



Brussels, 12.7.2019
SWD(2019) 303 final

COMMISSION STAFF WORKING DOCUMENT

EVALUATION

of the

Council Directive

95/60/EC of 27 November 1995 on fiscal marking of gas oil and kerosene

{SWD(2019) 304 final}

Table of contents

| | |
|---|----|
| GLOSSARY | 3 |
| 1. INTRODUCTION | 5 |
| 1.1. Purpose..... | 5 |
| 1.2. Scope | 6 |
| 2. BACKGROUND TO THE DIRECTIVE..... | 6 |
| 2.1. Description of the intervention..... | 6 |
| 2.2. Objectives of the directive | 8 |
| 3. IMPLEMENTATION / STATE OF PLAY | 11 |
| 3.1. Transposition and implementation..... | 11 |
| 3.2. Changes in related legislation | 14 |
| 3.3. Diverging practices | 15 |
| 4. METHODOLOGY..... | 17 |
| 4.1. Short description of methodology | 17 |
| 4.2. Limitations and robustness of findings | 20 |
| 5. ANALYSIS AND ANSWERS TO THE EVALUATION QUESTIONS | 20 |
| 5.1. Relevance | 21 |
| 5.1.1. <i>Internal market</i> | 21 |
| 5.1.2. <i>Reducing tax fraud in fuels</i> | 23 |
| 5.1.3. <i>Scope of the Euromarker Directive</i> | 26 |
| 5.2. Effectiveness..... | 28 |
| 5.3. Efficiency | 30 |
| 5.3.1. <i>Compliance costs</i> | 30 |
| 5.3.2. <i>Administrative costs for beneficiaries</i> | 31 |
| 5.3.3. <i>Costs of the refund system</i> | 31 |
| 5.3.4. <i>Enforcement costs</i> | 32 |
| 5.3.5. <i>Costs and benefits and scope for simplification</i> | 32 |
| 5.4. EU-added value | 33 |
| 5.4.1. <i>Comparison to a scenario with only national measures</i> | 33 |
| 5.4.2. <i>Consequences of a possible repeal of the Euromarker legislation</i> | 34 |
| 5.5. Coherence | 34 |
| 6. CONCLUSIONS..... | 37 |
| ANNEX 1: PROCEDURAL INFORMATION | 39 |

| | |
|---|----|
| 1. Lead DG, Decide Planning/CWP references..... | 39 |
| 2. Organisation and timing..... | 39 |
| 3. Exceptions as regards Better Regulations guidelines..... | 39 |
| 4. Consultation of the RSB (if applicable)..... | 39 |
| 5. Evidence, sources and quality | 40 |
| ANNEX 2: STAKEHOLDER CONSULTATIONS | 41 |
| 1. Background and consultation strategy | 41 |
| 2. Participating stakeholder groups | 41 |
| 3. Methodology and tools used to process data..... | 43 |
| 4. Results of each consultation activity..... | 43 |
| 5. Ad hoc contributions | 43 |
| ANNEX 3: METHODS USED IN PREPARING THE EVALUATION | 44 |
| ANNEX 4: QUESTIONNAIRE FOR NATIONAL AUTHORITIES..... | 48 |
| ANNEX 5: STATISTICS ON GAS OIL AND KEROSENE CONSUMPTION | 54 |
| ANNEX 6: STATISTICAL INFORMATION FOR VOLUMES OF MARKED GAS OIL | 64 |
| ANNEX 7: STATISTICAL INFORMATION FOR VOLUMES OF MARKED KEROSENE | 67 |
| ANNEX 8: NATIONAL DYES USED..... | 69 |

GLOSSARY

| <i>Term or acronym</i> | <i>Meaning or definition</i> |
|------------------------------------|---|
| CED | Committee on Excise Duty |
| CHP | Combined Heat and Power |
| CN | Combined Nomenclature |
| CJEU | Court of Justice of the European Union |
| DG TAXUD | Directorate-General for Taxation and the Customs Union |
| EC | European Commission |
| EMCS | Excise Movement and Control System |
| Energy Taxation Directive | Council Directive 2003/96/EC |
| ETD | Energy Taxation Directive |
| EQ | Evaluation question |
| EU | European Union |
| Euromarker | EU common fiscal marker as stipulated in the Annex to Commission Implementing Decision 2017/74/EU |
| Euromarker Decision | Commission Implementing Decision 2017/74/EU |
| Euromarker Directive | Council Directive 95/60/EC |
| Horizontal Excise Directive | Council Directive 2008/118/EC |
| JC | Judgement criterion |
| JRC | Joint Research Centre |
| Mineral Oils Directives | Directives 92/81/EEC and 92/82/EEC |
| REACH | REACH Regulation: Regulation (EC) No 1907/2006 of the European Parliament and of the Council |
| Solvent Yellow 124 | The commercial name of the current common fiscal marker with scientific name <i>N-Ethyl-N-[2-(1-isobutoxyethoxy)ethyl]-4-(phenylazo)aniline</i> |
| SY124 | Solvent Yellow 124 |
| TEC | Treaty establishing the European Community |

| <i>Term or acronym</i> | <i>Meaning or definition</i> |
|------------------------|---|
| TFEU | Treaty on the Functioning of the European Union |
| toe | Tonnes of oil equivalent |
| UCC | Union Customs Code |

Symbols and conventions

~ means approximate value

.. means not available

– means not applicable

< means less than

0 means zero or a quantity less than half than the unit shown

In all exhibits, totals may not add due to rounding

Billion must be understood as 10^9

1. INTRODUCTION

Directive 95/60/EC on fiscal marking of gas oil and kerosene¹ (hereafter ‘the Euromarker Directive’) provides the legal basis for the establishment of a common fiscal marker, the so-called ‘Euromarker’. The Directive imposes an obligation on EU Member States to add the Euromarker to gas oil and kerosene (other than jet fuel) only if these products are released for consumption exempt from excise duty or subject to an excise duty rate lower than the standard one applicable to fuel used as propellant.

In addition, Member States are required to adopt appropriate sanctions and enforcement measures to give full effect to the provisions of the Euromarker Directive. However, the use of the marker is not allowed in situations where the gas oil or the kerosene is released for consumption fully-taxed at the rate for propellant use, even if a tax reduction or exemption is applied later on through the means of a refund².

Besides this, the Euromarker Directive allows Member States to add a national marker or colour (dye) in addition to the common marker.

The Euromarker Directive has not been revised since its adoption and no evaluation has taken place so far. While the directive entered into force on 26 December 1995, its actual implementation was delayed due to the time required to select the common marker which was completed in 2001.

1.1. Purpose

The evaluation aims to establish to what extent the current Euromarker Directive has achieved its original objectives as set out by the legislators and if it has done so in an effective and efficient manner. The evaluation will also assess the continued relevance of the legislation in the light of the technological, economic and legal developments since its adoption, its coherence with other EU legislation and its EU added value. The subject of administrative burden will also be taken into consideration.

The Euromarker Directive established a legal framework for the application of the common fiscal marker across the EU with a view to ensure the proper functioning of the internal market and contributing to fighting fraud in the trade of rebated fuel. The analysis addresses the question to what extent the Directive has actually achieved the expected effects (such as preventing fraudulent behaviour with the use of gas oil and kerosene which are subject to lower excise duties or ensuring level playing field in the transport and other sectors across the EU). The evaluation also looks into the issue of how potential differences in the interpretation of the provisions of the Euromarker Directive by Member States affected economic operators, the functioning of the internal market as a whole and the efforts of Member States to fight fuel fraud. The evaluation analyses the added value of acting at the EU level to achieve the goals mentioned above.

1 Council Directive 95/60/EC of 27 November 1995 on fiscal marking of gas oil and kerosene (OJ L 291, 6.12.1995, p. 46).

2 See the jurisprudence of the CJEU, in particular, *Meiland Azewijn BV*, C-292/02, EU:C:2004:499 paragraphs 47 to 49. and *Commission v United Kingdom*, C-503/17, EU:C:2018:831, paragraphs 44 to 46. See the jurisprudence of the CJEU, in particular, *Meiland Azewijn BV*, C-292/02, EU:C:2004:499 paragraphs 47 to 49. and *Commission v United Kingdom*, C-503/17, EU:C:2018:831, paragraphs 44 to 46.

This evaluation of the Euromarker Directive will provide input to the overall assessment of the harmonised rules on the fiscal marking of fuels, which includes also a technical evaluation of the chemical substance used as the current common fiscal marker³. It will thus provide the point of departure for any subsequent initiative targeting identified shortcomings in the context of the fiscal marking of fuels⁴.

1.2. Scope

The evaluation covers all provisions of Directive 95/60/EC and the relevant case law at the European Court of Justice (CJEU). The time period covered is from the adoption of the Directive until the availability of the reported data (1995–2016). The evaluation covers all EU Member States and makes use of detailed case studies in six selected Member States⁵. The present Commission Staff Working Document builds on the findings of an evaluation study carried out for the Commission by Economisti Associati (hereafter referred to as the ‘evaluation study’)⁶.

2. BACKGROUND TO THE DIRECTIVE

2.1. Description of the intervention

The standard practice of EU Member States has been to apply different rates of taxation to energy products depending on their final use. This practice was reflected in Council Directive 92/82/EEC on the approximation of the rates of excise duties on mineral oils⁷ and in its successor – the Energy Taxation Directive (ETD)⁸. The ETD lays down different minimum levels of taxation for gas oil⁹ and kerosene used as propellant, as motor fuel used for certain defined industrial or commercial purposes¹⁰ and as heating fuel. Most Member States follow the same logic and apply different national rates for the different uses of gas oil and kerosene with considerable differences in the level of taxation in some cases¹¹. In addition to these disparities in the levels of taxation for these

3 Council Directive 95/60/EC of 27 November 1995 provides for the designation of a common fiscal marker to be used for gas oils and kerosene (other than jet fuel) exempted or subject to a reduced rate. The latest Implementing Decision (EU) 2017/74 of 25 November 2016, currently in force, confirmed Solvent Yellow 124 (SY124) as the common fiscal marker. According to Article 2 of this Implementing Decision, this Decision should be reviewed by 31 of December 2021 at the latest.

4 During the data collection phase of the study for the evaluation, it became clear that most of the criticism on the system of fuel marking in the EU was focused on the technical problems related to the chemical substance that is currently used as the Euromarker, in particular its limited resilience to resist fraudulent removal from the marked fuels.

5 Bulgaria, Denmark, Estonia, France, Ireland, and Italy.

6 Economisti Associati, *Evaluation study on the application of the provisions of the Council Directive 95/60/EC of 27 November 1995 on fiscal marking of gas oil and kerosene*, forthcoming

7 OJ L 316, 31.10.1992, p. 19.

8 Council Directive 2003/96/EC of 27 October 2003 restructuring the Community framework for the taxation of energy products and electricity (OJ L 283, 31.10.2003, pp. 51–70).

9 Gas oil used as propellant is commonly known as diesel.

10 See Articles 7, 8(2) and 9 and Tables A, B and C in Annex I to Directive 2003/96/EC.

11 See the Excise Duty Tables for information about the national tax rates applied by all EU Member States for gas oil and kerosene at https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-energy_en#Rates%20and%20structure%20of%20excise%20duties%20for%20energy%20products.

different uses, a number of obligatory and optional tax exemptions are also provided for in the ETD. There are obligatory tax exemptions for energy products used for the production of electricity and for energy products used for international commercial water and air navigation. The optional tax exemptions leave the choice to Member States who can decide not to tax certain uses¹².

The minimum levels of taxation for gas oil and kerosene laid down in the ETD are presented in the Table below. The differences between the minimum rates depending on the use of the fuels illustrate the importance of the fiscal marking of the products subject to the reduced excise duty rates¹³.

Table 1: Minimum levels of taxation

| Fuel type | Minimum levels of taxation | | |
|-----------|----------------------------|--|------------------|
| | Propellant use | Industrial uses (listed in Article 8(2) of the ETD) | Heating fuel use |
| Gas oil | 330 | 21 | 21 |
| Kerosene | 330 | 21 | 0 |

Source: Directive 2003/96/EC, Annex I, Tables A, B and C

The differences in the level of taxation or the disparity resulting from the exemption from energy taxation are reflected in the final price of fuels. Thus, the different excise duty rates create an incentive for unlawful conduct. The problem arises, in particular, regarding gas oil, which is widely used as automotive diesel for road transport, but it is also the most common fuel used to drive commercial vessels, a number of stationary motors and specialised equipment and is as well used as heating fuel.

Before the adoption of the Euromarker Directive, all Member States except Denmark had put in place restrictions on the use of industrial or heating gas oil as a substitute for diesel. Gas oil subject to excise duty at rates other than the full propellant rate was dyed to a distinctive colour and contained one or more tracer agents. These marking systems provided an efficient and cost-effective method for dealing with fraudulent misuse. However, the marking systems had been developed independently in the Member States and had considerable differences with regard to the combination and concentration of dyes and markers. This produced a situation where there was little compatibility between the various approaches to gas oil marking¹⁴.

This was not of any great significance as long as fiscal controls existed on intra-Community borders and the misuse of gas oil was a purely domestic matter. Quantitative

12 These are listed in Articles 15(1), 15(3), 16 and 17 of the ETD. They include, for example, the use of energy products for navigation on inland waterways and in agriculture, biofuels falling within the CN codes for gas oil and energy products used by energy-intensive businesses.

13 See Annex I to Directive 2003/96/EC.

14 COM(93) 352 final of 16 December 1993, see the explanatory memorandum.

limits for tax-free fuel¹⁵ and traditional border controls minimised the risks of marked gas oil being used in a jurisdiction other than that where it had been released for consumption. With the abolition of border controls and the creation of the single market on 1 January 1993, there was an increased risk that marked gas oil would be transported from one Member State to another for fraudulent purposes. Because of the range of marking standards, no legal restriction existed within most national jurisdictions on the use of gas oil marked to a specification other than that of the Member State concerned. There was evidence of unscrupulous operators seeking to profit from the resultant uncertainty¹⁶.

