Environment and Climate Regional Accession Network ECRAN

Environment and Climate Regional Accession Network (ECRAN)

Report on the Regional Workshop on climate legislation in relation to transport (cars and vans, labelling, renewables and fuel quality

13-14 April 2016, Tirana

ENVIRONMENT AND CLIMATE REGIONAL NETWORK FOR ACCESSION - ECRAN

WORKSHOP REPORT

Activity 3.1 (Task 3.1.2)

REPORT ON THE REGIONAL WORKSHOP ON CLIMATE LEGISLATION IN RELATION TO TRANSPORT (CARS AND VANS, LABELLING, RENEWABLES AND FUEL QUALITY)

Tirana, 13-14 April 2016

This Project is funded by the European Union

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Table of Contents

LIST OF ABREVIATIONS	
Art.	Article
AT	Austria / Austrian
BG	Bulgaria
CB	Capacity Building
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism (under Kyoto Protocol)
CA	Competent Authority
CF	Conformity Factor
CVS	Constant Volume Sampling
EV	Electric Vehicles
EnC	Energy Community
EC	European Commission
EE	Energy Efficiency
EEA	European Environment Agency
EU	European Union
EN standard	European standard
FAME	Fatty acid methyl esters (a type of biofuel)
FQD	Fuel Quality Directive (98/70/EC)
FQMS	Fuel Quality Management System
FQM	Fuel Quality Monitoring
DE	Germany / German
GTR	Global Technical Regulations (GTR)
GHG	Greenhouse Gas
HDV	Heavy Duty Vehicle
ILUC	Indirect Land-Use Change
ICE	Internal Combustion Engine
LUC	Land-Use Change (direct or indirect)
LDV	Light Duty Vehicle (van)
LPG	Liquefied Petroleum Gas
MCON	Marketable Crude Oil Name
MS	Member State of the European Union
MMR	Monitoring Mechanism Regulation
NEDC	New European Driving Cycle
OBD	On Board Diagnostics
PM	Particulate Matter
PN	Particulate Number standard
PoS	Point of Sale
RDE	Real Driving Emission
RED	Renewable Energy Directive (2009/28/EC)
RES	Renewable Energy Sources
UNECE	United Nations Economic Commission for Europe (UNECE)
UER	Upstream Emission Reduction
UCO	Used Cooking Oil
WLTP	Worldwide harmonized Light vehicles Test Procedures

I. Background/Rationale/Legislation covered

Road transport is the second largest GHG emitting sector in the EU given that it contributes about one-fifth of the EU's total emissions of carbon dioxide (CO_2). Light-duty vehicles – cars and vans[1] – are responsible for about 15% of the EU's CO_2 emissions. The workshop aims to cover legislation which is connected to road transport emissions:

- Legislation regarding emissions of light duty vehicles;
- Car labelling;
- Renewable directive (short introduction);
- Fuel quality related legislation.

The EU has an integrated approach to reduce CO_2 emissions from light-duty vehicles, i.e. cars and light commercial vehicles (vans). Currently the two cornerstones of this framework are Regulation (EC) 443/2009 for cars and Regulation (EU) 510/2011 for vans.

The Regulation has been amended by Commission Regulation (EU) No 397/2013 regarding the monitoring of CO2 emissions (Annex II), Regulation (EU) No 333/2014, to define the modalities for reaching the 2020 target, and Commission Delegated Regulation (EU) 2015/6, to take into account the evolution of the mass of new passenger cars in specific emissions targets.

Emission limits are set according to the mass of vehicle, using a limit value curve. The limit value curve means that heavier cars are allowed higher emissions than lighter cars while preserving the overall fleet average. Only the fleet average is regulated, so manufacturers are still able to make vehicles with emissions above the limit value curve provided these are balanced by vehicles below the curve. The 2015 EU fleet average target of 130g CO_2 per km was determined to be phased in between 2012 and 2015, while actually it was reached by 2013.

If the average CO_2 emissions of a manufacturer's fleet exceeds its limit value in any year from 2012, the manufacturer has to pay an excess emissions premium for each car registered. This premium amounts to €5 for the first g/km of exceedance, €15 for the second g/km, €25 for the third g/km, and €95 for each subsequent g/km. From 2019, the cost will be €95 from the first gram of exceedance onwards.

Manufacturers can be granted emission credits equivalent to a maximum emissions saving of 7g/km per year for their fleet if they equip vehicles with eco-friendly innovative technologies. Such an approval shall be based on independently verified data.

The Regulation gives manufacturers additional incentives to produce vehicles with extremely low emissions (below 50g/km) with a system of super-credits. Super-credits will apply with a multiplier of 1.3 in 2020-2023, i.e. each low-emitting car will be counted as 2 vehicles in 2020, 1,67 vehicles in 2021, 1,33 vehicles in 2022 and 1 vehicle from 2023 onwards.

Manufacturers can group together to form a pool which can act jointly in meeting the emissions target. In forming a pool, manufacturers must respect the rules of competition law and the information that

[1] ie. “light commercial vehicles”: vehicles used to carry goods weighing up to 3.5 tonnes (vans and car-derived vans, known as "N1") and which weigh less than 2610 kg when empty

they exchange should be limited to average specific emissions of CO_2, their specific emissions targets, and their total number of vehicles registered.

To help drivers choose new cars with low fuel consumption, EU Member States are required to ensure that relevant information is provided to consumers, including a label showing a car's fuel efficiency and CO2 emissions.

The 'car labelling Directive' (Directive 1999/94/EC) aims to raise consumer awareness on fuel use and CO2 emission of new passenger cars. By doing so consumers should be incentivised to purchase or lease cars which use less fuel and thereby emit less CO2. In turn it should provide an additional incentive to encourage manufacturers to take steps to reduce the fuel consumption of new cars. The 'car labelling Directive' as demand-side policy is considered an important complementary measure to help car manufacturers to meet their specific CO2 emission targets as set under Regulation (EC) 443/2009.

The Renewable Energy Directive establishes an overall policy for the production and promotion of energy from renewable sources in the EU. It requires the EU to fulfil at least 20% of its total energy needs with renewables by 2020 – to be achieved through the attainment of individual national targets. All EU countries must also ensure that at least 10% of their transport fuels come from renewable sources by 2020.

Biofuels and bioliquids are instrumental in helping EU countries meet their 10% renewables target in transport. The Renewable Energy Directive sets out biofuels sustainability criteria for all biofuels produced or consumed in the EU to ensure that they are produced in a sustainable and environmentally friendly manner. Companies can show they comply with the sustainability criteria through national systems or so-called voluntary schemes recognised by the European Commission.

