO₂ emissions of light-duty vehicles

S. Tsiakmakis, G. Fontaras,
C. Cubito, J. Pavlovic,
K. Anagnostopoulos, B. Ciuffo

2017



From Nedc To Wltp Effect On The Type Approval Co

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From Nedc To Wltp Effect On The Type Approval Co:

From NEDC to WLTP, 2017 The present report summarises the work carried out by the European Commission's Joint Research Centre to estimate the impact of the introduction of the new type approval procedure the Worldwide Light duty vehicle Test Procedure WLTP on the European car fleet CO₂ emissions To this aim a new method for the calculation of the European light duty vehicle fleet CO₂ emissions combining simulation at individual vehicle level with fleet composition data is adopted The method builds on the work carried out in the development of CO₂MPAS the tool developed by the Joint Research Centre to allow the implementation of European Regulations 1152 and 1153 2017 which set the conditions to amend the European CO₂ targets for passenger cars and light commercial vehicles due to the introduction of the WLTP in the European vehicle type approval process Results show an average WLTP to NEDC CO₂ emissions ratio in the range 1.1 to 1.4 depending on the powertrain and on the NEDC CO₂ emissions In particular the ratio tends to be higher for vehicles with lower NEDC CO₂ emissions in all powertrains the only exception being with the plug in hybrid electric vehicles PHEVs In this case indeed the WLTP to NEDC CO₂ emissions ratio quickly decreases to values that can be also lower than 1 as the electric range of the vehicle increases

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Advances in Environmental, Economic and Social Assessment of Energy Systems Diego Iribarren, 2020-12-07 The overall energy sector calls for a transformation from a fossil based system to a low carbon one At a technology level significant efforts have been made to provide energy solutions that contribute to a sustainable energy system However the actual suitability of these solutions is often not checked In this sense the assessment of energy systems from a life cycle perspective is of paramount importance when it comes to effectively planning the energy sector While environmental issues are commonly addressed through the use of the Life Cycle Assessment LCA methodology the comprehensive evaluation of the economic and social aspects of energy systems often remains ignored or underdeveloped

This book consists of a set of scientific works addressing the analysis of energy systems from a life cycle technical economic environmental and or social standpoint Case studies at and beyond the technology level are included some of them involving a combination of life cycle and non life cycle approaches for the thorough evaluation of energy systems under the umbrella of sustainability

Vehicle Type-approval and Emission Regulation in the EU: Environmental Perspective Jiří Vodička, 2024-01-01
st edn m t matem knihy je vztah mezi schvalov n m typu vozidel a ochranou ivotn ho prost ed Autor analyzuje ned vn rozhodnut Evropsk ho soudn ho dvora a aktu ln pravidla v t to oblasti a klade si ot zky z eho pramen hlavn z sady evropsk ch p edpis Ve sv publikaci nab z komplexn a kritickou anal zu r mce EU pro schvalov n motorov ch vozidel se zvl tn m z etelem na na zen 2018 858 a jeho d sledky pokud jde o p edch zen emisn m skand l m jako tzv Dieselgate Autor podrobn rozeb r technick a pr vn nuance testov n emis v etn norem Euro 5 6 a nadch zej c normy Euro 7 jako i zaveden zku ebn ch cykl WLTP a RDE a p edkl d tak ten m ucelen p ehled o v ech aspektech kontroly emis motorov ch vozidel v EU Kniha neopom j ani na zen 2019 631 o emis ch CO2 z nov ch vozidel a v nuje se tak kl ov m regula n m v zv m a v klad m Publikace je cenn m zdrojem informac pro v dce pr vn ky i tv rce politik kte se zaj maj o propojen pr va ivotn ho prost ed regulace automobilov ho pr myslu a fungov n EU

Handbook of Fuels Barbara Elvers, Andrea Schütze, 2021-09-08
A guide to industrially relevant products and processes for transportation fuels The Handbook of Fuels offers a comprehensive review of the wide variety of fuels used to power vehicles aircraft and ships and examines the processes to produce these fuels The updated second edition reflects the growing importance of fuels and fuel additives from renewable sources New chapters include information on current production technology and use of bioethanol biomethanol and biomass to liquid fuels The book also reviews novel additives and performanace enhancers for conventional engines and fuels for novel hybrid engines This comprehensive resource contains critical information on the legal safety and environmental issues associated with the production and use of fuels as well as reviewing important secondary aspects of the use and production of fuels This authoritative guide includes contributions from authors who are long standing contributors to the Ullmann s Encyclopedia the world s most trusted reference for industrial chemistry This important guide Contains an updated edition of the authoritative resource to the production and use of fuels used for transportation Includes information that has been selected to reflect only commercially relevant products and processes Presents contributions from a team of noted experts in the field Offers the most recent developments in fuels and additives from renewable sources Written for professionals in the fields of fossil and renewable fuels engine design and transportation Handbook of Fuels is the comprehensive resource that has been revised to reflect the recent developments in fuels used for transportation