In the absence of appropriate measures, the level of revenue from excise duty on gas oil in each of the Member States was at risk. To facilitate the movement and control of coloured and marked oils within the Community the Commission proposed the Euromarker Directive in 1993. With this, Member States adopted a common marking standard for all gas oil released for consumption within the Community at a rate of duty other than the full rate applicable to gas oil used as propellant. The detection of the presence of this marker in gas oil used as propellant (other than in certain limited and clearly defined circumstances) was to be considered as an offence under the national law of the Member State concerned.

During the negotiations in the Council, kerosene (other than jet fuel) was also included in the scope of the Euromarker Directive¹⁷.

The Directive provides for the designation of a common fiscal marker by the Commission, which is assisted by a committee composed of the representatives of the Member States. The practical implementation became possible only after the adoption of a common fiscal marker in 2001 by means of a Commission Decision¹⁸ and the fiscal marking system became fully operational between 2002 and 2003. A Community reference method for the determination of the Euromarker in gas oil and kerosene was developed by the Joint Research Centre of the Commission and the Dutch Customs Laboratory. It was adopted as guidelines by the Committee on Excise Duty¹⁹ in 2005.

2.2. Objectives of the directive

The fiscal marking directive has two general objectives: (1) to contribute to the proper functioning of the internal market and (2) to contribute to the protection of Member States' tax revenue.

15 Quantitative limits were set in Council Directive 68/297/EEC of 19 July 1968 on the standardisation of provisions regarding the duty-free admission of fuel contained in the fuel tanks of commercial motor vehicles (OJ L 175, 23.7.1968, p. 15).

16 COM(93) 352 final of 16 December 1993, see the explanatory memorandum.

17 As jet fuel is supplied to a limited number of customers and stored in premises (airports) that have special security arrangements and restricted access, it does not represent the same level of fraud risk as kerosene that can be ordered and handled by a large number of customers on their own premises.

18 Commission Decision 2001/574/EC of 13 July 2001 establishing a common fiscal marker for gas oils and kerosene (OJ L 203, 28.7.2001, p. 20).

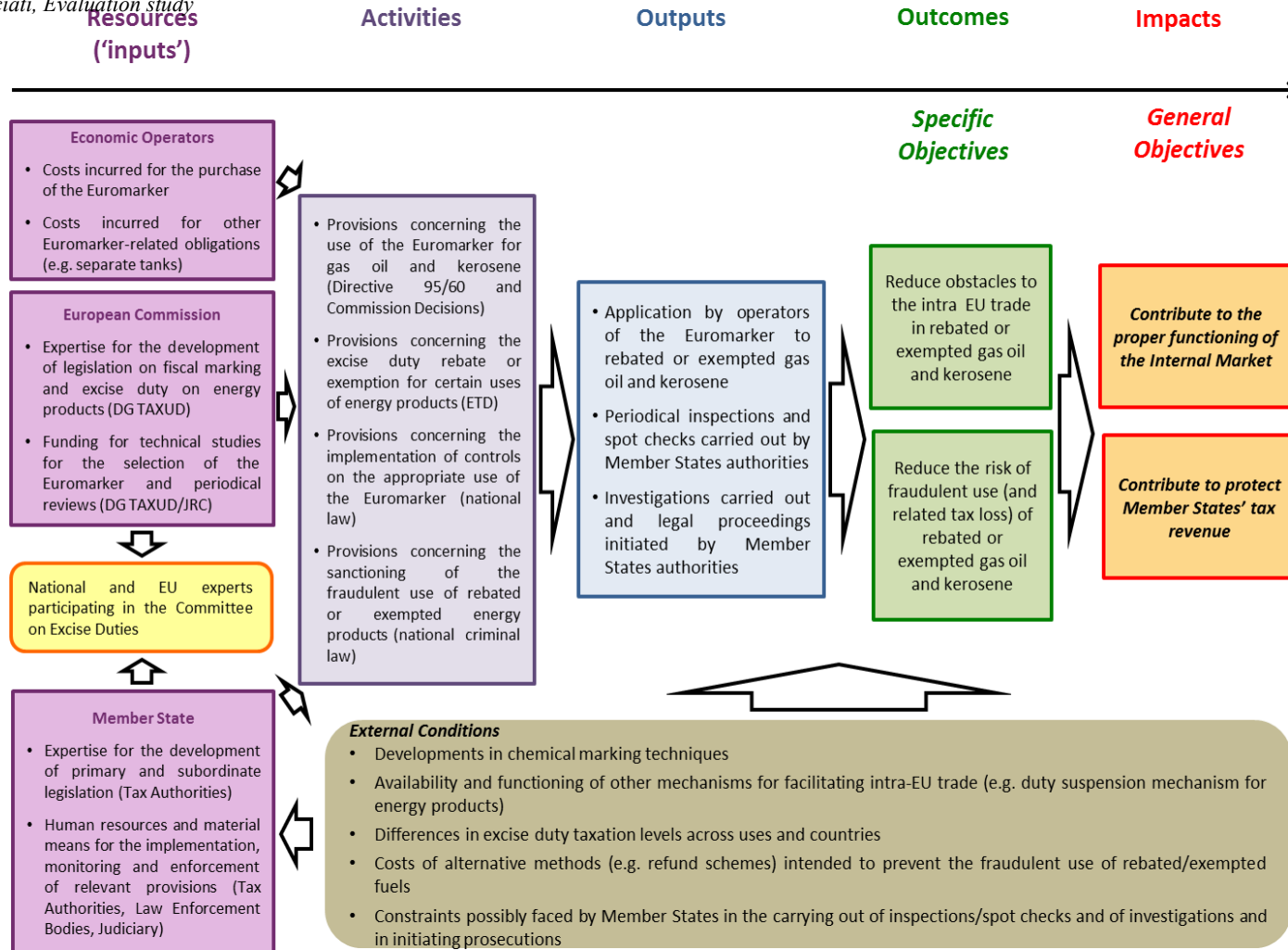
19 See document CED 494 rev 2 of 18 May 2005 of the Committee on Excise Duty. A paper describing the method is available on the website of the Commission:
<http://publications.jrc.ec.europa.eu/repository/bitstream/JRC27911/EUR%2021195%20EN.pdf>.

More specifically, these objectives are: (a) to reduce obstacles to intra-EU trade and the lawful use of gas oil and kerosene taxed at a rate different from the rate for propellant use or exempted from taxation; and (b) to reduce the risk of fraudulent use of rebated or exempted fuels.

The Directive's objectives described above and the manner in which they interact at different levels of policy are captured in the intervention logic diagram below.

Figure 1: Intervention logic of Directive 95/60/EC

Source: Economisti Associati, Evaluation study



3. IMPLEMENTATION / STATE OF PLAY

3.1. Transposition and implementation

The Euromarker Directive entered into force on 26 December 1995. The transposition process was rapidly completed by Member States, but the actual implementation was delayed due to the time required to select the common fiscal marker. The chemical substance to be used as the Euromarker, commercially known as Solvent Yellow 124, was formally adopted in 2001 by means of a Commission Decision and the fiscal marking system became fully operational between 2002 and 2003. The Decision to use Solvent Yellow 124 is subject to review every five years, to take account of technological developments in the field of marking systems and possible emerging needs in counteracting new fraudulent uses. Following these reviews, the use of Solvent Yellow 124 was confirmed in 2006, 2011 and 2016²⁰.

The EU reference method for the determination of the presence of the Euromarker in gas oil and kerosene (the testing method) was adopted as a guideline by the Committee on Excise Duty, which means that it is soft law. Nevertheless, the reference testing method is commonly used by the Member States' laboratories as confirmed by the Joint Research Centre (JRC) of the Commission who supplies certified reference material for the tests.

The scope of application of the Euromarker Directive is defined by references to the CN codes for gas oil and kerosene and to the levels of taxation laid down in Council Directive 92/82/EEC, which has been replaced by the ETD.

Reductions of the rate of the excise duty or exemptions are granted for a variety of gas oil uses and fiscal marking is quite common. The full list of the uses for which the marker applies is presented in the box below.

Box 1: Use of fuels in accordance of Directive 2003/96/European Commission

| Different fuels uses |
|---|
| Gas Oil |
| The types of gas oil uses subject to reduced rate of taxation or to tax exemptions can be summarised as follows: |
| <ul style="list-style-type: none">• Primary Sector Uses, which refers to rebated or exempted gas oil used in agriculture, horticultural, pisciculture, and forestry as per ETD's Articles 8(2) and 15(3);• Industrial Uses, which refers to the rebated gas oil used for stationary motors, in construction industry, in off-road vehicles as per ETD's Article 8.2 as well as gas oil used for heating in manufacturing as per Article 9;• Electricity Production, which refers to the exempted gas oil for the production of electricity uses as per ETD's Article 14 and the combined heat and power (CHP) generation as per ETD's Article 15(1);• Energy Intensive Industries, which refers to the rebated or exempted gas oil for the uses as per ETD's Article 17; |

²⁰ Commission Implementing Decision (EU) 2017/74 of 25 November 2016 establishing a common fiscal marker for gas oils and kerosene (O.J. L 10, 14.1.2017, p 7).

| Different fuels uses |
|---|
| <ul style="list-style-type: none"> • Navigation, which refers to the exempted gas oil for navigation within Community waters as per ETD's Article 14²¹; |
| <ul style="list-style-type: none"> • Fishing, which refers to the exempted gas oil for fishing within Community waters as per ETD's Article 14; |
| <ul style="list-style-type: none"> • Rail Transport, which refers to the rebated or exempted gas oil used for the carriage of goods and passengers by rail, metro, tram and trolley bus as per ETD's Article 15.1; |
| <ul style="list-style-type: none"> • Heating, which refers to the rebated gas oil used for the heating of buildings, irrespective of their business or non-business nature, as per ETD's Article 9; |
| <ul style="list-style-type: none"> • Other Uses, which refers to the rebated or exempted gas oil used for all other uses envisaged by ETD's Articles 5 and 15(1) and not elsewhere specified. |
| <p>Kerosene</p> <p>The types of kerosene uses subject to reduced rate of taxation or to tax exemptions can be summarised as follows:</p> |
| <ul style="list-style-type: none"> • Primary Sector Uses, which refers to rebated or exempted kerosene used in agriculture, horticultural, pisciculture, and forestry as per ETD's Articles 8.2 and 15.3; |
| <ul style="list-style-type: none"> • Industrial Uses, which refers to the rebated kerosene used for stationary motors, in construction industry, in off-road vehicles as per ETD's Article 8(2) as well as kerosene used for heating in manufacturing as per Article 9; |
| <ul style="list-style-type: none"> • Heating, which refers to the rebated kerosene used for the heating of buildings, irrespective of their business or non-business nature, as per ETD's Article 9; |
| <ul style="list-style-type: none"> • All Other Uses, which refers to the rebated or exempted kerosene used for all other uses envisaged by ETD's Articles 5, 14, 15(1) and 17 and not elsewhere specified. |

Source: *Economisti Associati, Evaluation study*

The Euromarker is currently used in all Member States except Slovakia, which recently discontinued all excise duty rebates and where the obligatory exemptions for maritime uses and electricity production de facto do not apply.

In 2016, nearly 63 billion litres of gas oil were marked in the EU. The Euromarker is applied in about three quarters of the uses for which gas oil is provided at a reduced duty rate or duty exempt. It is important to note that the Euromarker is often used along with national markers and dyes as the Euromarker Directive²² explicitly authorises Member States to add a national marker or colour (i.e. dye) in addition to the Euromarker.

The evaluation study noted that many Member States have their own brightly coloured (red) national dyes which are added to the Euromarker to facilitate the detection of fraudulent use during road side checks. These still often rely on visual inspections. The evaluation study also noted that while with the introduction of the Euromarker some countries discontinued the application of their national markers, at least 5 Member States still use national markers. The use of national markers is typically motivated by concerns with respect to the robustness and resilience of the Euromarker. According to those Member States, the current Euromarker can be removed from the marked products with little effort.

21 Article 14 also refers to fuels used for 'the purpose of air navigation other than for private pleasure-flights'. However, gas oil is scarcely used in aviation.

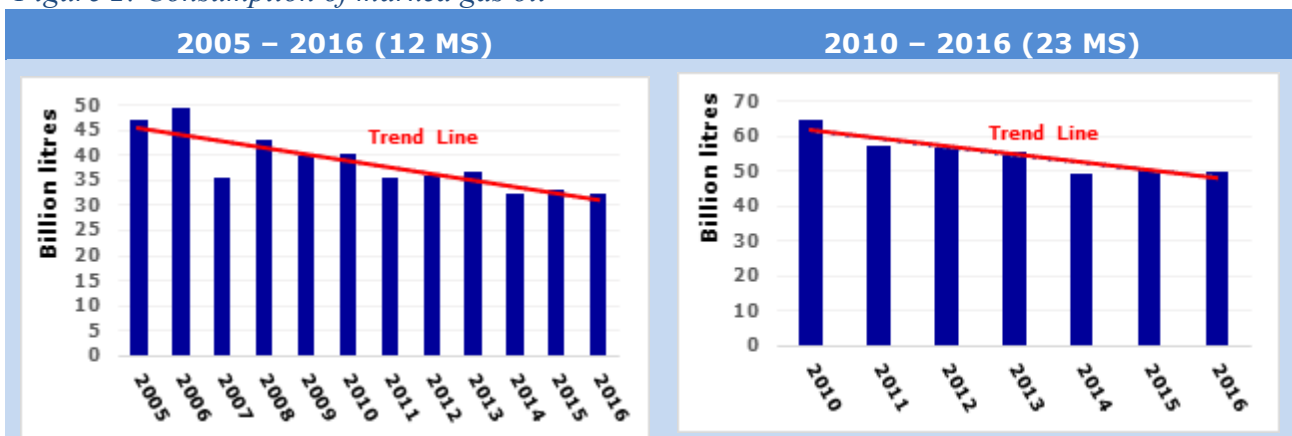
22 See Article 4 of the Euromarker Directive.