Reducing the carbon content of transport fuels is part of the 2020 Climate and Energy package and a key element in decarbonising the transport sector. Besides this endeavour, common fuel quality rules also ensure that air pollutant emissions from vehicles are optimally reduced; a single fuel market is established; and vehicles operate correctly everywhere in the EU. The EU legislative framework, most importantly, Directive 98/70/EC as amended, requires a reduction of the greenhouse gas intensity of the fuels used in vehicles by up to 10% by 2020 compared to 2010 EU-average level of life cycle GHG emissions per unit of energy from fossil fuels – a Low Carbon Fuel Standard –, which can be obtained most importantly through the use of biofuels.

Directive 98/70/EC (the Fuel Quality Directive or FQD) has previously required drastic reductions in the sulphur content of fuels, enabling the deployment of vehicle technologies to reduce greenhouse gas and air pollutant emissions, delivering substantial health and environmental benefits.

Directive 98/70/EC, which formed part of the "Auto-Oil I" package, aims primarily at reducing air pollution caused by road traffic and non-road mobile machinery. The Directive sets technical specifications for petrol and diesel fuels that influence the level of atmospheric emissions. Particularly important from the health and environment point of view are the concentrations of lead, sulphur, aromatics and benzene.

It introduced target values involving a substantial reduction in pollutant emissions from motor vehicles after the year 2000. It set the environmental specifications to be applied (with effect from 1 January 2000 and 1 January 2005) regarding fuels for vehicles equipped with positive-ignition engines (petrol) and with compression-ignition engines (diesel).

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Firstly, leaded petrol was banned from the market from the year 2000 onwards. Secondly, the Directive provided for progressive improvements in the environmental quality of unleaded petrol and diesel fuel. The environmental requirements laid down are mandatory with effect from the years 2000 and 2005 successively. The requirements covered, in the case of unleaded petrol: octane level, vapour pressure, distillation by evaporation, and aromatics, benzene, olefins, oxygen, oxygenates, sulphur and lead content; and, in the case of diesel fuel: octane level, density, distillation, polycyclic aromatic hydrocarbons and sulphur content.

Member States may impose more stringent standards on fuels marketed on their territory in order to protect the environment or public health in a specific ecologically sensitive area, provided the measures are restricted to those areas and provided that the Commission is duly informed in advance.

Member States must monitor compliance with the environmental requirements for fuels on the basis of common procedures for sampling and testing and report thereon in a common format.

Directive 98/70/EC has been amended several times, most importantly to include a target for GHG emission reductions in 2009, as well as to include sustainable biofuels and to include provisions to minimise the impacts of indirect land-use change (ILUC). It also updated provisions on the calculation of life cycle greenhouse gas emissions from biofuels and the target values for reducing those emissions. Moreover, it requires voluntary national or international schemes, which provide evidence of compliance with the sustainability criteria for biofuels, to report regularly on their activity.

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II. Objectives of the Training

Objectives

The aim of this training seminar was to familiarise the beneficiary with the EU legislation on cars and vans, fuel quality and renewables, with a particular emphasis on the planning and preparation in the transposition and implementation of the relevant EU legislation.

The training seminar is covering following activities of ECRAN's Working Group 1 on "Climate Policy, Legislation and Climate Awareness):

Sub-Task 3.1.2: Regional training programme on selected climate acquis

The above sub-task deals with regional trainings on the EU climate *acquis* which were not sufficiently addressed under the predecessor programme RENA.

The workshop was organized in collaboration with the TAIEX Unit who was responsible for provision of logistical arrangements for the nominated beneficiary representatives and TAIEX experts (travel, accommodation and per diems).

The workshop was held in Tirana, Albania. The target group consisted of key experts in the beneficiaries that are already or could be involved in implementing obligations arising from the legislation covered in this workshop.

Expected Results

The expected results were:

- Understanding of the EU regulatory architecture on climate legislation related to transport;
- Improved understanding of the required steps towards transposition and implementation of the obligations arising from the legislation.

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III. Highlights from the Training

Reference is made to Annex I for the agenda. Below only the main elements are highlighted. The presentations are presented in Annex III.

Highlights Day 1

Introduction to the workshop: – Imre Csikós, ECRAN

Setting the scene: atmospheric concentration of CO2 rose above 400 ppm in 2015. Climate change is happening, is significant and needs to be addressed. One way to mitigate climate change is reducing emissions from transport.

Introduction of the legislation on CO2 emissions from cars and vans and labelling of cars – Inga Semeskaite, Lithuania Permanent Representation, Brussels

EU legislation to share the burden of reducing CO2 emissions from new cars and vans between consumers and manufacturers (The Directive "pulls" the market through increased consumer demand for more efficient vehicles while the Regulations "push" the market by improving the efficiency of the vehicles supplied.):

- Cars and Vans Regulations: CO2 reduction targets for automotive producers: improve the fuel economy of vehicles sold on the European market by mandatory CO2 standards for new passenger cars (Regulation (EC) 443/2009) and new light-commercial vehicles (Regulation (EU) 510/2011));
- Car Labelling Directive (Directive 1999/94/EC): raise consumer awareness on fuel economy and CO2 emission by ensuring that information on new cars is readily available, including on a label.

Cars and Vans Regulations

Targets set for

- the fleet average of new cars:
  - 2015: 130 g CO2 /km (phased in between 2012 and 2015).
  - 2020 and onwards: 95 g CO2/km for the fleet average of new cars with a one-year phase-in period during 2020 (95% of each manufacturer's new cars will have to comply with the limit value curve in 2020, increasing to 100% in 2021).
- the fleet average of new vans:
  - 2017: 175 g CO2 /km (phased in from 2014)
  - 2020: 147 g CO2/km
- 2025: possible result from expected review of the Regulations

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"Modalities" to achieve targets:

- Limit value curve (defined by utility parameter, shape and slope) - heavier cars are allowed higher emissions than lighter cars (Annex I of Cars and Vans Regulations);
- Excess emissions premium - payable by manufacturer if the target is not met;
- Derogations – for small volume manufacturers (producing less than 300000 cars or 22000 vans a year);
- Manufacturer pooling - Manufacturers can group together to jointly meet the emissions target (respecting competition law);
- Eco-innovations - manufacturers can be granted emission credits if they equip vehicles with innovative technologies (maximum 7g/km per year for their fleet);
- Phase-in of targets – gradual implementation;
- Super-credits: additional incentive to produce vehicles with extremely low emissions (below 50g/km). A low-emitting car is counted with a multiplier (>1) towards the average.

MS duties from the Regulations:

- Monitoring and reporting: designate a competent authority with the purpose to collect and communicate information on each new passenger car and new van registered in its territory. Report to the Commission on data from calendar year by the subsequent 28 February.

Expected effects of the Regulations (as determined by Commission's Impact Assessment):

- Fuel-cost savings per car of around €340 in the first year, and an estimated total of €2,904–€3,836 over the car's lifetime, as compared with the 2015 target. For vans, fuel cost savings are estimated at €400 in the first year and €3,363–€4,564 lifetime;
- €30 billion per year in total fuel-cost savings to consumers;
- An increase in EU GDP of €12 billion annually, and in annual spending on employment of €9 billion;
- 25% reduction in fuel consumption, saving 160 million tons of oil at around €70 billion at today's prices;
- Avoided CO2 emissions of around 420 million tons in the period to 2030.