Introduction to Electromobility Martin Doppelbauer, 2024-12-30
The book provides a comprehensive overview of all relevant technical and environmental aspects relating to road vehicles with low emission drive technology The focus is on electric and hybrid vehicles whose drive technology energy storage batteries hydrogen and charging systems are presented in detail It also deals with overarching

framework conditions such as climate protection generation and distribution of electrical energy and hydrogen raw materials life cycle assessment and costs The latest technical developments have been taken into account in this updated edition The facts are made clear in many breakdown graphics Examples deepen the material or provide a practical reference so that the content is more memorable for students This book is aimed among others at students from the subjects of automotive technology energy technology electrical engineering energy supply energy economics mechanical engineering and industrial engineering

Towards a Climate-Neutral Europe Jos Delbeke, Peter Vis, 2019-10-16 This book explains the EU's climate policies in an accessible way to demonstrate the step by step approach that has been used to develop these policies and the ways in which they have been tested and further improved in the light of experience The latest changes to the legislation are fully explained throughout The chapters throughout this volume show that no single policy instrument can bring down greenhouse gas emissions The challenge facing the EU as for many countries that have made pledges under the Paris Agreement is to put together a toolbox of policy instruments that is coherent delivers emissions reductions and is cost effective The book stands out by the fact it covers the EU's emissions trading system the energy sector and other economic sectors including their development in the context of international climate policy This accessible book will be of great relevance to students scholars and policy makers alike The Open Access version of this book available at <http://www.taylorfrancis.com/books/e/9789276082569> has been made available under a Creative Commons Attribution Non Commercial No Derivatives 4.0 license

Research Handbook on EU Environmental Law Marjan Peeters, Mariolina Eliantonio, 2020-06-26 This comprehensive Research Handbook discusses how the EU has used its regulatory power to steer towards environmentally friendly behaviour delving into the deep concerns related to the compliance with and enforcement of EU environmental law It also highlights the important role of civil society's use of environmental procedural rights and characterizes how the CJEU case law has contributed to the effective implementation of EU environmental legislation

Emerging Trends in Energy Storage Systems and Industrial Applications Prabhansu, Nayan Kumar, 2022-10-09 Energy storage plays an important role in supporting power hungry devices and achieving stable power supply by optimally balancing supply and demand with ever increasing requirement for computing power and the intermittent nature of renewable resources Emerging Trends in Energy Storage Systems and Industrial Applications focuses on emerging trends in energy storage systems applicable to various types of applications including heat and power generation electrical and hybrid transportation With performance limitations in current energy storage devices such as limited energy density power density and cycle life major challenges in the complex and dynamic environments of energy storage applications are examined in this reference High performance components proper system configuration effective modelling and control are keys to achieving seamlessly integrated and functional energy storage systems are also addressed in order to provide guidance to achieving more reliable and efficient systems Outcomes from this book serve as a resource for industrialists academia and researchers

working in the domain of advance energy storage technologies and their applications giving them an overview of energy storage options availability and technological trends enabling them to make longer term safe storage system decisions Presents a better understanding of the smart energy storage technologies system management and implementation Explores all energy storage system integration power quality and operation Offers an interdisciplinary look across electrical electronics energy mechanical civil and chemical engineering aspects of energy storage