For the remaining uses of the products concerned the tax relief is generally provided through refund schemes, which means that the common fiscal marker is not applied. Both fiscal marking and refund schemes are about the provision of tax reduction for consumers and/or economic operators.

Over the 2005-2016 period, the use of the Euromarker in gas oil has declined. This is due primarily to the elimination of tax reliefs for certain typologies of uses, mostly motivated by budgetary and/or environmental considerations (i.e. aimed at discouraging the use of gas oil in favour of more environmentally friendly sources of energy).

The Figures below present the available historic data concerning the consumption of marked gas oil and the total consumption of gas oil. Due to the differences of data availability at the Member State level, data is presented for two time periods and for two different groupings of Member States: one shorter period where data is available for more Member States and one longer period where data is available for fewer Member States.

Figure 2: Consumption of marked gas oil

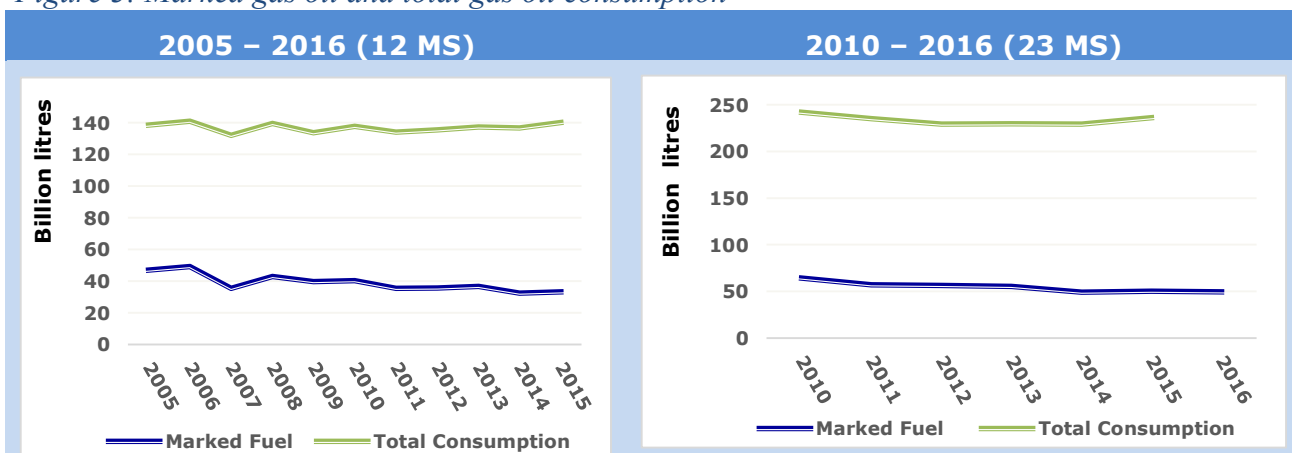


Data refer to Austria, Estonia, Finland, Germany, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Sweden and the United Kingdom. In 2016, these Member States accounted for 52 % of total marked gas oil.

Data refer to all Member States excluding France, Malta, The Netherlands, and Slovakia. In 2016, the countries considered accounted for 80 % of total marked gas oil.

Source: Economisti Associati, Evaluation study

Figure 3: Marked gas oil and total gas oil consumption

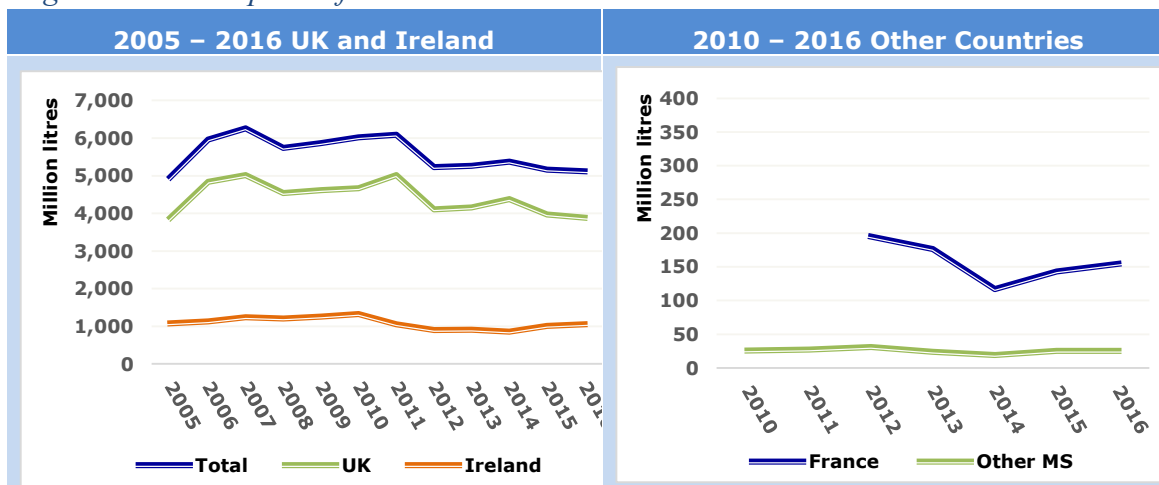


See notes to Figure 2 above

Source: Economisti Associati, Evaluation study

The main use of kerosene in the EU is as jet fuel to which the Euromarker Directive does not apply and other uses in the EU are scarce. Therefore, the use of the Euromarker for kerosene is theoretically relevant only in 16 Member States. The fiscal marking for kerosene is not common in practice. In 2016, only 5 billion litres of kerosene were marked in the whole EU, i.e. less than 10 % of the corresponding value for gas oil. The fiscal marking of kerosene is a significant phenomenon only in Ireland and the United Kingdom, which cumulatively account for some 95 % of total EU consumption of this product.

Figure 4: Consumption of marked kerosene



Source: Economisti Associati, Evaluation study

The evaluation study confirmed that all Member States envisage sanctions for the misuse of marked gas oil and kerosene. Sanctions for the fraudulent use are laid down in customs codes and, more rarely, in the criminal code and/or in special laws and regulations. In certain countries (e.g. Germany), the fraudulent use of marked fuels is equated to tax evasion and general provisions for this type of fraud apply²³.

Further details on the implementation of the Euromarker Directive are provided for each Member State (except Romania, for which no information on the status of implementation could be collected) in the evaluation study²⁴.

3.2. Changes in related legislation

As already mentioned, the Euromarker Directive makes references to Directive 92/82/EEC and also to Directive 92/12/EEC²⁵. Even though it is not explicitly mentioned, Directive 92/81/EEC²⁶ is also relevant. All three acts have been repealed and replaced by new ones. Therefore, the references to the repealed legislation apply now to

23 Economisti Associati, *op. cit.*, Vol. 1, p 68.

24 *Ibid.*, Vol. 2.

25 Council Directive 92/12/EEC of 25 February 1992 on the general arrangements for products subject to excise duty and on the holding, movement and monitoring of such products (OJ L 76, 23.3.1992, p. 1).

26 Council Directive 92/81/EEC of 19 October 1992 on the harmonization of the structures of excise duties on mineral oils (OJ L 316, 31.10.1992, p. 12).

Directives 2003/96/EC and 2008/118/EC²⁷ (the latter is also known as the Horizontal Excise Directive).

Despite the seamless transition to the new acts, there are some important changes in the legislation that affected the application of the Euromarker Directive.

Under the repealed legal framework gas oil and kerosene were subject to an obligatory tax exemption when released for consumption for purposes different from use as motor fuel or heating fuel. Article 2(4)(b) of the ETD however, stipulates that the Directive does not apply to a number of uses for gas oil and kerosene. Gas oil and kerosene that are not intended for use as motor or heating fuel and that are not subject to an intra-EU movement are put in free circulation without this action constituting a release for consumption. Consequently, it is not entirely clear if the fuels should be marked with the common fiscal marker.

For example, before the repeal of the Directives from 1992, gas oil and kerosene injected into blast furnaces for the purposes of chemical reduction as an addition to the coke were released for consumption at an excise duty rate of zero and were subject to the marking requirements of the Euromarker Directive. Under the present legal rules, this use is considered as falling outside the scope of application of the ETD giving Member States the possibility to tax or not such a use. As the two energy products are not, strictly speaking, released for consumption, it is not clear if they should be marked or not.

Moreover, Article 7, paragraphs 2, 3 and 4 of the ETD introduce the possibility to apply a reduced rate of taxation for commercial gas oil used as propellant. The Euromarker Directive refers to the minimum rate laid down in Article 5(1) of Directive 92/82/EEC, the ETD now provides the possibility of a further reduced tax rate, provided that the minimum levels are observed, for gas oil used as propellant, making the text somewhat unclear.

In addition to these changes, the CN codes used for the classification of gas oil and kerosene have been amended, but without the amendment affecting the application of the Euromarker Directive. Nevertheless, the references to outdated CN codes do not contribute to the clarity of the Directive.

Furthermore, some transitional periods and special provisions have also expired²⁸, possibly requiring to streamline the wording of the Euromarker Directive.

3.3. Diverging practices

Three cases directly related to the Euromarker Directive have been brought before the CJEU: C-503/17, C-504/17 and C-292/02. The first two cases concerned the incorrect implementation of the Directive in the UK and Ireland. The use of marked fuel was allowed for the purposes of propelling private pleasure craft, even though the fuel was not subject to any exemption from or reduction in excise duty. The third case concerned the rules on the taxation of marked fuel in the context of the implementation of the ETD.

27 Council Directive 2008/118/EC of 16 December 2008 concerning the general arrangements for excise duty and repealing Directive 92/12/EEC (OJ L 9, 14.1.2009, p. 12).

28 See e.g. Article 21(4) of Directive 92/12/EEC allowing Ireland to require the application of its national markers for fuels used on its territory or Annex II to Directive 2003/96/EC on the temporary and country-specific tax exemption for fuel used in private pleasure craft.

In addition to this, the evaluation study identified situations where fuel is marked even if released for consumption with full excise duty-paid and tax relief is only provided *ex post*. However, while this practice is not in line with the general rules of the Euromarker Directive, there is no negative impact on tax collection.

Moreover, diverging practices have been observed as regards the marking of gas oil supplied for use as fuel for the purpose of international water navigation. This use of gas oil is not subject to excise duty in any Member States, in accordance with the tax exemption provided for by Article 14(1)(c) of the ETD. However, some Member States erroneously consider such a supply as an export instead of a tax-exempted release for consumption on EU territory and consequently they do not require the application of the Euromarker.

The reasons for these particular divergent practices stem from the unclear rules on stores for international water navigation. Article 41 of the Horizontal Excise Directive stipulates that national provisions concerning exemptions from excise duties for stores for boats may be maintained as far as there are no EU rules in place. However, even if not clearly stated in the Horizontal Excise Directive, this exemption from the harmonised EU excise rules does not cover the case of fuel provisioning to ships. The CJEU confirmed in its judgment in Case C-151/16 that Article 14(1)(c) of the ETD is the applicable provision, thus clarifying the rules²⁹. This approach was further confirmed in Case C-590/16, which, even though it dealt with road transport, clarified that the act of re-fuelling means of transport must be characterised as a ‘release for consumption’ within the meaning of Article 7 of the Horizontal Excise Directive³⁰.

In addition to the ETD and the Horizontal Excise Directive, Article 269 of the Union Customs Code³¹ also provides for rules on the treatment of excise goods exempted from taxation, which appears to have been incorrectly interpreted by some as meaning that the fuel is exported. However, this provision only lays down the rules for the formalities in the case of fuel supplied for the purpose of international navigation, which is exempted from taxation.

The evaluation study³² confirmed that certain Member States consider fuel for international bunkering as released for consumption duty-exempt, and thus require marking (e.g. Germany), while others (e.g. Denmark and Estonia) consider fuel supplied to international ships as falling outside of the scope of excise legal framework, thus supplied duty-free rather than tax-exempt, and therefore do not require marking.

Additionally, divergent practices arise with respect to gas oil used for electricity production. According to the evaluation study, some Member States do not mark gas oil used for electricity production exempted from excise duty in accordance with Article 14(1)(a) of the ETD. It is not marked and it is neither subject to refund nor subject to other forms of ‘direct’ control. According to the explanations provided, this was being done for practical considerations related to the limited risk posed by the use of exempted

29 See Case *Vakarų Baltijos laivų statykla*, C-151/16, EU:C:2017:537, paragraphs 30-33.

30 See Case *Commission v Greece*, C-590/16, EU:C:2018:77, paragraph 49.

31 Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code (OJ L 269, 10.10.2013, p. 1).

32 *Economisti Associati*, *op. cit.*, Vol. 1, pp. 58 and 111-113.

fuel, which made fiscal marking or the deployment of other controls redundant. In particular, as pointed out by the national authorities in the Member States concerned, the operations of power plants were subject to strict controls due to the taxation of electricity, which de facto make fiscal marking redundant. In addition, in some cases it was also noted that only a handful of power plants make use of gas oil for electricity production and the quantities involved are minimal. Nevertheless, such an approach does not correspond to the rules laid down in the Euromarker Directive.

4. METHODOLOGY

4.1. Short description of methodology

The evaluation is based primarily on the following data and information sources:

- An evaluation study carried out by Economisti Associati³³, which included also primary data collection
- Information collected by DG TAXUD in the course of discussions with EU Member States in the framework of meetings of the Indirect Tax Expert Group, the Committee on Excise Duty and Fiscalis 2020 events;
- The Excise Duty Tables³⁴ and the Taxes in Europe Database³⁵ available on the DG TAXUD website.