<u>Cars Labelling Directive</u>

Policy tools on consumer information:

- set forth in the Labelling Directive
  - label: fuel economy for new car displayed at the PoS;

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  - electronic poster or display: fuel consumption and CO2 emission data of new car model displayed or offered for sale or lease at or through PoS;
  - guide: on fuel economy and CO2 emissions;
  - all promotional literature: contain the official fuel consumption and specific CO2 emission data for the car model;
- Recommendation 2003/217/EC expanded the scope across multiple media formats

Annexes to the Directive set out minimum requirements that each of the consumer information items must meet – different implementation in MSs.

Follow-up Quiz – Imre Csikós, ECRAN

- Calculation of excess emissions premium from new passenger cars
- Differentiation between labels complying or not complying with Directive 1999/94/EC: CO2 labelling of cars, Article 6

Introduction of the Fuel Quality Directive - Edua Malatinszky, ECRAN

Main stages of the FQD: Directive 98/70/EC (FQD): Original objective was to reduce atmospheric pollution from motor vehicles for health and environment reasons by setting minimum environmental (technical) specifications for petrol and diesel fuels (ban of leaded petrol). With amendments since sulphur content has been maximised (10 ppm), metallic additives have been limited. Most importantly, amendments between 2009-2015 incorporated the issue of climate change with the objective to reduce life cycle GHG emissions from transport fuels (Article 7a-e; (EU) 2015/652 on calculation methods and reporting requirements).

Art 7a of the FQD: GHG emissions:

- Target for suppliers: reduce GHG per unit of energy by up to 10 % by 2020: min. 6% reduction by suppliers in the GHG intensity of fuels by 2020 (compared to 2010): possible by use of biofuels and alternative fuels and reduction of flaring and venting (at production – upstream emission reduction (UER)). Additional indicative +2% reduction possible from developments in new technologies (CCS, EV) and +2% reduction from the purchase of CDM credits;
- Calculation based on life cycle GHG emissions per unit of energy: considering also eg. extraction or cultivation (including LUC), processing, transport, distribution and combustion of fuel.

Art 7b-e: only sustainable biofuels can count towards GHG emissions targets defined in Art. 7a, ie. complying with sustainability criteria (same criteria as defined in RED):

- GHG savings from the use of the biofuels must be at least 50% from 2017;
- No raw materials accepted from areas that had the status of Primary forest, Protected area, Highly biodiverse grassland (criteria determined in (EU) 1307/2014), Land with high carbon stock or Peatland as of January 2008;

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- ILUC shall be minimised (ILUC is the phenomenon when the demand for biofuels eventually increases GHG emissions or cancels out emission savings as biofuel production expels food- and feed-production to new lands, converting eg. grasslands and forests into new agricultural land) – (default values in Annex V of FQD);
- Compliance with sustainability criteria to be verified using a mass balance system;
- Lifecycle GHG emissions from biofuels are calculated with default values for greenhouse gas emission savings (Annex IV).

Most burdensome (in terms of time, effort, planning) of the MS obligations is the setting up of the Monitoring and reporting system.

- with regard to Art. 7a-e (GHG targets): MS has to ensure that fuel suppliers report verified information annually to CA. In turn, CA of MS reports aggregated data to the Commission each year by 31 December (as prescribed in Dir. 2015/652):
  - Total volume of each type of fuel or energy supplied, indicating places of purchase and origin;
  - Life cycle GHG emissions per unit of energy;
- with regard to the original (non-GHG) environmental requirements: MS has to establish a fuel quality monitoring (FQM) system in accordance with the relevant EN standard or of equivalent confidence (common procedures for sampling and testing). CA to report to Commission each year by 31 August on national fuel quality data from preceding year. Reporting template annually updated by Commission and MSs.

<u>The current situation and future of vehicle emissions testing in Europe - Savas Geivandis, Dept of Mechanical Engineering, Aristotle University, Thessaloniki</u>

Current EU legislation for motor vehicle emissions:

- for passenger cars: Regulation 715/2007 and 692/2008 implementing it, both as amended (emission standards indicated by Arabic numbers eg. Euro 6);
- for Heavy Duty Vehicles: Regulation 595/2009 and 582/2011 implementing it, both as amended (emission standards indicated by Roman numerals eg. Euro VI);

From September 2014 and January 2013 respectively, any new car model or heavy duty vehicle shall comply with Euro 6 / VI standard.

Laboratory emission testing is based on NEDC (New European Driving Cycle), which is not “new” any more (last updated in 1997) and not realistic (eg. 120 km/h already lower than limits in any national legislation in EU).

Real world emission testing:

- Despite the more and more stringent emission regulations, air quality (PM and NO2) has not improved in Europe.

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- There is a growing gap between official laboratory (type-approval) and real-world on-road emissions. As a result, consumers spend more on fuel, vehicle manufacturers lose credibility (car may be understanding that it's being tested and evaluated, and may disguise emissions), vehicle tax revenue drops for governments and society does not meet air quality targets. The vehicle test procedures therefore need to be revised.
- NEDC is hoped to be replaced by WLTP (Worldwide harmonized Light vehicles Test Procedures), which consider RDE (real driving emissions): Emissions testing with random driving cycles in the laboratory + On-road emissions testing with PEMS (Portable Emission Measurement System).
  - Current LDV legislation on RDE: PEMS tests for vehicle family concept mandatory from 2015 for reporting and monitoring. Gradual phase-in of limits with conformity factors (CF): CF of 2.1 applicable in 2017 for new types and 2019 for all types, then 1.5 applicable in 2020 for new types and 2021 for all types. Evaluation method will be selected before 2017 (boundary conditions).
- Summary on PEMS:
  - Testing with PEMS is a key element of EU emissions regulations;
  - next challenge: Assessing methods to normalize data without jeopardizing the effectiveness in detecting RDE performance;
  - PEMS can effectively control vehicle gaseous emissions, accelerate the adoption of novel emission abatement technologies and will thereby contribute to air quality improvements throughout Europe;
  - Due to mass constraints PM measurement is not recommended;
  - Further work is required to ensure that robust measurements of PN are possible.