Impact of WLTP Introduction on CO2 Emissions from M1 and N1 Vehicles, 2020 The analysis of official type approval documents covering the period September 2017 August 2018 and which were uploaded in the ETAES platform has given a first insight of the impact of the introduction of the WLTP procedure on declared and measured CO2 emissions The first topic analysed was the ratio between declared WLTP and NEDC emissions On average this ratio is higher for diesel ICE vehicles compared to gasoline ICE vehicles The mean ratio for diesel VH was 1.26 for M1 category and 1.28 for N1 and for VL 1.18 for M1 and 1.22 for N1 category The 2018 EEA data showed an average ratio of 1.25 for M1 and 1.27 for N1 category For gasoline ICE vehicles the mean ratio for VH is 1.16 for M1 1.19 for N1 category and for VL 1.13 for M1 and 1.14 for N1 category The 2018 EEA data show an average ratio of 1.19 for M1 1.16 for N1 category The highest average ratio for diesel and gasoline VH was calculated for OEM_3 group and for VL for OEM_15 diesel and OEM_3 gasoline groups The 2018 EEA registrations data show the highest average ratio coming from OEM_3 diesel and OEM_11 gasoline groups For NOVC HEVs and OVC HEVs the data sets analysis were much smaller and any conclusions drawn should be treated with caution The mean WLTP NEDC ratio for NOVC HEVs was 1.22 VH and 1.18 VL which is higher than that of gasoline ICE vehicles For all OVC HEVs analysed weighted combined CO2 emissions the ratio for VH is 1.13 but with a range from 0.34 to 1.44 and for VL the average was 1.03 range 0.31 1.32 In the 2018 EEA data NOVC HEVs and OVC HEVs could not be distinguished Analysis of Emission type approval documents ETA revealed that for the majority of IP families analysed 70% for VH and 73% for VL the declared WLTP values were less than 5% higher than the WLTP measured values In 26% of cases for VH and 23% for VL the over declaration was between 5% and 10% In only 4% of cases for VH and 4% for VL OEM s over declaration was above 10% but always below 20% In total 18% 266 of IP families are type approved with only vehicle high VH which leads to higher CO2 emissions compared to the interpolation approach Some OEMs are only type approving VH OEM_13 OEM_16 OEM_17 OEM_18 OEM_19 OEM_21 OEM_22 OEM_23 OEM_24 OEM_25 OEM_27 OEM_28 but except OEM_13 the other OEM groups have very low registrations OEM groups with high registrations more than half million and high % of IP families with only VH are OEM_7 24% OEM_5 22% OEM_2 20% OEM_9 7% and OEM_3 6% OEM_12 and OEM_10 are another OEMs with high % of IP families with only VH 91% and 73% respectively and registrations higher than 200 000 Various inconsistencies and issues have been identified in the data collected Such inconsistencies should be addressed to ensure correct implementation of the legislation and a level playing field

Emission Measurements in the Automotive Sector, 2017 To obtain type approval and ensure

registration in the European Union EU new vehicles must comply with emission standards termed EURO classes New passenger cars have had to pass an emission test known as the New European Driving Cycle NEDC in order to obtain type approval for the European market since the 1990s The NEDC dates back to the late 1960s and was originally not intended to reflect real world driving performance As a result a growing discrepancy has emerged between the outcome of the emissions test in the type approval process and the actual emissions that occur *EU Project GasOn (No 652816)*, 2019 The demo vehicle of Ford was measured at JRC in January 2019 In the laboratory the old type approval cycle NEDC and the new type approval cycle WLTC were tested On the road RDE compliant routes were followed The results showed that 1 HC emissions were around half of the EU6 limit in NEDC and approximately 35% of the EU6 limit in the WLTC not required for RDE 2 NMHC emissions were in the range of 10% of the EU6 limit for both the NEDC and the WLTC not required for RDE 3 CO emissions were about 20% of the EU6 limit in NEDC approximately 50% of the EU6 limit in the WLTC and RDE and around 30% of the EU6d limit in RDE Urban 4 NOx emissions were about 40% of the EU6 limit in NEDC approximately 70% of the EU6 limit in the WLTC around 85% of the EU6d limit in RDE and within the EU6d RDE Urban limit 5 PN emissions were about 2% of the EU6 limit in NEDC approximately 4% of the EU6 limit in the WLTC below 20% of the EU6d limit in RDE and around 30% of the EU6d RDE Urban limit Conclusively all pollutant emissions were below the respective 2020 emissions limits in both the laboratory tests NEDC WLTP and on the road RDE Most are below 50% of the EU6d limit

Reviewing **From Nedc To Wltp Effect On The Type Approval Co**: Unlocking the Spellbinding Force of Linguistics

In a fast-paced world fueled by information and interconnectivity, the spellbinding force of linguistics has acquired newfound prominence. Its capacity to evoke emotions, stimulate contemplation, and stimulate metamorphosis is really astonishing. Within the pages of "**From Nedc To Wltp Effect On The Type Approval Co**," an enthralling opus penned by a very acclaimed wordsmith, readers embark on an immersive expedition to unravel the intricate significance of language and its indelible imprint on our lives. Throughout this assessment, we shall delve into the book's central motifs, appraise its distinctive narrative style, and gauge its overarching influence on the minds of its readers.

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