The evaluation study was carried out in line with the principles commonly applied for the evaluation of EU initiatives as laid down in the Better Regulation Guidelines³⁶. One of the main tasks consisted in the reconstruction of the intervention logic underpinning the Directive, the firming up of the evaluation framework, taking into account the specific themes to be addressed as indicated in the terms of reference, and the fact finding work, mostly involving primary data collection through interviews with stakeholders. The information collected provided the basis for subsequent analytical work, which ultimately led to the preparation of the final report for the study.

In the intervention logic (see Figure 1 in Section 2.2.) the evaluation study identified two general objectives of the Euromarker Directive and assessed the Directive against these two objectives. The first objective is to contribute to the proper functioning of the internal market by reducing obstacles to intra-EU trade in the legal use of rebated or exempted gas oil and kerosene. The second objective is to contribute to the protection of Member States' tax revenue by reducing the risk of fraudulent use of rebated or exempted fuels and ensuing reduction in the related tax loss.

33 Economisti Associati, Evaluation study on the application of the provisions of the Council Directive 95/60/EC of 27 November 1995 on fiscal marking of gas oil and kerosene, Publication Office of the European Union, Luxembourg, 2018. The study can be consulted online at: <https://publications.europa.eu/en/publication-detail/-/publication/6e0f7327-0704-11e8-b8f5-01aa75ed71a1/language-en> (Vol. 1) and <https://publications.europa.eu/en/publication-detail/-/publication/ad7444c1-0701-11e8-b8f5-01aa75ed71a1/language-en> (Vol. 2).

34 https://ec.europa.eu/taxation_customs/business/excise-duties-alcohol-tobacco-energy/excise-duties-energy_en

35 https://ec.europa.eu/taxation_customs/economic-analysis-taxation/taxes-europe-database-tedb_en

36 https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en

The evaluation study addressed the following evaluation questions.

Table 2: Evaluation questions

| Evaluation question | Evaluation criteria |
|--|---------------------|
| 1. To what extent are the provisions of the Directive still relevant to the needs of the Member States and economic operators in the various economic sectors? | Relevance |
| 2. To what extent has the implementation of the provisions of the Directive achieved the intended objectives? | Effectiveness |
| 3. Are the current provisions of the Directive the most effective way to ensure compliance? | Effectiveness |
| 4. To what extent has the implementation of the provisions of the Directive resulted in unintended effects? | Effectiveness |
| 5. To what extent are the provisions of the Directive cost-effective? Is there a scope for simplification and administrative burden reduction? | Efficiency |
| 6. What are the advantages / benefits of acting at the EU level? To what extent can further EU action bring benefits? | EU-added value |
| 7. To what extent is the Directive coherent with the Treaty, other EU legislation and the ECJ jurisprudence? | Coherence |

Source: Economisti Associati, Evaluation study

The evaluation questions reflected the ‘dual’ nature of the Study, which involved both the evaluation of the Directive and the review of the status of its implementation.

The refinement of the evaluation questions was followed by the identification of the judgment criteria against which the evidence on the various themes was to be assessed and the selection of the indicators and by the identification of the sources of information to be relied upon. These elements led to the development of the evaluation matrix that constitutes the reference framework for the Study. The structure of the matrix is laid out in Annex 2.

Initial fact-finding focused on the collection of information on three broad themes:

- 1) the legislative and regulatory framework governing the implementation of the Euromarker and of other mechanisms for the administration of tax reliefs of gas oil and kerosene;
- 2) the economic aspects of fiscal marking, including information on the volumes of rebated and exempted gas oil and kerosene, as well as the extent of the fraud and
- 3) the control and enforcement mechanisms put in place by Member States' authorities.

The vast majority of information was collected through a detailed questionnaire submitted to the competent national authorities. Information was successfully obtained from 27 Member States, the only exception being Romania.

In-depth fact finding was aimed at collecting information on particularly interesting aspects emerged from previous work, primarily linked to the evaluation criteria of relevance, effectiveness and efficiency. The work mostly consisted of interviews with private sector organizations and operators, complemented as needed with additional

contacts with competent national authorities. The analysis covered six Member States: Bulgaria, Denmark, Estonia, France, Ireland, Italy. The main themes investigated in each of the six Member States are summarized in the table below.

Table 3: National case studies

| Country | Main Themes Investigated |
|-----------------|---|
| Bulgaria | <ul style="list-style-type: none"> • Features of the refund mechanism for gas oil in agriculture. • Motivations for the discontinuation of fiscal marking of gas oil for heating. |
| Denmark | <ul style="list-style-type: none"> • Motivations for the coexistence of fiscal marking and refund schemes. • Utilisation of the Euromarker in the maritime sector |
| Estonia | <ul style="list-style-type: none"> • Features of IT-based control system tracking fuels along the value chain • Administrative burdens of fiscal marking and logistical aspects of marked fuel distribution |
| France | <ul style="list-style-type: none"> • Administrative burdens of control mechanisms for gas oil used in stationary motors (construction industry) • Issues in the legal use of gas oil in agricultural works |
| Ireland | <ul style="list-style-type: none"> • Impact of fiscal marking and other control measures on tax fraud • Motivations for the introduction of a national fiscal marker supplementing the Euromarker |
| Italy | <ul style="list-style-type: none"> • Regulatory costs of ex ante controls for gas oil used in agriculture • Regulatory costs of refund scheme for industrial uses of gas oil |

Source: Economisti Associati, Evaluation study

Analytical work first involved the systematic review of the qualitative and quantitative information collected, with the structuring and mapping of the evidence collected to the relevant judgement criteria, in accordance with the Evaluation Matrix. The structuring and mapping of evidence was carried out in parallel with the legal analysis of the Directive as well as of related EU legislation and the CJEU jurisprudence, in order to address the issue of coherence as well as other themes of interest. The findings resulting from this work were subsequently analysed and assessed to provide an answers to evaluation questions.

In the context of the evaluation study, economic operators from relevant economic sectors were also contacted to provide their opinion and insights of the functioning of the Euromarker Directive. They included fuel producers and traders responsible for the marking of gas oil and kerosene and for the collection of the harmonised excise duty, as well as representatives of the economic sectors making use of marked fuel, such as agricultural producers and contractors, railway companies and legal experts³⁷.

The information gathering for the evaluation did not include an open public consultation as the information collected by the contractor in the course of the data gathering phase for the study and the information collected by the Commission services in different fora was considered sufficient for the purpose of the analysis. Due to the technical nature of the Euromarker Directive and the limited number of economic operators directly

37 Ibid., Vol. 1, Annex A.

involved in the implementation of its rules, it was decided that an open public consultation would be disproportionate to the scope of the analysis.

4.2. Limitations and robustness of findings

The assessment of the Euromarker Directive, in particular as regards its effectiveness, is closely related to other legal acts, namely the Euromarker Decision³⁸, the Horizontal Excise Directive and the ETD. As regards intra-EU trade in marked gas oil and kerosene, the rules on the control and intra-EU movements of those mineral oils are laid down in the Horizontal Excise Directive. The ETD also has an important role as it determines exemptions, rebates and tax rates and thus the scope of application of the Euromarker Directive.

Overall, the effect from the Euromarker Directive cannot be assessed in isolation from the other legal acts, which, together with the case-law of the CJEU, form the overall legal framework for the application of the Euromarker.

According to Economisti Associati, the quality of the information retrieved was generally good, although there were some variations across themes and countries. Some areas of uncertainty remained, especially regarding at what conditions certain exempted uses fall within the scope of the excise framework and thus of the Directive. For many countries data on volumes of marked fuels was not available for the whole 2005 – 2016 period covered by the Study. Similarly, information on the volumes handled through refund schemes was available only in selected cases. Despite these limitations, Economisti Associati indicates the information collected is quite substantial and provides a good overview of the implementation of the Directive.

The assessment of the Directive contribution to the protection of tax revenues proved to be challenging for Economisti Associati. On the one hand, estimates of the value of the tax fraud due to the misuse of rebated and exempted fuels are often not available and, when data are available, they sometimes refer to all types of fuel fraud, including those unrelated to fiscal marking, such as smuggling. Only in few countries national authorities were in the position to provide estimates of the extent of the fraud in marked fuel and especially changes in fraud levels before and after the introduction of the Euromarker. Economisti Associati highlighted, that the presence of various intervening factors inevitably weakens the ‘strength’ of the causal linkage between the deployment of the Euromarker and whatever changes may have occurred in the extent of the fraud. Under these conditions, the assessment of the effectiveness of the Euromarker as an anti-fraud device was only of a qualitative nature.

5. ANALYSIS AND ANSWERS TO THE EVALUATION QUESTIONS

The evaluation aims to assess Directive 95/60/EC with respect to the following criteria: efficiency, effectiveness, relevance, coherence and EU-added value.

The implementation of the directive is covered in Chapter 3 of this document.

38 Commission Implementing Decision (EU) 2017/74 of 25 November 2016 establishing a common fiscal marker for gas oils and kerosene (OJ L 10, 14.1.2017, p. 7).

5.1. Relevance

This section aims to assess the role of fiscal marking in supporting the proper functioning of the internal market and the fight against tax fraud in fuels and aims to determine if the scope of the Directive continues to be fit for purpose, in terms of both products and fuel uses covered.

5.1.1. Internal market

Intra-EU trade of refined fuels represents a significant part of total consumption. In the case of gas oil, in 2015 intra-EU trade accounted for about 23 % of total consumption³⁹. The bulk of intra-EU trade takes place under duty suspension in the context of the Excise Movement Control System (EMCS) and may concern both unmarked and marked fuel. When no clear statistics are available, the information provided by some stakeholders for the evaluation study was interpreted as meaning that the vast majority of fuel traded under duty suspension is unmarked.

Following the introduction of the Euromarker, some Member States discontinued the application of national markers. However, as confirmed in the evaluation study⁴⁰, different national markers and dyes are still in use in most Member States⁴¹. In general, the markers and dyes are difficult to remove from storage tanks, thus requiring dedicated infrastructure for marked fuels (such as storage tanks, means of transport, pipes, etc.). The use of national dyes and markers, in addition to the Euromarker, could potentially constitute an obstacle to intra-EU trade in marked fuels as Member States can require fuel traders to produce different mixtures of dyes (often more than one per country), which requires more investments in dedicated facilities for marked fuel (both for storage and transportation).

National markers and dyes were indicated as a barrier to cross border fuel trade by some EU-level associations, who complained about the lack of mutual recognition of colouring agents used for the marked gas oil for heating purposes and, more generally, about the need to document the nature of the colouring agents applied. The existence of different national dyes was also reported to prevent the commingling of fuels originating from different countries. A similar position was expressed by a couple of large oil traders, again with reference to transactions in gas oil for heating, which on certain occasions were reportedly hampered by the non-recognition of national dyes⁴².

The situation is further complicated by the fact that Member States can apply a variety of reduced rates in addition to the zero rate, especially for gas oil, due to the large number of optional tax schemes allowed by the ETD. Thus some Member States use different dyes to distinguish between gas oil dedicated for specific uses (e.g. red dye for heating fuel and blue for gas oil used in water navigation)⁴³.

Another factor is the susceptibility of the current Euromarker to illegal removal from the marked fuel with the use of certain chemicals or by certain physical treatment. Some

39 Based on Eurostat, COMEXT and Energy Statistics databases.

40 Economisti Associati, *op. cit.*, Vol. 2.

41 See detailed information in Annex 8

42 *Ibid.*, Vol. 1, p 71.

43 *Ibid.*, Vol. 2.

Member States apply national markers or dyes precisely because they believe that their national markers are more difficult to remove, thus improving the chances of detecting illegal use of fuel.

Moreover, the use of different national dyes and markers further discourage intra-EU trade in marked fuel under duty suspension. For example, at the time of a cross-border shipment, the final use of the fuel may not be known and this would prevent the application of the appropriate national dye, which in certain countries depends upon the final use. This would prevent the simultaneous application of the Euromarker and national dyes, which is currently a rather common practice in the industry (i.e. the Euromarker and the national dye are usually injected together in a single operation). In this case the operators carry out two operations instead of one (i.e. first the fuel must be ‘marked’ with the Euromarker in the country of origin and then it has to be ‘coloured’ in the country of destination). Finally, the marked fuel traded under duty suspension would have to use separate pipes, tanks or compartments within tanks, so as to avoid contamination with unmarked fuel. Considering the fact that it is difficult and costly to remove traces from the fuel markers and dyes from the storage containers or transport tanks⁴⁴, the existence of several dyes could require even more investments in storage facilities and means of transport or tank containers. In practice, the trade in duty suspended marked fuel concerns only limited volumes, mostly regarding gas oil used for heating, which does not justify such additional investments.

Similar considerations apply to the trade in duty-paid fuel, which is limited further by practical and financial concerns. Transactions among commercial entities are discouraged by the excise duty reimbursement procedure applicable to duty-paid movements⁴⁵. The situation is similar for business-to-consumer intra-EU supplies where often duty-paid supplies are the only possibility, as the consumer is not eligible for being designated as a tax warehouse or a registered consignee. In this case the rules on distance selling of the Horizontal Excise Directive apply⁴⁶ and they appear to discourage intra-EU trade further. Overall, according to all the stakeholders consulted, intra-EU trade flows in duty-paid marked fuel are minimal, with limited transactions taking place in border areas, mostly concerning heating fuel. This corresponds to a large extent to the overall trend in intra-EU movements of excise goods, where the duty-paid procedure is scarcely used, apparently due to cumbersome administrative procedures⁴⁷.