Other topics and discussion:

- On Board Diagnostics (OBD): system on board to identify the likely area of malfunction. Areas under consideration: OBD to monitor energy efficiency / CO2 emission reduction (engine technology deterioration/failure, regular maintenance), continuously monitor emissions and adjust engine management accordingly in real time, active and passive safety features (exists since a long time, be standardised?). Regulatory issues to be investigated with a long term view.
- New regulations cover: More stringent emission limits for conventional pollutants, Durability requirements for pollution control technologies, CO2labelling, Fuel evaporation control, OBD Implementation. Pending issues: In-use compliance, Off-cycle emissions, PN regulation, Roadworthiness testing.
- Outlook:

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- GHG control will continue to be in the forefront of EU policy and related technological advances (Gradual shift to natural gas vehicles, Variable degrees of hybridization, Technology and infrastructure based efficiency improvements)
- ICEs will continue to be the powertrains of option for the foreseeable future. Main technology challenges: Diesel (LD) NOx, OBD, Non-road mobile machinery, Power two/three and four wheelers

Renewable Energy Directive, Jozsef Feiler, ECRAN

Relevant Legislation:

- 2009/28/EC: the Renewable Energy Directive (RED): minimum 10% target for RES in transport in each MS by 2020;
- 2015/1513: ILUC Directive amending RED and FQD;
- Others:
  - Decision on information about biofuels and bioliquids to be submitted by economic operators to Member States (2011/13/EU);
  - Decision on guidelines for the calculation of land carbon stocks (2010/335/EU);
  - Commission Regulation (EU) No 1307/2014 on defining the criteria and geographic ranges of highly biodiverse grassland.

RED and FQD are harmonised with each other. They encourage the use of biofuels that are considered to be sustainable: Art. 17 of the RED (and Article 7(b) of the FQD) establishes sustainability criteria.

Targets and Reporting: RED specifies national renewable energy targets for each country; MS in turn set out how they plan to meet these targets and the general course of their renewable energy policy in national renewable energy action plans (NReAP). Progress reported every two years. Cooperation between MSs and third parties promoted (statistical transfers of renewable energy, joint renewable energy projects, joint renewable energy support schemes).

Energy Community from 2014 already transposed RED in participant countries: target for Western Balkans.

Biofuels is a challenging issue with political aspects:

- Fuel vs food competition – impact on food prices ;
- Land-use impacts (ILUC);
- Biofuel production typically takes place on cropland which was previously used for other agriculture such as growing food or feed. Since this agricultural production is still necessary, it may be partly displaced to previously non-cropland such as grasslands and forests. This process is known as *indirect land use change* (ILUC). ILUC risks negating the GHG savings that result from increased biofuels because grasslands and forests typically absorb high levels of CO_2. By converting these land types to cropland, atmospheric CO_2 levels may increase;

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- Broader displacement effects (water, soil, biodiversity);
- Potential negative social impacts (e.g. land grabbing);
- Compatibility / fuel quality issues.

Biofuels basics

- First Generation (1G) Biofuels generally fuels from food crops, second Generation (2G) Biofuels generally fuels from non-food crops (RED has various special provisions for biofuels derived from wastes & residues which encourage their use);
- All Member States (MSs) and Contracting Parties (CPs) can allow biofuels & bioliquids to be imported/produced domestically and consumed within their boundaries without restriction if they wish;
- However, in order to count towards national Renewable Energy targets (e.g. 10% RES in transport), biofuels & bioliquids must meet various sustainability criteria – requirement of RED;
- Each MS/CP must verify that biofuel & bioliquids supplied (both domestically produced & imported) have met the sustainability criteria, in order for the fuels to count towards the targets;
- This requires the establishment of a national system for verifying that sustainability criteria have been met along with some administrative body/unit to administer it;
- Biofuel/bioliquid suppliers will report to this administrative body/unit on the sustainability of all biofuel/biolquids they have supplied – reporting takes place after the fuel has been supplied and is often on an annual basis.

GHG Criteria – from 2017 all biofuels must deliver at least 50% GHG savings over a 'fossil fuel comparator'= 83.8 gCO2e/MJ[fuel].

Monitoring: 3 ways to prove sustainability of biofuels:

- National system;
- voluntary scheme recognised by the Commission – all MS obliged to recognise;
- multilateral agreement (EU and 3rd party) – theoretical as currently there is no such agreement.

Reporting: Mass balance system: certified volume in = certified volume out.

ILUC Directive (amending RED and FQD):

- limits the share of biofuels from crops grown on agricultural land that can be counted towards the 2020 renewable energy targets to 7%;

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- sets an indicative 0.5% target for advanced biofuels as a reference for national targets which will be set by EU countries in 2017;
- harmonises the list of feedstocks for biofuels across the EU whose contribution would count double towards the 2020 target of 10% for renewable energy in transport;
- requires that biofuels produced in new installations emit at least 60% fewer greenhouse gases than fossil fuels from installations starting operation after 5 October 2015;
- installations that were in operation on or before 5 October 2015, biofuels shall achieve a GHG emission saving of at least 35 % until 31 December 2017 and at least 50 % from 1 January 2018;
- introduces stronger incentives for the use of renewable electricity in transport (by counting it more towards the 2020 target of 10% for renewable energy use in transport);
- includes a number of additional reporting obligations for the fuel providers, EU countries and the European Commission.

Implementation of the biofuel policy in Bulgaria - Renewable Energy Directive and Fuel Quality Directive - Boryana Kamenova, Bulgaria, Ministry of Environment and Water

Problems in transposition	Solutions
• Division of responsibilities was problematic: Ministry of Energy covers RED, Ministry of Environment covers FQD • conflict of interests: Ministry of Finance not happy not to receive tax income from biofuel producers (still under discussion) • Lack of accredited laboratories for analysis and control of the biofuels' quality and composition. • Additional technological time is needed for implementation of the investment programs of the fuels' producers and importers for the technical preparations of the distribution systems • Problems with the quality control of biofuels and biofuels blended with petroleum fuels; effective system needed to impose sanctions.	• Introduction of requirements for phasing in the obligatory blending with biofuels. • Clear division of responsibilities; the control body to be clearly identified. • Coercive administrative measures and higher sanctions to be imposed. • Terminological equivalence in the different legislative pieces to achieve clarity and unified approach in the definition of obliged persons. • Technical staff from all relevant CAs to be trained • Financial resources from the state budget to provide the necessary testing equipment in the control body (in BG – the State Agency for Metrological and Technical Surveillance).

Problems identified:

- Sub-target for advanced biofuels
  - investors need time to react;

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  - development of the advanced biofuel industry and the extent to which sufficient production capacity will be available;
  - alternative uses of the feedstocks in question and competition between these different applications;
  - potential environmental impacts of extraction of waste and residues from specific areas;
  - worries about fraud with regards to used cooking oil (UCO).