Finally, the views of other stakeholders are not particularly supportive. Some anticipate technical difficulties in the selection of the ‘right’ colouring agent and others express an outright negative position because of the limitations to monitoring different uses for which marked fuel can be legally employed. Overall reaching a consensus on the introduction of a single colouring agent in principle and of a specific colouring agent by

44 According to the information provided to the Commission services by economic operators, at least one Member State requires that the traces of the fiscal dyes are removed by using mineral oils for washing the tank container.

45 See SWD(2017) 131 final of 21 April 2017, pp. 12-14.

46 Ibid., pp. 39-41.

47 By volume, the duty-paid arrangements appear to account for between 1-3 % of intra-EU movement of excise goods. Ibid., p. 37.

qualified majority was considered difficult by the stakeholders contacted during the evaluation study⁴⁸.

The continued use of non-harmonised national markers and dyes in addition to the Euromarker clearly represents a trade-off between the smoother functioning of the internal market and fraud prevention. On the one hand the removal of the possibility for Member States to apply national markers and dyes could create some additional opportunities for increased intra-EU trade in the products concerned but on the other hand it could potentially reduce the effectiveness of controls by Member States, in particular those who rely on visual checks or have different uses. Member States now have full flexibility to promptly react to developments in fraudulent activities and to different uses through adapting their national markers and dyes. At the same time, Member States' experience with national markers can also contribute positively to the selection and application of an improved Euromarker.

5.1.2. Reducing tax fraud in fuels

Fuel fraud is a serious problem in the EU, with some sources suggesting values in the order of EUR 4 billion per year⁴⁹. The gravity of the issue is confirmed by the European Police Office (Europol) reports, which also highlight the link with organised crime⁵⁰. Fuel fraud is a composite phenomenon, consisting of four main strands of illegal activities, namely: the smuggling of fuels, the abuse of duty suspension schemes, VAT-related fraud, perpetrated through the so called 'carousel schemes', and the misuse of exempted/rebated fuel. Fiscal marking is a means to prevent or reduce the misuse of exempted or rebated fuels. The other aspects of fuel fraud (e.g. smuggling) need to be addressed by other initiatives.

Estimates of the extent of the fraud in exempted/rebated fuel were difficult to obtain. In the evaluation study, some estimates were obtained only for a limited number of Member States. In most of the other countries, qualitative indications regarding the severity of the problem were provided.

The problem is considered quite significant in eight Member States. These include Ireland and the UK, three Mediterranean countries (Italy, Spain and Greece), Belgium, Bulgaria and Poland. These are also the countries for which estimates of the tax losses are available, with figures ranging between EUR 20-30 million/year up to EUR 200 million/year. Fraud in marked fuel is regarded as a marginal issue in 11 Member States. These include Germany, Austria, Luxembourg, the Nordic countries, the Baltic countries and some Central and Eastern European countries.

Box 2 Fraud related to marked fuel by Member State

| Country | Situation |
|----------------|--|
| Austria | No estimates are available, but fraud in rebated fuel is not regarded as a serious problem by national authorities, who report only sporadic cases involving individuals and construction enterprises. |

48 Economisti Associati, *op.cit.*, Vol 1, pp 95-96.

49 See Rozhnov, K. and M. Strzelecki, *Fuel Fraud Costing Europe More Than \$4 Billion in Lost Taxes*, Bloomberg, 27 August 2013.

50 See European Police Office, *Serious and organised crime threat assessment - Crime in the age of technology*, 2017.

| Country | Situation |
|------------------------|--|
| Belgium | Rough estimates put the tax loss due to rebated fuel fraud at about € 30 million/year in recent years. Fraud is considered a serious problem by national authorities and its severity appears to be on the rise. |
| Bulgaria | No estimates are available. Fuel fraud in general is a major issue, due to widespread smuggling. Extensive misuse of rebated fuel was a key motivation for discontinuing tax relief on gas oil for heating in 2016. |
| Croatia | No estimates are available. Fraud in rebated fuel has declined as a result of enhanced control measures (fuel cards and administrative controls), but national authorities report continuing problems with the misuse of marked gas oil for heating. |
| Cyprus | No estimates are available. Evidence regarding controls is somewhat conflicting (high infringement rate among truckers, no infringement in petrol stations) and overall fraud in rebated fuel can be regarded as a moderate problem |
| Czech Republic | No estimates are available, but fiscal marking is scarcely utilised and this reduces the risk of misuse of marked fuel. |
| Denmark | There are no estimates but the fraud in rebated fuel is regarded as a minor problem by national authorities. |
| Estonia | Fuel fraud was a serious problem in the past (due to extensive smuggling) but the situation appears to have improved significantly. National authorities estimate the tax loss due to marked fuel fraud at € 0.2 million in 2015. |
| Finland | There are no estimates, but national authorities consider fraud in marked fuel as insignificant. |
| France | No estimates are available. In 2015/2016, the tax loss associated with detected misuse of marked fuel totalled about € 6 million. However, national authorities do not regard this value as indicative of the overall phenomenon. |
| Germany | No estimates are available. Judging from the results of control activities, which show a very low detection rate, fraud in rebated fuel appears to be a marginal problem. |
| Greece | Fuel fraud is widespread, possibly accounting for up to 20% of gas oil consumed. While smuggling appears to be the main problem, the misuse of exempted/rebated fuel also appears to be quite common. |
| Hungary | No estimates are available. Based on the results of control activities, national authorities do not consider fraud in rebated fuel as a serious problem. |
| Ireland | Fraud in marked fuel has traditionally been a serious problem, mostly linked to fuel laundering. Various sources put the tax loss at € 150 – 260 in the early 2010s, but a series of measures adopted in the last few years greatly contributed to reduce the phenomenon. |
| Italy | Fuel fraud in general is a significant problem. The tax loss associated with detected fraud in marked fuel averaged at some € 40 million/year over the 2010–2016 period, seemingly mostly due to the stretching of gas oil with imported lubricants. |
| Latvia | No estimates are available, but fraud in marked fuel is not regarded as a serious problem by national authorities, who report only few cases of misuse involving minimal amounts (a mere € 12,400 in 2014). |
| Luxembourg | No estimates are available, but fraud in marked fuel is regarded as a minor and declining problem. |
| Malta | No estimates are available. While fuel fraud in general is a significant issue due to smuggling, fraud in marked fuel is not considered a significant problem. However, cases of misuse were detected in 2016 and led to the strengthening of anti-fraud mechanisms for gas oil in heating (parallel refund scheme). |
| The Netherlands | No estimates are available. The recent elimination of many tax rebates reduced the scope for marked fuel fraud but increased the incentive for fuel fraud in general, due to price differentials with neighbouring countries. |
| Poland | Fuel fraud is quite common in Poland, largely because of smuggling. Fraud involving the stretching of diesel fuel with lubricants resulted in a tax loss of € 10 to 50 million in the early 2000s. More recent data is not available. |
| Slovenia | No estimates are available, but fraud in marked fuel is not regarded as a serious problem by national authorities, who only report cases of misuse of gas oil for heating. |
| Spain | No estimates are available, but national authorities report frequent cases of misuse of marked fuels in rural areas as well as some high-profile cases of fuel laundering. |
| Sweden | No estimates are available, but fraud in marked fuels is regarded as not significant by national authorities. |
| United Kingdom | Fuel fraud, mostly linked to fuel laundering, was estimated at some £ 80 million in 2016, of some £ 30 million in Northern Ireland. Fraud declined dramatically since the early 2000s, when the tax loss was in the order of £ 1.9 billion. |

Note: No information available for Lithuania, Portugal, Romania and Slovakia.

Source: Economisti Associati, Evaluation study

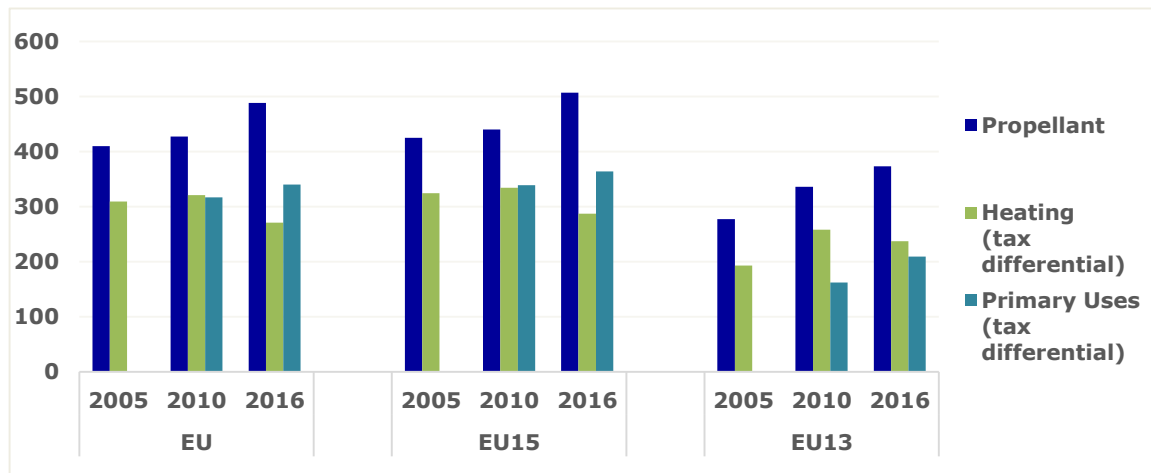
The existence of different tax rates for the same product inevitably opens the door to the opportunity of tax fraud. The most straightforward form of fraudulent behaviour involves the use of exempted/rebated fuel for uses subject to a higher level of taxation. The classic example being the use as a propellant in private cars of gas oil for agricultural works, which is either subject to a tax reduction or even to a full exemption. An alternative is the ‘blending’ of fully duty paid fuel with exempted/rebated fuel, thereby reducing the average overall tax paid on the fuel. Another version of the ‘blending’ fraud (sometimes referred to as ‘stretching’ or ‘cocktailing’) is the mixing of fully duty paid fuel with other oil products that, being intended for non-energy uses, are altogether exempted from the payment of excise taxes. This is particularly the case of lubricants that from a chemical viewpoint have properties similar to those of gas oil and therefore can be easily used in road transport. Whatever the type of fraud, the tax loss resulting from the abuse of exempted/rebated fuel can be substantial. The evaluation study estimated the value of fraud in exempted/rebated fuels to be in the order of half a billion euros per year across the EU while noting the significant variations in the level of fraud across Member States⁵¹.

The demand of gas oil for propellant use can be one of the main factors for the scale of the fraud, since motor fuel use is taxed the most, and rebated/exempted gas oil can be an illicit cheaper substitute. The weight of gas oil in total energy consumption in the transport sector has been constantly increasing over the past two decades. While in 1995 gas oil represented 40 % of total energy consumption, this share reached 56 % in 2015. Considering road transport only, the role of gas oil is even larger: in 2015, gas oil represented two thirds of energy consumption, up from 45 % in 1995. In absolute terms, while energy consumption for transport purposes declined after the economic and financial crisis and never went back to 2007 levels, the amount of gas oil used in transport in 2015 was larger than in 2007⁵². The increase in the usage of gas oil as propellant concerned the whole EU, but it was more pronounced in the new Member States albeit starting from a smaller base. In 1995, gas oil represented 41 % of the energy used in the transport sector in the EU15, and only 35 % in the new Member States; in 2016, in new Member States the share of gas oil was slightly higher than in the EU15 (59 % vs 55 %, respectively).

51 Source: Economisti Associati, Evaluation study

52 European Commission, EU Energy in Figures, 2017; *Eurostat database, energy statistics: supply, transformation and consumption*.

Figure 5: Excise duties on Gas Oil used as Propellant and lower rates for other uses. (€ per 1,000 litres)



Source: *Economisti Associati, Evaluation study*

In general, the level of fraud in exempted fuels varies significantly across EU Member States. Improvements were recorded in some countries traditionally affected, but overall fraud continues to constitute a significant problem. This is broadly confirmed by the analysis of the factors influencing the risk of fraud. While the pattern is not uniform, with some elements suggesting an increased risk and others pointing in the opposite direction, overall the evidence suggests that the risk of fraud in rebated/exempted fuels remains substantial. In this context, the relevance of fiscal marking as an anti-fraud mechanism is unquestioned. The positive experience of the Member States, in particular Ireland and the UK, using more robust and resilient markers than the current Euromarker also confirm that the additional flexibility represented by the parallel use of national markers improves the relevance of fiscal marking.

5.1.3. Scope of the Euromarker Directive

Gas oil is one of the most commonly used fuels, accounting for the bulk of tax-exempted/rebated uses. Therefore, the inclusion of gas oil among the products covered by the Directive is entirely justified.

Regarding kerosene, a number of points are worth considering. Firstly, as already shown in Chapter 3 above, kerosene is scarcely used in the EU except as jet fuel which is not subject to fiscal marking. In practice, kerosene is used in significant quantities as heating fuel only in Ireland and the UK, while its uses in other Member States are marginal (e.g. as lighting fuel for certain types of lamps). Secondly, consumption of kerosene has been declining and all indications are that the negative trend will continue in the future. Occasionally, new products using kerosene appear in the market, but their actual market share was identified as minimal⁵³. In contrast, substitutes for kerosene traditional uses are gaining ground, e.g. wood pellets and natural gas are replacing it as heating fuel. Thirdly, the evaluation study found that kerosene (other than jet fuel) is not officially used as propellant in the EU and therefore the risk of misuse of rebated/exempted kerosene is negligible. However, some Member States have reported cases where kerosene was added to petrol or gas oil used as propellants, although the study did not find data

⁵³ *Economisti Associati, op. cit.*, Vol. 1, pp 77-78.

confirming that this is a large-scale fraud. On balance, and given the limited cost of the obligatory marking of kerosene under the Directive, it appears that keeping kerosene in the scope is justified.

In addition to the two products already covered by the Euromarker Directive, it should be pointed out that economic operators reported the national practice of marking heavy fuel oil in at least two Member State⁵⁴. Particular problems arise with marked heavy fuel oil, which is commercially known as marine diesel (DMA⁵⁵ in particular). DMA is a broad commercial fuel category that includes both gas oil and heavy fuel oil. Unlike gas oil used for heating, DMA is normally fully exempted from excise duties as it is predominantly used in commercial navigation where an obligatory or an optional tax exemption applies⁵⁶. The marking, and in particular the dyeing of DMA, falling within the category of heavy fuel oil, is creating practical problems for some fuel traders⁵⁷. From the perspective of fraud prevention, it cannot be excluded that certain types of DMA heavy fuel oils can be used in road transport, especially if mixed with diesel, and some can be used in private pleasure craft, in both cases the difference in taxation rates creates an incentive for fraud.

As regards the inclusion of heavy fuel oil within the scope of the Euromarker Directive, the issue can be looked at from two perspectives. On the one hand the issue of whether heavy fuel oil can be used in road vehicles, where technical considerations weigh against this energy product in general as it is a mineral oil of inferior quality to gas oil, typically used for navigation on the high seas and which cannot be used on its own as propellant in road vehicles as it would not be suitable for modern diesel engines. Also the evaluation study did not report on any misuse of heavy fuel oils be it directly, or blended with gas oil, in road vehicles. On the other hand, heavy fuel oils (e.g. DMA) are used for water navigation and this use is not always subject to a tax exemption. Namely fuel used in private pleasure craft is subject to the full propellant rate⁵⁸ and commercial navigation on inland waterways is subject to an optional tax reduction or exemption. The addition of heavy fuel oil to the scope of the Euromarker Directive could be given further consideration. In any case the most common substitute for gas oil are lubricating oils⁵⁹. The evaluation study also suggested that fuel fraud involving lubricants is considered a

54 Economisti Associati, *op. cit.*, Vol. 1, p 55.

55 DMA is a product category defined by the fuel standard for marine distillate fuels (ISO 8217). Unlike the CN requirements for the classification of mineral oils, the fuel standard does not provide for a distillation range, thus resulting in a situation where different DMA products can fall within a CN for gas oil or heavy fuel oil.

56 Article 14(1)(c) of Directive 2003/96/EC provides for an obligatory tax exemption for commercial navigation in EU waters, whereas Article 15(1)(f) provides for an optional tax exemption for fuel used for commercial navigation on inland waterways.

57 When a dye is added to the heavy fuel oil, this causes a change to the CN code within which it falls, as the requirement for having natural colour, laid down in the CN, for heavy fuel oil is no longer fulfilled. The CN code applied to dyed heavy fuel oil is 2710 19 99 and products falling within this code cannot be moved between Member States under duty suspension. Therefore the much more cumbersome duty-paid procedure needs to be applied.

58 Directive 2003/96/EC does not provide for a minimum level of taxation for heavy fuel oil used as motor fuel. Based on Article 2(3) thereof, the tax rate should be the one applicable to gas oil used as motor fuel.

59 The lubricants fall within a number of CN codes, for which no controls are provided for in EU legislation in case of intra-EU trade. The most commonly used products in tax frauds with fuel fall within CN codes 2710 19 91, 2719 19 9 and some of the codes starting with 3403.

growing problem in some Member States, which raises the question whether some kind of fiscal marking of some lubricants that are particularly risky could be an appropriate control measure. It should also be noted that one Member State⁶⁰ is already marking benzene, toluene, xylene and other products that can be added to petrol without damaging the vehicle's engine. This problem is even more relevant for gas oil, where Member States have reported the use of a number of mineral oils, or products containing mineral oils, in diesel engines (see Box 2 above).

While an approach to mark lubricants and other products that can be used to replace gas oil will appear to better serve the fight against illegal use of products as motor fuel, on the other hand, it could create complications outweighing the benefits from the extended scope of controls⁶¹.

Another aspect of the scope of application of the Euromarker Directive is related to the uses of gas oil and kerosene that either fall outside the scope of application of the EU legal framework for energy products (e.g. gas oil used in metallurgical processes), or are released for consumption in circumstances that limit the possibility for abuse (e.g. gas oil used in power plants). The evaluation study reported that Member States are not applying the rules of the Euromarker Directive consistently and that the marking requirement is sometimes waived on the basis of the perception of low risk of misuse of tax exempted gas oil or kerosene⁶². Harmonising the practice by clarifying or adjusting the scope in these situations could prove to be beneficial for the proper functioning of the internal market as it should facilitate intra-EU trade in marked fuel.

5.2. Effectiveness

The assessment of effectiveness involves the analysis of the contribution of the Euromarker to the achievement of the objectives pursued by the Directive and whether any unintended effects occurred.

While intra-EU trade in marked fuels and marked gas oil in particular continues to be limited, available sources do not indicate wide-spread illegal intra-EU trade and misuse of marked fuels, nor do they report of movements (including illegal ones) of considerable volumes of marked fuel between Member States that was used in tax fraud. Thus, it would appear that the main threat identified at the time of adoption of the Euromarker Directive, i.e. that marked fuel would be transported from one Member State to another for fraudulent purposes was avoided.

The usefulness of fiscal marking as an anti-fraud method depends upon its ability to generate a sufficiently strong antifraud effect. In turn, the antifraud effect depends upon the features of the chemical substance used as a common fiscal marker, which in principle should: (i) confer certain chemical characteristics to the fuel marked, i.e. be resistant to removal techniques; and (ii) allow for the detectability of the marked fuel.

60 Ibid., p 55.

61 For further information on the issue, see Economisti Associati, *op. cit.*, Vol. 1, pp. 78-79.

62 Economisti Associati, *op. cit.*, Vol. 1, pp. 60 and 123.

A recent report by JRC⁶³ provided evidence that the current common fiscal marker known as Solvent Yellow 124 (SY124) does not offer sufficient protection against removal and performs rather poorly in a series of tests in comparison to more modern fuel fiscal markers. Indeed, as pointed out by virtually all stakeholders consulted in the course of the evaluation study, Solvent Yellow 124 can be easily removed with rather inexpensive techniques. In response, some Member States have decided to supplement the Euromarker with national markers and dyes.

The presence of Solvent Yellow 124 can be easily identified through a standard laboratory test, developed and approved by the Committee on Excise Duty as the EU reference method for the determination of SY124 in gas oil⁶⁴, which can be performed without difficulties by a large number of customs laboratories. In addition, for the purpose of road checks, special kits have been developed and are available at relatively low cost. However, because of its pale colour, Solvent Yellow 124 is not easily identifiable by visual inspection, which is still the prevalent inspection method in many Member States. Therefore, as already mentioned in Chapter 3 above, the Euromarker is almost invariably associated with brightly coloured national dyes. In practice, in the case of road tests, the national dye provides a first indication of the possibility of fuel misuse, while the chemical test for the presence of Solvent Yellow 124 provides a more solid basis for enforcement activities.

The EU-wide harmonised use of the common fiscal marker has largely fulfilled its purpose to contribute to preventing the misuse of marked fuel. However, the insufficient robustness of the current marker against removal limits the deterrent effect and reduces its effectiveness as an anti-fraud method. The Commission has started a procedure to identify more suitable chemical substance to replace Solvent Yellow 124, which could considerably enhance the effectiveness of the Euromarker Directive.

The limited number of cases before the CJEU suggest that the Euromarker Directive is sufficiently clear. Nevertheless, the evaluation study and the rulings of the CJEU indicate that there are situations where not all Member States apply the rules in a uniform manner.

Furthermore, the evaluation study was not able to identify any cases where a Member State availed of the exception to request the application of the Euromarker, as provided in the directive, ‘on grounds of public health or safety or for other technical reasons’. It did however report that the Euromarker was not applied in cases where the perceived risk of fraudulent use of the marked fuel was considered as minimal (e.g. use in state-owned power plants).

The Directive harmonises to a certain extent at EU level a tool – fiscal marking of rebated and exempted fuel which was already in place in most of the Member States. The effects of the requirement to add the Euromarker to rebated/exempted gas oil or kerosene were thus in line with those produced by the pre-existing national regimes.

63 Elordui-Zapatarietxe, Saioa and Håkan Emteborg, *Evaluation of the Performance of the Short-Listed Candidate Markers Regarding the Technical Requirements*, Publications Office of the European Union, Luxembourg, 2017.

64 Linsinger, Thomas, Ger Koomen, Håkan Emteborg, Gert Roebben, Gerard Kramer, A. Lamberty, *Validation of the Draft Community Reference Method for the Determination of Solvent Yellow 124 in Gas Oil (Euromarker)*, Office for Official Publications of the European Communities, Luxembourg, 2004.

The evaluation did not identify any unintended effects of the implementation of the Euromarker Directive.

5.3. Efficiency

The assessment of the efficiency involves the analysis of two aspects: the cost effectiveness of fiscal marking and the possible scope for simplification.

The following regulatory costs linked to the Euromarker in particular and to fiscal marking in general, are considered:

- Compliance costs for the marking of fuel and its handling by fuel operators and users, namely investments costs (i.e. injectors, tanks) and the associated financial costs; and operating costs (i.e. the cost of the marker).
- Administrative costs linked to the handling of marked fuel for fuel operators and users;
- Enforcement costs borne by public authorities to monitor the proper usage of marked fuel.

In addition, costs which are not strictly linked to the Directive may arise with respect to the use of rebated/exempted fuels. These include: (i) the costs linked to the systems tracking the use of marked fuel; and (ii) the administrative and financial costs of the refund systems.

5.3.1. Compliance costs

The application of the Euromarker takes place in tax warehouses before gas oil or kerosene are released for consumption. The Euromarker is usually applied together with national dyes and markers, via pre-packaged mixtures. In Member States in which fiscal marking was already part of the national excise framework, the introduction of the Euromarker led to no additional investments, because operators along the value chain were already equipped with the necessary facilities. On the contrary, in Member States where the marking requirement was introduced as a result of the Euromarker Directive, the costs for distributors are additional and significant. These costs represent a barrier to entry and may prevent small distributors from trading in marked products. The operating costs are linked to the cost of the marker itself. The normal cost of the Euromarker is estimated at about 0.006 €cents/l of fuel used. Given an industrial price of gas oil of about 0.45 €/l,¹⁰⁵ the additional cost of the markers corresponds to about 0.01% of the industrial costs of gas oil. Considering that about 63 billion litres of gas oil are marked in the EU per year, the total cost of the Euromarker amounts to approximately € 4.5 million per year at EU level.

For fuel users, marked fuel has to be stored in separate tanks. This may generate additional compliance costs for the purchase and installation of the equipment. However, if all the fuel purchased by a subsidised user (e.g. a fishing vessel, an agricultural holding, or a household for heating purpose) is marked, one single tank is sufficient, at no additional costs. These would only arise when the quantities of marked gas oil do not cover the entire yearly consumption, or when a company performs both activities which can benefit from rebated/exempted fuel and fully taxed fuel. This is for example the case of agricultural service providers which also perform road maintenance or gardening

activities⁶⁵. In any case, compliance costs seem to be relatively small when compared to the cost of fuel⁶⁶.

5.3.2. *Administrative costs for beneficiaries*

The administrative system, which in most cases complements fuel marking, generates administrative costs and burdens for the users. However, all stakeholders contacted for the purpose of the evaluation study consider the administrative costs as limited, so that the financial benefits from obtaining rebated or exempted fuel well justify the effort. For example, in Bulgaria the use of marked fuel in the primary sector did not entail any particular cost for farmers, especially when compared to the voucher system and refund schemes subsequently adopted. In Italy, users in the primary sector estimate the costs of the authorization procedure for accessing rebated gas oil to be in the area of EUR 100-300 per 10 000 l of gas oil, and thus marginal⁶⁷.

5.3.3. *Costs of the refund system*

A refund system is the alternative to fuel marking as it allows the fuel to be released for consumption taxed at the full excise duty rate for propellant use and then part or all of the duty is reimbursed to the consumer. The use of a refund system as an alternative to fiscal marking of gas oil and kerosene is allowed under the ETD and it is not subject to any specific rules. Therefore, Member States have flexibility to decide which approach or combination of approaches they follow. The costs of the refund system are usually considered by users as comparable to, or slightly higher than, those generated by the combination of fuel marking and its administrative support. This, however, largely depends on the specific features of the national systems. Costs are particularly limited when the reimbursement is well integrated with the tax system, as in Denmark, where the refund can be requested by adding a few additional pieces of information in the VAT tax form.

The refund system generates liquidity costs linked to the ex-ante payment of the full excise duty. The significance of these costs for the various categories of the final users depend on the weight of fuel (and thus excise) costs on the cost structure. If the cost of fuel represents only 1 % of the total costs for the company (or household), the advanced payment of excises is likely to represent a marginal problem compared to situations where the cost of fuel represents 10 % or more of total costs. This can be the case of the agriculture, fishing and transport sectors where the anticipated payment of the excises can create liquidity problems for the subsidised users. Therefore marking of fuel is generally considered a better option compared to a refund system from the fuel users' point of view.

65 All these activities can be taxed at a rate lower than the one applicable for propellant use, but in some Member States only fuel used for agricultural works is eligible for a tax reduction or exemption and the fuel used for public works is subject to the standard tax rate for propellant use.

66 According to one association of agricultural service providers the annualised investments costs of an additional tank impact for less than EUR 0.005 per litre of gas oil, which is less than 1 % of its price. *Economisti Associati, op. cit.*, Vol. 1, p 89.

67 *Loc. cit.*

5.3.4. Enforcement costs

Tax, customs, and agricultural authorities in the Member States reported that the enforcement costs associated to the Euromarker are small or marginal. The direct costs of the Euromarker for public authorities largely consist of those generated by controls. Solvent Yellow 124 can be identified both through quick tests, which can be performed on roads, and through laboratory tests. However, since, in most instances, the Euromarker is used together with national dyes, enforcement authorities rely first on visual inspections. In case of a negative outcome of the visual inspection or further suspicions, road-side or laboratory tests are employed⁶⁸.