- Market expectations
  - 2009: When biofuel production started in BG, producers were incentivised by tax exemption. Such incentives were however suspected to clash with state aid rules, about which European Commission had to be consulted. 3 years have passed until a decision, which was too much. Even if positive decision was reached at the end, the initial momentum from the investors has vanished and a lot of factories stopped prodcution.
  - Completely new pathways are unlikely to arise before 2020, or at least will not become available on a commercial scale.
  - any fiscal or financial incentives for advanced biofuel production will come too late to pay off before 2020: the delay in arriving at a decision on ILUC meant that investment certainty for the biofuel industry has been very low in recent years and not many investments have been made.
  - the ILUC Directive will only be valid between 2017 and 2020 and many advanced biofuel pathways are still in the R&D phase, MSs are more likely to benefit from these investments in the post-2020 period rather than in the period before 2020.
  - FQD 7a: *Council Directive 2015/652 establishes GHG methodology for non-biofuels and baseline for reduction target*

Potential issues in implementation	Possible solutions

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• Expected role of UER is limited • Efforts required for implementation will be quite high in comparison to the expected role foreseen for UER • High contribution from UER might also endanger realisation of the RED targets • Because there will be no overall EU verification system, the level of harmonisation will be under pressure. • MCON reporting -trade names which does not cover all the commercial used designation names, new fields • Confidentiality of supplied origin/place of purchase information. • UERs as compliance option • The methodologies to account for the simultaneous co-processing of fossil fuels and biofuels	• Upstream emissions credits, though it is still currently unclear precisely how these will work. • Political incentives • A new policy instrument may be required in addition to the GHG quota to regulate the contribution from UER. • Need to provide a mean to regularly update the list of MCONs. • Non-legislative guidance on approaches to quantify, verify, validate, monitor and report upstream emission reductions • The information on supplied origin/place of purchase is available at a disaggregated stage on MS level. At least the same confidentially measure as used for regulation 2964/95 should be used to avoid publication of commercial sensitive data. • Avoid public reporting on a MS level but only at the EU level • Ensure that confidentiality of information is obtained since reporting on MCON and place of purchase will probably require more strict rules than when using generic feedstock origin names.

The European Commission has issued a non-legislative guidance to facilitate implementation in MSs.

Country presentations

The former Yugoslav Republic of Macedonia

- Renewables
  - received technical assistance from Energy Community (EnC).
    - data is an issue. Need for reliable data for/from statistical office, not just any data (eg. on biomass) – EnC assistance offered. Important to work with Eurostat experts and have appropriate software for it.
    - 2010: RES Strategy – revised every 5 years – new strategy in 2016
    - 2015: government adopted Action Plan for RES, proposing Scenarios 2020-2025-2030 for RES share in the final energy consumption.
  - draft Energy Law (to be adopted in 2016): implementation of provisions of RED
  - draft Law on Biofuels to be adopted in 2016

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  - 1st progress report on the promotion and use of energy from RES is prepared and after realization of the consultation process will be delivered to the EnC Secretariat
  - incentives, subsidies and guidelines to facilitate for investors to construct power plants on RES
- transport sector contribution to national GHG emissions is more than 10% and is expected to increase
  - quality of fuels is regulated by Rulebook on the Quality of Liquid Fuels (adopted by Ministry of Economy)
  - Annual Plan for monitoring the quality of extra light household oil and heavy fuel oil

Montenegro

- same challenges; also member of EnC.
- 2 laws: compliance with 2nd and 3rd Energy Package, Promotion of RES.
- Dec 2015: National Action Plan for RES. Share from RES: 33% (heating and cooling 38.6%, Electricity 49%, Transport 3,7%).
- biggest problem is with biomass – already managed to reach target. Will continue negotiations with EnC Secretariat and recalculate target.
- biofuels in transport: not regulated. Technical assistance from Greece (studies on: secondary biofuel production in Montenegro; energy efficiency (EE) potential in transport). Draft law on EE and RES in transport by end of 2016.
- Cars and Vans Regulations implemented. Deadline for approximation: 2019. Competences at 3 CAs.
- FQD enacted in 2011, but 2009 amendments were not taken into account as the market was not yet ready.
- plan to make an appropriate database for type approval (including GHG intensity to avoid duplication of work / Ministry of Interior). EnC will start dealing with monitoring.

Kosovo*[2]

- National Action Plan for RES 2011-2020.
- biofuels: assessment of biofuel potential in Kosovo*: identification of sources to be used.
- Ministry of Trade and Industry transposing FQD (incl. latest quality standards). Parliament is yet to approve.
- Priority needs: statistics, need to strengthen capacity, reliable database, integration with MMR, would be useful to see examples for verification system.

[2] This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

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Serbia

- FQD partly transposed
  - Energy law – incentives, sustainability criteria for biofuels
    - National Action Plan: sets goals for 2020 energy sources and measures
    - Rulebook on Technical and other rules for aviation, gas oils, heating fuels – informing consumers – technical specifications fully in line with FQD
  - Decree of Monitoring quality of oil derivatives. Legal framework for FQM at the end of 2015. Progress in implementation. February 2016: best practices from Czech Republic and EU.
  - Revision of the Rulebook especially on marine fuels.
- administrative CB, cooperation with international organisations.
- start transposing everything about biofuels. Law operational by the end of this year.
- new challenge: now would abolish feed-in tariffs, defined by premiums. Maybe exchange opinions on that in future into new model, difficult to change in short term.

Turkey

- closely follow EU legislation.
- Action Plan on transport sector last month.

Bosnia and Herzegovina

- talks but not implemented yet: Cars and Vans Regulations and Labelling.
- RED adopted by both parts of the country but failed to comply.
- National Action Plan for thermal power plants.
- share of RES is 35%, goal: 40%.
- 2nd goal: 10% RES in transport.
- use of biofuels not significant at all at present.
- transport legislation is harmonised.
- emission reduction based on importing new cars (import many new cars)
- biomass used in heat production more and more, no biofuels.
- price of natural gas and electricity high, most houses use coal (full of sulphur).

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Highlights Day 2

Implementation of the Directive 1999/94/EC[3]; Experiences in Austria - Heinz Bach, Federal Ministry Of Agriculture, Forestry, Environment And Water Management, Austria

Problems	Solutions
Firstly resistance from association of car importers and car dealers • they wanted to minimize the effort (burden sharing) • printing and distribution is expensive • info is not user-friendly • label might get quickly out of date Lack of database: expensive to buy from privatised company	• format for the label on fuel economy and CO2 was agreed upon • positive experience: absolute values with colour coding depending on national fleet average and some additional info (Euro standard class, purchase tax, noise, net weight, dimensions). Label is placed in front of the car in the showroom. • guide: a web based solution was found to be effective: costs shared: website itself (including info on climate change, how driving style influences fuel consumption, etc.) is provided by the Ministry, dealers provide info. Costs: 20 thousand EUR for setting up the website, 6 thousand EUR covered by Ministry; maintenance costs for dealers: manpower to collect info and update webpage. • label now seen as a marketing tool (+comparison function in the website) • Ministry of Finance used this website to determine new taxes • Penalties: monetary and non-monetary (eg. excluding from website – even more effective than the former case) • Transposition itself (law making) was simple. +1: real driving figures and independent testing by automotive clubs could (re)create confidence +2 : ecodriving would need awareness raising

[3] Car Labelling Directive

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Implementation of Article 7a of the Fuel Quality Directive - Thomas Weber, German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

GHG reduction target for fuels: Fuel suppliers are required to reduce GHG emissions of fuels by 2020 by at least 6% compared to fossil fuels in 2010. *"Member States shall require suppliers to reduce as gradually as possible life cycle greenhouse gas emissions per unit of energy from fuel".* As there is no intention from Commission to define additional targets post-2020, the German legislation explicitly determines that the target of 6% continues beyond 2020.