Other costs arise because of national control requirements, as the Euromarker is usually complemented by an administrative system. This is normally the case e.g. for rebated gas oil for agricultural uses. Agricultural holdings or providers of agricultural services usually have to demonstrate that they are entitled to a certain quantity of marked fuel *ex ante* and/or prove the usage of marked fuel for agricultural activities *ex post*.

As part of the anti-fraud strategy, IT systems could be set up to track marked fuel along the distribution chain on the Member State's territory. This however, is not required by EU law.

According to the evaluation study, authorities managing and monitoring a refund system did not report excessive enforcement costs. In a marking-based system, authorities generally have to (i) authorise users *ex ante* (possibly determining an allowance); and (ii) perform *ex post* checks on the use of fuel. In a refund-based system, the public authorities must also collect payment claims, check their validity, and disburse the payments.

5.3.5. Costs and benefits and scope for simplification

As indicated above, the benefits resulting from the use of the Euromarker in terms of fraud detection cannot be quantified and this obviously prevents any full-fledged cost-benefit analysis. At the same time, the review of regulatory costs clearly shows that the Euromarker comes at a very low cost. It should be borne in mind that the costs refer to the use of the current common fiscal marker, which is defined in a different act, namely the Euromarker Decision. The Decision is subject to a separate evaluation that could result in the selection of a new marker.

For fuel operators, direct costs are estimated at less than EUR 0.003 per litre, or less than 0.5 % of the industrial cost of gas oil. For users, significant compliance costs arise only for companies having to set up a separate tank, and they still fall below EUR 0.01 per litre. Administrative costs are generally reported as limited. In this sense, even though the lack of quantitative data on fraud reductions resulting from the use of the Euromarker prevents a full cost-benefit analysis, the qualitative assessment of the balance between costs and benefits of the Directive is considered positive.

This is confirmed by the views expressed by stakeholders in general. Though the appreciation of the effectiveness of the Euromarker alone is at times limited, no economic operator or trade association complained about its cost-effectiveness. To the

68 While information on the number of checks was collected for the evaluation study, no disaggregated information on the number of road-side and laboratory tests on marked fuels could be retrieved during the fieldwork. *Ibid.*, pp 66-67.

contrary, most of interviewees for the evaluation study considered the Euromarker, and more generally fiscal marking, as a necessary element of the overall monitoring system, the cost of which is justified. All operators insisted on the limited cost of having to mark fuel, or to buy, handle and store marked fuels. Even operators which do bear additional costs because of the Euromarker, did not deem the burden to be excessive or unnecessary. In line with these findings, the scope for a reduction of administrative burden in particular and regulatory costs in general, appears limited.

Enforcement authorities generally regard the Euromarker a cost-effective element of the monitoring system to prevent frauds and concerns mostly relate to the technical performance of the chemical substance used as the current Euromarker. Though the Euromarker alone may not be enough to prevent the misuses of rebated/exempted fuels and it needs to be used together with other instruments, it does not create excessive enforcement costs. Testing the presence of the Euromarker during controls is obviously more costly than the visual identification of national dyes. However, when measured in road-side tests or in customs laboratories, the presence of the Euromarker provides for a more robust means of proof during litigation.

According to the evaluation study, fiscal marking is the preferred instrument in Member States. In the case of maritime uses, where the various factors suggest a greater cost-effectiveness of fiscal marking, the latter is widely used. The same applies to heating fuels, where fiscal marking is the control method par excellence, being used in all Member States that provide some form of tax relief (albeit supplemented in a couple of cases by refunds). In contrast, in the case of primary sector and industrial uses, where the factors influencing cost effectiveness point in different directions, the situation is more varied, with about two thirds of Member States relying on fiscal marking and the remaining preferring refund schemes⁶⁹.

5.4. EU-added value

The assessment of the EU added value assesses to what extent the same results could have been achieved without the Directive and what would be the consequences of repealing the legislation or limiting the scope of some of its provisions.

5.4.1. Comparison to a scenario with only national measures

If fiscal marking for gas oil and kerosene was not introduced at EU level, Member States would still mark rebated/exempted fuel with national dyes and markers. The fact that some Member States rely exclusively on the Euromarker shows their preference for a harmonised common marker.

The Euromarker provides for an EU added value in so far that it ensures that all rebated/exempted fuel marketed in the EU features at least a certain degree of protection from fiscal fraud. Indeed, having a single marker prevents a scenario where marked fuel is transported to from one Member State to another to be used as propellant with the second Member State having to check for a variety of national markers to detect illegal use.

⁶⁹ Ibid., p. 93.

Also the Euromarker provides for an EU added value with respect to controls on cross-border economic operators using marked fuel, such as agricultural contractors. Regardless of the country of establishment, and of the national dyes and markers required therein, customs officers in the country of transit or destination can test the legality of the fuel transported by cross-border operators by verifying the presence of the Euromarker. This allows cross-border operators to bring marked fuels from their country of establishment, in line with the CJEU jurisprudence⁷⁰, while safeguarding the possibility of local authorities to control misuses of rebated/exempted fuels.

5.4.2. Consequences of a possible repeal of the Euromarker legislation

The underlying reasons for the Commission proposal for the Euromarker Directive are still valid.

Fuel marking continues to be used widely in the EU despite the performance deficiencies of SY124 and of many of the national markers and dyes. As explained in the previous sections, the use of the marker could be avoided if refund schemes are used, but at a higher financial cost for operators. The fact that Member States continue to apply tax reductions or exemptions to gas oil and kerosene directly and continue to require the use of national dyes and markers, confirms that fuel marking is still a relevant fiscal tool.

Therefore abolishing the common EU rules would result in a situation where no single standard would exist for the marking of gas oil and kerosene exempted from taxation or to which a relatively low tax rate has been applied. As already explained in section 2 of this document, a clear danger for the tax revenues of a Member State exists if it would not be able to identify the fiscal marker used in another Member State.

The possibility of allowing Member States more freedom in deciding when to use the Euromarker could be considered, although it should be pointed out that the current Euromarker Directive already provides considerable leeway for those Member States that want to use an own marker in addition to the common fiscal marker.

Allowing more freedom to Member States in using the marker, e.g. by adding it to gas oil that has been taxed at the full rate for propellant use does not seem justified. This was the practice in two Member States and gave rise to complaints from other Member States about the impossibility to apply controls on the use of marked fuels effectively. The Commission brought these cases in front of the CJEU⁷¹ and in its relevant judgements where the Court confirmed that allowing the use of marked fuel for the purposes of propelling private pleasure craft, even where such fuel has not been subject to any exemption from or reduction in excise duty, is not compatible with the provisions of the Euromarker Directive.

5.5. Coherence

The coherence analysis aims to evaluate how well the Euromarker Directive works with other EU legal instruments, by providing evidence of synergies and complementarities that could reinforce the achievement of common objectives, but also inconsistencies and overlapping obligations that could lead to inefficiencies.

70 See judgment in Case C-292/02.

71 See Case C-503/17 and Case C-504/17

In general the Euromarker Directive is coherent with other relevant legislation. The following legal acts were identified for the purpose of this analysis:

- The EU Treaties;
- Directive 2003/96/EC;
- Directive 2008/118/EC;
- Directive 2015/1535⁷² on technical standards and regulations.

Directive 95/60/EC was adopted on the basis of Article 99 of the TEC, now Article 113 of the TFEU.

In terms of their objectives and substantive requirements, the legal analysis considers Directive 95/60/EC and the Directive 2003/96/EC (ETD) to be complementary and mutually supportive.

The ETD itself does not lay down any particular control mechanisms connected with the sale of rebated fuel. As confirmed by the ECJ, it is for Member States to provide for control mechanisms in their national law, while complying with EU law and especially the proportionality principle⁷³. Such national control measures cannot undermine the obligations of the Member States' stemming from Directive 95/60/EC. According to Article 113 of the TFEU, the adoption of harmonising measures in relation to indirect taxation is limited to what is needed for the achievement of the internal market and to avoid distortion of competition. When regulating at national level aspects that are not subject to harmonisation, Member States shall observe the EU law requirements.

For instance, national mechanisms are important when Member States opt for *ex post* refund schemes, as they are in that case not required to mark gas oil and kerosene since the fuels are 'released for consumption' subject to the full tax rate. It is possible for Member States to apply in addition to the marking required under Directive 95/60/EC other national control mechanisms potentially adopted to give effect to Articles 5, 14(1) and 15(1) of the ETD, and the two systems can be mutually supportive. Indeed, the entitlement to purchase marked gas oil could be made subject to the provision of documentation proving that the intended use qualifies for the application of excise rebates or exemptions. In Croatia and Portugal, purchases may be restricted to holders of fuel cards granted by national ministries to persons entitled to use rebated fuels. Such measures can also be considered as implementation of the obligation under Article 3 of the Directive 95/60/EC to take the necessary steps to ensure that improper use of the marked products is avoided. Nevertheless, in adopting such measures Member States are still bound by the principle of proportionality.

Directive 95/60/EC and Directive 2008/118/EC are in general coherent, and at times complementary, in terms of substantive requirements. The bulk of intra-EU trade in

72 Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17.9.2015, p. 1).

73 See Case, *Vakarų Baltijos laivų statykla UAB*, C-151/16, EU:C:2017:537 paragraph 43 and, *ROZ-ŚWIT Zakład Produkcyjno-Handlowo-Usługowy Henryk Czurko, Adam Pawłowski spółka jawna*, Case C-418/14, EU:C:2016:400 paragraph 23.

energy products takes place under suspension of excise duty⁷⁴, a procedure laid down in Chapter IV of Directive 2008/118/EC. Directive 95/60/EC requires that the Euromarker is added to the gas oil or the kerosene before the release for consumption and under fiscal supervision. Exceptions to this rule are allowed for special cases. The Euromarker Directive clearly refers to the duty suspension procedure, which is in itself a fiscal supervision mechanism involving the use of tax warehouses⁷⁵. Movements under duty suspension are also recorded and monitored in real time through the EMCS. These control mechanisms apply to all harmonised excise goods, and thus have a much wider scope of application than Directive 95/60/EC. However, it can be argued that Directive 95/60/EC complements these mechanisms, by providing for a fiscal control measure for certain excise goods, which is in place after their departure from duty suspension.

Article 39 Directive 2008/118/EC also refers to fiscal marking, but it does not specifically deal with the marking of fuels, because of the special characteristics of fuel marking, in particular the fact that it should be impossible to remove the Euromarker unlike markings for alcohol or cigarettes. Neither the Euromarker Directive, nor the Horizontal Excise Directive clearly explains this and there is room for improvement in the coherence of the two acts. Nevertheless, no major issues have been reported on this particular topic and the rules on marking appear to be sufficiently clear for Member States and economic operators.

Article 4 of Directive 95/60/EC allows Member States to add a national marker or colour in addition to the common marker provided for in Article 1(1). The Euromarker may thus coexist with other markers or dyes adopted at the national level.

Even though not specified in the text of Directive 95/60/EC, Member States opting to introduce national markers or dyes on fuels have to notify their envisaged draft legislative/regulatory measures to the Commission. This obligation is required under Article 4 of Directive 2015/1535.

Overall the situation regarding the coherence of the Euromarker Directive with the EU secondary legislation is somewhat complicated due to the numerous changes in related legislation since the adoption of the Directive in 1995, including in particular: (i) the repeal of Directives 92/81/EEC and 92/82/EEC (the latter explicitly mentioned in the Euromarker Directive) and the adoption of Directives 2003/96/EC and 2008/118/EC.

The notion of exempted or rebated gas oil and kerosene release for consumption is described in section 3.2.

The uses to which the Euromarker applies are defined in Directive 95/60/EC with reference to the EU legislation on excise duty on gas oil and kerosene applicable at the time: Directive 92/82/EEC, which sought to approximate the rates of excise duties on mineral oils, and, indirectly, Directive 92/81/EEC, which harmonised the structures of excise duties on mineral oils (both hereinafter referred to as the Mineral Oils Directives). Article 1 of Directive 95/60/EC specifies that the marker is to be applied insofar as gas

74 Ibid., p. 6. According to the study on the Evaluation of Directive 2008/118/EC, almost 99 % of all intra-EU movements of excise goods take place under suspension of excise duty.

75 Jatzke, H., *Production, holding and movement of excise goods under duty suspension within the European Union*, *Worlds Customs Journal*, Vol. 6, No 2, September 2012, p. 4.

oil and kerosene have been ‘released for consumption within the meaning of Article 6 of Directive 92/12/EEC’ having been exempt from or subject to reduced duty rate.

The two Mineral Oils Directives were repealed by Directive 2003/96 and Directive 92/12/EEC was repealed by Directive 2008/118/EC. With the repeal of the above mentioned legal acts, Directive 95/60/EC is now inextricably linked with the ETD and the Horizontal Excise Directive, and, as explained above, its scope of application is even determined by those acts. So the references to provisions of the repealed Directives have changed as follows:

- Article 6 of Directive of 92/12/EEC, regarding the concept of release for consumption; this provision is now Article 7 of Directive 2008/118/EC.
- Article 5(1) and Article 8(1) of Directive 92/82/EEC, setting the minimum excise duty rates applicable at that time to gas oil and kerosene respectively. Release for consumption of these products exempt from, or at a duty different to these minimum rates, would trigger the obligation to mark gas oil and kerosene. The minimum levels of taxation applicable to motor fuels are now established (for both gas oil and kerosene) in Article 7(1) and Annex I, Table A of the ETD.

Yet another issue related to the coherence of the Euromarker with the ETD and the Horizontal Excise Directive is the marking of marine diesel. The issue is described in section 3.3.