Reduction methods: (1) Biofuels; (2) Upstream emission reductions (e.g. of flaring & venting) (3) GHG savings in EV, hydrogen, renewable methane.

- GHG emissions of biofuels to be calculated on life cycle basis according to GHG methodology in RED/FQD
- National schemes and EU voluntary schemes are recognized: *"the certification of greenhouse gas emissions by recognized voluntary schemes is as valid for the purposes of Article 7a as it is for the purposes of Article 7b(2) of Directive 98/70/EC"* (Council Directive 2015/652)

Obligated entities: companies placing fossil fuels on the market (suppliers). The target has to be achieved over the calendar year

  - i.e. not for every liter;
  - GHG reductions can vary throughout the year / geographically; transfer to third party is possible through bilateral contract.

Annual Reports have to be submitted by the suppliers to the CA by 15 April the following year. Additional GHG reductions above annual target may be transferred to the following target year. Customs authority is responsible for monitoring compliance with GHG obligation at federal level (built on existing system).

Greenhouse gas calculation for fuels (other than biofuels) are based on default values. The Default values are average values for GHG emissions calculated by Commission / JRC. Also in case of fossil fuels GHG emissions vary. In case a fuel has lower emissions the calculation of actual values is not permitted by Directive.

Setting up of an efficient system to monitor the quality of fuels on the market - Savas Geivanidis, Dept of Mechanical Engineering, Aristotle University, Thessaloniki

Problem setting: The fuel production and delivery chain is a complex system. Fuel quality can deteriorate due to intentional or unintentional causes; such risks can be prevented or minimized by FQM. Interest for distributors/fuel providers: not to lose reputation.

Targets of a Fuel Quality Management System (FQMS):

- Ensure fuel quality at any point of the supply chain;
- Protect consumers;
- Environmental / health / technical / financial;
- Safety issues and product handling;

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- Prohibit tax and duty evasion;
- Prevent off-spec fuel (Unintentional, Intentional);

Operational solution

- Controls;
- Proper organization of the prosecution services;
- Existence of necessary means of enforcement of prosecution and strict punishments;
- Existence of the necessary and appropriate personnel;
- Some technical aids (eg. Colouring of fuels, Additivation with tracing elements);

Implementation of FQD by member states: Under the Fuel Quality Directive (FQD) 98/70/EC EU Member States must report various types of information relating to the quality of fuels sold in their territories. More specifically, Member States must sample fuels, analyse their technical characteristics and ensure that they are consistent with the requirements of FQD (FQMS for Member States: European Standard EN 14274:2003).

Common problems of FQM in MSs:

- FQMS model not declared (7 countries have already national models). Nuéber of samples taken differ according to MS size – target is to optimise minimum number of samples across the systems;
- No fuel sales reported in the regional sampling sheets;
- Biofuel content not provided or incorrect units used;
- Missing values for various fuel parameters;
- Summer-grade fuel samples taken outside the summer period;
- Exceedances of certain fuel quality parameters (e.g. summer vapour pressure, sulphur content, etc.), without specifying the number of samples outside the tolerance limits, or providing any explanations or a description of the action taken;
- Analytical and statistical values (e.g. maximum, minimum, median, mean, etc.) reported for the full year not consistent with the corresponding summer/winter data.

Steps for establishing a FQM program: Establish in-house capacity to enforce fuel standards, secure funding for conducting fuel testing and managing the program, Seek authority to impose non-compliance fines, Secure industry cooperation (

Conclusions on the FQM experiences:

- Fuel regulation to compete with air quality and human health effects can only be realized with an effective fuel quality management program;
- Advanced emission control devices, which are susceptible to damage by fuel specifications (e.g. high sulphur), could be more often deployed;

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- Worldwide experience suggest that an effective program should include three key elements:
  - Fuel sampling and testing upstream at the refineries/import facilities and retail stations;
  - A presumptive liability policy that places the burden of testing on industry to assure fuel quality along the distribution chain;
  - Heavy non-compliance penalties.

Biofuels policy in Germany - Thomas Weber, German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety

- Biofuels share is ca. 5,2 % in DE market. Started with tax subsidy after 2000, biofuels were almost tax free until 2007. Then moved to quota system – suppliers obliged to place biofuels on the market as a minimum percentage of fuel sold. No real tax losses related to biofuels anymore - within the quota, biofuels are fully taxed.
- Around 15000 gas stations – enforcement is more difficult in such extensive network.
- Enforcement: National database in electronic form (Nabisy). First gathering point is really checked. A form called "proof of sustainability" is issued and then presented to customs authority, which in turn cancels it (registered in database) so it can't be used more than once.
- Fragmented system within Germany: one material is waste in one region of the country and is not in another.
- Certification system to specify standards (clearer specification of standards than in the Directive) in compliance with the requirements of sustainability criteria, define how to prove compliance with to these standards and to provide the inspection of the evidence. Certifying takes place through at least 1 audit. Certified entity is eligible to produce/sell biofuels. Verification: books are checked at least once a year.
- Agricultural operation: fulfil requirements of a certification system; cultivate sustainable biomass and pass it on to first gathering point; transmit relevant data as to traceability and greenhouse gas emissions to the next operator in the production and supply chain: 1-page form called "Declaration" is issued stating that it fulfils criteria. Spot checks: If deviation from the default values is more than 10%, an audit takes place.
- Sustainability criteria are currently revised by the Commission and thus may be subject to change.

Austrian Biofuel Policy, FQD, RED; Experiences and Current Challenges - Heinz Bach, Federal Ministry Of Agriculture, Forestry, Environment And Water Management, Austria

- One refinery covering 30% of diesel fuels and 50% of petrol used in Austria.
- Tax exemption for biofuels (very helpful during the introduction of blends, no additional costs for suppliers and consumers; 2.8 EUR ct/l less for diesel with a min. 6.6% v/v biofuel; 3.3 EUR

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ct/ l less for petrol with a min. 4.6% v/v biofuel; No mineral oil tax for pure biofuels e.g. B100, HVO). Very volatile business following price changes.

- Art. 8 of FQD: MS shall establish a fuel quality monitoring system in accordance with the requirements of the relevant European standard (EN 14274, EN 14275). Parameters of the AT FQMS System: 100 samples of diesel EN 590 (50 winter / 50 summer), 100 samples of petrol EN 228 –95 octane (50 winter / 50 summer); 2014: about 2.600 public fuel stations. AT doesn't have electronic database of all fuel stations; their activity is permitted at local level and on paper. Keeping an accurate database for selecting samples for the fule quality monitoring system thereon is very time consuming. All costs associated with sampling, analytics and reporting have to be covered by the natural or legal person on whose account and in whose name the business is operated.
- Challenges:
  - The actual prizes per sample (733 EUR for diesel, 855 EUR for petrol) was set in Ordinance in 2010 – now it is very difficult to change;
  - Fuel sellers complain about extensive administrative burden, in particular high costs, especially small companies. Economic data would be necessary to e.g. adapt costs to the quantity of fuel sold but no solution found so far.

RED - BIOFUEL TARGETS

- Substitution requirement enacted in Ordinance: Entities bringing fossil fuels on the market have to substitute a certain percentage with biofuels; Since 2009 3.4% of the energy content of petrol and 6.3% of the energy content of diesel brought on the market have to be substituted with biofuel; either blending biofuels or selling them pure (B100, E85, Bio-CNG). Possible to fulfill the target with B7 and E5. Experiences: Tax incentives helped a lot to overcome resistances; 2012 plan for the introduction of E10, finally stopped due to political reasons (some cars don't run on E10, people are afraid to use as they don't know it. It's expensive, compensation would be needed, but Ministry of Finance said no to that.)
- AT established National Sustainability Scheme for agricultural biomass for the production of biofuels and bioliquids was set up to keep the costs for farmers and the administrative burden low. System is run by the official paying agency for EU agricultural subsidies - they make inspections and were already present and auditing the farmers anyway in the region so the national system could build on that. Commission hasn't approved the national system since 2010 – problems with mutual recognition finally solved with new ILUC Directive.
- AT Environment Agency has set up an electronic system (called elNA) for monitoring compliance with sustainability criteria on a member state level (Verification of data (within the system & on-site auditing); Collection of data to fulfill reporting obligations; Providing reliable information for tax exemptions). This is electronically connected with DE system – export and import is registered in database automatically. Same happened between Belgium and Luxemburg. If no harmonised system is implemented through MSs, opportunity for frauds.
- Challenges:

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- Transposition itself and especially to get the whole sustainability system up and running was challenging. National sustainability system for biomass is the best solution for AT, though needed a lot of effort to achieve mutual recognition;
- GHG target is set for 2020, but if legal requirements end in 2020, investors will not invest in biofuels now;
- UER is not specified at all – should not start implementing it now; a lot of political decisions necessary before the actual transposition.

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V. Evaluation

Reference is made to Annex IV for the detailed evaluation.

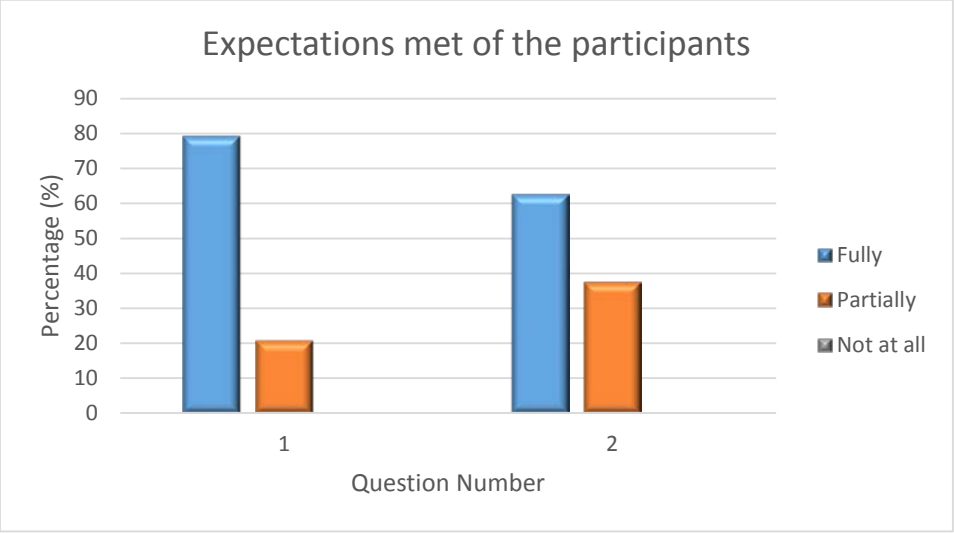
From attached evaluation it appears that the training was very well received. The great majority of the participants indicated that the workshop helped them to **fully** improve their understanding of the EU regulatory architecture **(79%)** and the required steps towards transposition and implementation of the obligations **(62.5%)** arising from the climate legislation related to transport. A minority indicated that this was partially achieved. The facilitators were well appreciated for their preparations and knowledge to this workshop.

Over 90% of the evaluation scores regarding the quality aspects of the workshop such as achieved objectives, overall quality, practical work, presentations, facilitators, obtained the marks 'excellent') to 'good'. The aspect on logistical arrangements had a score of good to excellent.

All participants **(100%)**, except for one, indicated that attending this workshop was time well spent for them.

My Expectations

1. I have improved understanding of the EU regulatory architecture on climate legislation related to transport
2. I have improved understanding of the required steps towards transposition and implementation of the obligations arising from the legislation



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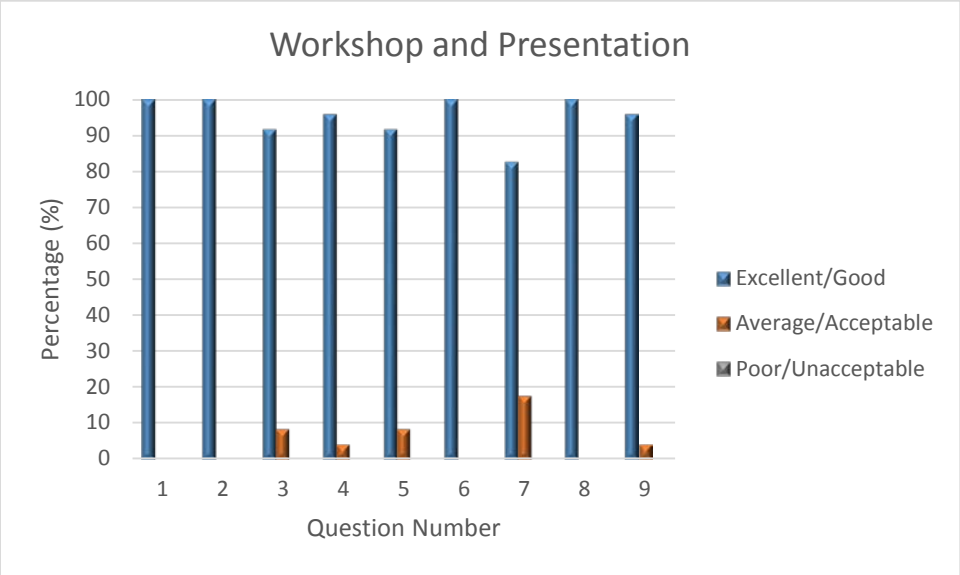
Aspect of Workshop

1. The workshop achieved the objectives set
2. The quality of the workshop was of a high standard
3. The content of the workshop was well suited to my level of understanding and experience
4. The practical work was relevant and informative
5. The workshop was interactive
6. Facilitators were well prepared and knowledgeable on the subject matter
7. The duration of this workshop was neither too long nor too short
8. The logistical arrangements (venue, refreshments, equipment) were satisfactory
9. Attending this workshop was time well spent



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ANNEX I – Agenda

Day 1 - Transport related climate policy and legislation

Venue: Hotel Mondial, Tirana, 13 April 2016				
Start	**Finish**	**Topic**	**Speaker**	**Sub topic/Content**
09.30	**10.00**	**Registration**		
10.00	10.15	Introduction	Imre CSIKÓS, ECRAN	Aims and topic of the workshop
10.15	11.00	Introduction of the legislation on CO2 emissions from cars and vans and labelling of cars	Inga Semeskaite, Lithuania Permanent Representation, Brussels	Introduction of the legislation and duties of the Member States
11.00	11.45	Introduction of the Fuel Quality Directive	Edua Malatinszky, ECRAN	Obligations arising from the FQD MS reporting requirements
11.45	12.00	***Coffee Break***		
12.00	12.45	Renewable Energy Directive	**Jozsef Feiler, ECRAN**	Obligations arising from the RED MS reporting requirements
12.45	14.00	***Lunch Break***		
14.00	14.45	Member State perspective on the implementation of the transport related legislation package	**Boryana Kamenova, Bulgaria**	• Cars and Vans • Labelling • FQD • RED
14.45	15.30	The current situation and future of vehicle emissions testing in Europe	Savas Geivandis, Dept of Mechanical Engineering,	

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Venue: Hotel Mondial, Tirana, 13 April 2016				
Start	**Finish**	**Topic**	**Speaker**	**Sub topic/Content**
			Aristotle University, Thessaloniki	
15.30	15.45	***Coffee Break***		
15.45	17.30	ECRAN beneficiary situation and needs	ECRAN beneficiary countries representatives (10" presentations per ECRAN beneficiary)	

Day 2 – Implementation of transport related climate policies in Member States

Venue Hotel Mondial Tirana, 14 April 2016				
Start	**Finish**	**Topic**	**Speaker**	**Sub topic/Content**
09:30	**10:00**	**Registration**		
10.00	10.45	Cars and vans Regulations - implementation	Heinz Bach, Federal Ministry Of Agriculture, Forestry, Environment And Water Management, Austria	
10.45	11.30	Implementation of Article Art. 7 of the Fuels Quality Directive	Thomas Weber, German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety	- Sustainability criteria - Calculation methods - (Verification of) compliance
11.30	11.45	***Coffee Break***		
11.45	12.30	Setting up of an efficient system to monitor the quality of fuels on the market	Savas Geivandis, Dept of Mechanical Engineering,	

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Venue Hotel Mondial Tirana, 14 April 2016				
Start	**Finish**	**Topic**	**Speaker**	**Sub topic/Content**
			Aristotle University, Thessaloniki	
12.30	13.30	***Lunch Break***		
13.30	14.15	Member state biofuels policy, Germany	Weber, Thomas	Member State perspective on the implementation of the FQD legislation Obligations authorities Obligations companies Lessons learned
14.15	15.05	Austrian biofuels policy	Heinz Bach, Federal Ministry of Agriculture, Environment and Water Management, Austria	Member State perspective on the implementation of the FQD legislation Obligations authorities Obligations companies Lessons learned
15.05	15.30	***Coffee Break***		
15.30	16.30	Questions and answers, Conclusion, evaluation	Jozsef Feiler, ECRAN	

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ANNEX II – Participants

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Alketa	Milo	General Directorate of Road Transport Service	Albania	
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Heinz	Bach	Federal Ministry of Agriculture, Forestry, Environment and Water Management	Austria	Heinz.BACH@bmlfuw.gv.at
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ANNEX III – Workshop materials (under separate cover)

Additional Workshop materials including presentations and exercises, can be downloaded from:

http://www.ecranetwork.org/Files/Workshop_Presentations_Cars_and_Vans_April_2016_Tirana.zip

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ANNEX IV – Evaluation

Statistical Information

1.1	Workshop Session	ECRAN Workshop on climate legislation in relation to transport (cars and vans, labelling, renewables and fuel quality) 13-14 April 2016, Tirana, Albania
1.2	Facilitators name	As per agenda
1.3	Name and Surname of Participants (evaluators) optional	As per participants' list

Your Expectations

Please indicate to what extent specific expectations were met, or not met:

My Expectations	My expectations were met		
	Fully	**Partially**	**Not at all**
1. I have improved understanding of the EU regulatory architecture on climate legislation related to transport .	IIIII IIIII IIIII IIII (79%)	IIIII (21%)	
2. I have improved understanding of the required steps towards transposition and implementation of the obligations arising from the legislation.	IIIII IIIII IIIII (62.5%)	IIIII IIII (37.5%)	

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Workshop and Presentation

Please rate the following statements in respect of this training module:

Aspect of Workshop	Excellent	Good	Average	Acceptable	Poor	Unacceptable
1. The workshop achieved the objectives set	IIIII IIIII III (54%)	IIIII IIIII I (46%)				
2. The quality of the workshop was of a high standard	IIIII IIIII IIIII I (67%)	IIIII III (33%)				
3. The content of the workshop was well suited to my level of understanding and experience	IIIII IIIII II (50%)	IIIII IIIII (42%)	II (8%)			
4. The practical work was relevant and informative	IIIII IIIII III (54%)	IIIII IIIII (42%)	I (4%)			
5. The workshop was interactive	IIIII IIIII IIIII II (71%)	IIIII (21%)	II (8%)			
6. Facilitators were well prepared and knowledgeable on the subject matter	IIIII IIIII IIIII (65%)	IIIII III (33%)				
7. The duration of this workshop was neither too long nor too short	IIIII IIIII (44%)	IIIII IIII (39%)	III (13%)	I (4%)		
8. The logistical arrangements (venue, refreshments, equipment) were satisfactory	IIIII IIIII IIIII (62.5%)	IIIII IIII (37.5%)				
9. Attending this workshop was time well spent	IIIII IIIII IIIII II (71%)	IIIII I (25%)	I (4%)			

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Comments and suggestions

I have the following comment and/or suggestions in addition to questions already answered:

Workshop Sessions:
-Logistics was very excellent.

Facilitators:
-Compliment to Mr. Heinz Bach.

Workshop level and content:

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