6. CONCLUSIONS

Directive 95/60/EC was properly implemented by Member States with a few minor exceptions, related mostly to gas oil used as marine fuel. This positive assessment extends to both the use of the Euromarker and the adoption of sanctions and enforcement measures.

The impact of the Euromarker Directive on intra-EU trade appears to have been limited and it cannot be excluded that the optional use of national markers and dyes, allowed therein, has played a part for the small volumes of cross-border supplies. However, there is no evidence that the combined use of national dyes/markers with the Euromarker creates a disproportionate obstacle to the proper functioning of the internal market. The benefits of dual marking in terms of fraud prevention is considered to outweigh the negative impact on cross-border trade.

The main positive role of the Euromarker Directive lies in providing a common level of protection against fuel fraud across the EU. In fact, the existence of a common marker helps Member State with the identification of fuels subject to lower taxes in their fight against fraud.

The role of the Directive as an anti-fraud instrument depends a lot on the robustness of the Euromarker itself, where deficiencies are clearly present now. A new and better performing fiscal marker that is more robust and resilient to removal from the marked fuels could help boost the role of the Directive as an anti-fraud instrument.

It is important to highlight that gas oil is one of the most commonly used fuels and its coverage by the Directive appears to be fully appropriate. Although kerosene is used only in two Member States as heating fuel and it is not generally suitable for use in road

transport, it would be advisable to keep the marking obligation to prevent a possible increase of attractiveness of kerosene as a fuel of choice for fraudsters. Other products (e.g some lubricating oils) can be used to replace gas oil or petrol as motor fuels and it could be studied if they should be brought within the scope of the Euromarker Directive. Therefore, it is possible that the scope of the Directive could be adjusted to be better aligned with the prevailing market trends and the nature of the threat.

The analysis and collected data show that operating and administrative costs associated with the use of the Euromarker are negligible, but these are also dependent on the particular common fiscal marker that is currently in use.

The Euromarker Directive contains outdated references following the adoption of new legal acts, notably Directives 2003/96/EC and 2008/118/EC.

The analysis shows that, while the legal framework was mostly designed in a consistent manner, certain coherence issues have developed over time. Many of the instruments existing at the time of adoption of Directive 95/60/EC have since then been replaced which creates challenges for the overall coherence of the EU legislative framework in this area.

ANNEX 1: PROCEDURAL INFORMATION

1. Lead DG, Decide Planning/CWP references

Lead DG: Directorate-General for Taxation and the Customs Union.

Decide Planning/CWP reference: 2017/TAXUD/002

2. Organisation and timing

The evaluation was launched in Q1/2016. An interservices steering group followed and contributed to the project and included the following services of the Commission with a policy interest in the assessment of Directive 95/60/EC:

- DG Economic and Financial Affairs
- DG Energy
- DG Internal Market, Industry, Entrepreneurship and SMEs
- DG Maritime Affairs and Fisheries
- DG Mobility and Transport
- DG Taxation and Customs Union
- Joint Research Centre
- Legal Service
- Secretariat General

The interservices steering group met on 07/06/2016, 21/11/2017 and on 26/02/2019.

3. Exceptions as regards Better Regulations guidelines

Key stakeholders were consulted extensively via a number of targeted consultations during the external project supporting the evaluation, addressing the competent authorities in EU Member States and economic operators responsible for the marking of gas oil and kerosene.

Public consultations became mandatory only with the revision of Better Regulation Guidelines in 2017 and the obligation for a public consultation was waived for projects that had started way before that revision. Given the technical nature of the evaluation project and the fact that experts had been consulted extensively during the external project supporting the evaluation, DG TAXUD in agreement with the SG concluded that, exceptionally,

4. Consultation of the RSB (if applicable)

Not applicable.

5. Evidence, sources and quality

The evaluation of the fiscal marking of gas oils and kerosene was supported by an external study outsourced to an independent consultant, Economist Associati to review the utilization of the Euromarker and the implementation of the other relevant provisions, namely control and enforcement mechanisms. Most importantly, the study evaluated Directive 95/60/EC along the agreed evaluation criteria and concluded on relevance, effectiveness, efficiency, EU added value of the Directive and coherence with other relevant EU legislation. This external study also covered a large extent of the consultation with stakeholders.

ANNEX 2: STAKEHOLDER CONSULTATIONS

1. Background and consultation strategy

Fiscal marking is a highly specific theme, scarcely analysed in the economic and public policy literature. Accordingly, the evaluation largely relies on primary sources, with information mostly collected through the support study from stakeholders through personal or phone interviews.

2. Participating stakeholder groups

In particular, the analysis of implementation involved extensive interactions with competent national authorities. This was complemented by consultations with private sector operators active at the EU level and in selected Member States (located mainly the case study countries). Overall, fact finding work involved contacts with more than 120 individuals from 67 entities. The list of organisations involved in the consultation activities is included below.

EU LEVEL BUSINESS ORGANIZATIONS

Fuels Europe

CEETTAR - Confédération Européenne des Entrepreneurs de Travaux Techniques Agricoles, Ruraux et Forestiers

UPEI - The voice of Europe's independent fuel suppliers

Eurofer

European Builders' Confederation

BP Europe SE

AUSTRIA

Federal Ministry of Finance

BELGIUM

Ministry of Finance

Fédération Pétrolière Belge

BULGARIA

Ministry of Finance

Ministry of Agriculture, Food and Forestry

Customs Agency

Bulgarian Association of Agricultural Producers

National Union of Agricultural Producers

Light Commerce

CROATIA

Ministry of Finance

CYPRUS

Ministry of Finance

CZECH REPUBLIC

Ministry of Finance

DENMARK

Ministry of Taxation

Danske Maskinstationer og Entreprenører
Danish Oil Industry Association
Nordic Marine Oil

ESTONIA

Ministry of Finance
Estonian Oil Association
Olerex

FINLAND

Ministry of Finance
Finnish Tax Administration

FRANCE

General Directorate of French Customs and Indirect Taxation
Fédération Nationale des Travaux Publics
Fédération Nationale Entrepreneurs Des Territoires
UFIP - Union Française des Industries Pétrolières

GERMANY

Federal Ministry of Finance
Marquard & Bahls AG

GREECE

Ministry of Finance

HUNGARY

Ministry for National Economy

IRELAND

Office of the Revenue Commissioners
Association of Farm & Forestry Contractors in Ireland
Irish Petroleum Industry Association (Irving Oil)

ITALY

Agenzia delle Dogane e dei Monopoli
Agenzia Veneta Per I Pagamenti In Agricoltura
Assopetroli
Confederazione Agromeccanici e Agricoltori Italiani
Unione Petrolifera
F.lli Casavecchia Costruzioni
Catria Oil

LATVIA

Ministry of Finance

LITHUANIA

Ministry of Finance

LUXEMBOURG

Customs and Excise Duty Administration

MALTA

Ministry of Finance

NETHERLANDS

Ministry of Finance

POLAND

Ministry of Finance

Parulski & Wspólnicy Doradcy Podatkowi s.c. (Parulski & Partners Advisors Taxation s.c.)

PORTUGAL

Tax and Customs Authority

ROMANIA

Ministry of Public Finance

SLOVAKIA

Ministry of Finance

SLOVENIA

Ministry of Finance

SPAIN

Ministry of Treasury

Tax Agency

Central Customs Laboratory

SWEDEN

Ministry of Finance

UNITED KINGDOM

HM Revenue & Customs

Authentix

3. Methodology and tools used to process data

The analysis of implementation involved extensive interactions with competent national authorities. This was complemented by consultations with private sector operators active at the EU level and in selected Member States. Overall, fact finding work involved contacts with more than 120 individuals from 67 entities. The questionnaire used to collect information from national authorities is presented in Annex A of the evaluation study.

4. Results of each consultation activity

The results of the consultation activities are presented in the evaluation support study.

5. Ad hoc contributions

Not applicable

ANNEX 3: METHODS USED IN PREPARING THE EVALUATION

The evaluation matrix summarizes the conceptual framework adopted for the evaluation study. In particular, the evaluation matrix shows in a compact format the linkages between (i) the *aspects to be analysed*, i.e. spelled out in the Evaluation Questions; (ii) the *judgment criteria* against which the evidence on the various themes is assessed; (iii) the *type of evidence* to be used, i.e. the ‘indicators’; and (iv) the *sources of information* to be relied upon.

| Evaluation Question (EQ) | Judgement Criteria (JC) | Indicators | Sources of Information |
|---|---|---|---|
| Implementation Status | | | |
| EQ#1 To what extent have the provisions of the Directive been implemented? | <ul style="list-style-type: none"> JC#1.1 Extent to which the Euromarker has been effectively utilized JC#1.2 Extent to which appropriate control and enforcement measures have been put in place by Member States authorities | <ul style="list-style-type: none"> Trend in the utilization of the Euromarker Trend in control and enforcement measures implemented by Member States authorities | <ul style="list-style-type: none"> Member States/industry statistics on the utilization of the Euromarker Member States statistics and qualitative information on the deployment of control and enforcement measures |
| Relevance | | | |
| EQ#2 To what extent are the provisions of the Directive still relevant to the needs of the Member States and economic operators in the various sectors? | <ul style="list-style-type: none"> JC#2.1 Relative importance of fuels and uses covered by the Directive and related legislation JC#2.2 Presence of significant obstacles to intra-EU trade in and legal use of rebated/exempted fuels JC#2.3 Significance of the fraud in rebated/exempted fuels JC#2.4 Significance of the fraud in uses and products currently not covered by the Directive and related legislation. | <ul style="list-style-type: none"> Volume and value of rebated/exempted fuels potentially subject to fiscal marking Number and magnitude of intra-EU trade transactions affected by obstacles Importance of the cross border dimension in actual or potential frauds with rebated/exempted fuels | <ul style="list-style-type: none"> Eurostat and industry statistics on consumption of and trade in fuels Studies on illicit traffic in fuels (e.g. Europol reports) Interviews with Member States authorities Interviews with economic operators Relevant technical literature |
| Effectiveness | | | |
| EQ#3 To what extent has the implementation of the provisions of the Directive achieved the | <ul style="list-style-type: none"> JC#3.1 Extent to which the Euromarker has contributed to reduce obstacles to intra-EU trade of rebated/exempted fuels | <ul style="list-style-type: none"> Evolution overtime in the volume and value of intra-EU trade of rebated/exempted fuels | <ul style="list-style-type: none"> Eurostat and industry statistics on intra-EU trade of rebated/exempted fuels |

| Evaluation Question (EQ) | Judgement Criteria (JC) | Indicators | Sources of Information |
|---|--|--|--|
| intended objectives? | <ul style="list-style-type: none"> JC#3.2 Extent to which the Euromarker has contributed to prevent/combat fraud in rebated/exempted fuels | <ul style="list-style-type: none"> Evolution overtime in the value of the tax loss linked to the fraudulent use of rebated/exempted fuels Stakeholders' views regarding the usefulness of the Euromarker in: (i) fostering intra-EU trade; (ii) preventing fraud | <ul style="list-style-type: none"> Member States statistics on the tax loss due to fraudulent uses of rebated/exempted fuels Interviews with Member States authorities Interviews with economic operators |
| EQ#4 Are the current provisions of the Directive the most effective way to ensure compliance? | <ul style="list-style-type: none"> JC#4.1 Relative effectiveness of the Euromarker vs. alternative methods (other marking methods; refund schemes) | <ul style="list-style-type: none"> Evidence concerning the results achieved by alternative methods | <ul style="list-style-type: none"> Interviews with Member States authorities Interviews with economic operators |
| EQ#5 To what extent has the implementation of the provisions of the Directive resulted in unintended effects? | <ul style="list-style-type: none"> JC#5.1 Extent to which the Euromarker has resulted in unexpected positive or negative effects | <ul style="list-style-type: none"> Instances of positive and negative side effects for economic operators Instances of positive or negative side effects for Member States authorities | <ul style="list-style-type: none"> Interviews with Member States authorities Interviews with economic operators |
| Efficiency | | | |
| EQ#6 To what extent are the provisions of the Directive cost-effective? What is the balance between regulatory costs and benefits? Is there a scope for simplification and administrative burden reduction? | <ul style="list-style-type: none"> JC#6.1 Extent to which the costs of the Euromarker are justified by the benefits achieved (e.g. in terms of better fraud detection) JC#6.2 Extent to which the costs of alternative methods are justified by the results achieved | <ul style="list-style-type: none"> Costs incurred by Member States authorities (Euromarker and other methods) Costs incurred by economic operators (Euromarker and other methods) Stakeholders' views regarding possible simplifications | <ul style="list-style-type: none"> Interviews with Member States authorities Interviews with economic operators |
| EU Added Value | | | |
| EQ#7 What are the advantages / benefits of acting at the EU level? To what extent can further EU | <ul style="list-style-type: none"> JC#7.1: Extent to which similar results could have been achieved without EU action | <ul style="list-style-type: none"> Number and nature of instances in which the Euromarker did make the difference compared with national | <ul style="list-style-type: none"> Interviews with Member States authorities Interviews with economic |

| Evaluation Question (EQ) | Judgement Criteria (JC) | Indicators | Sources of Information |
|--|--|--|---|
| action bring benefits? | <ul style="list-style-type: none"> JC#7.2: Extent to which remaining problems (if any) can be better tackled by EU action | <ul style="list-style-type: none"> measures Stakeholders' views regarding the appropriateness of further EU action (e.g. new CN codes) | operators |
| Coherence | | | |
| EQ#8 To what extent is the Directive coherent with the Treaty, other EU legislation and the ECJ jurisprudence? | <ul style="list-style-type: none"> JC#8.1 Extent to which existing provisions display differences in definitions and/or scope of applicability and/or substantive requirements JC#8.2 Extent to which the legal base of the Directive is still appropriate | <ul style="list-style-type: none"> Number and severity of instances of: (i) inconsistencies; (ii) overlaps; (iii) gaps; and (iii) obsolete provisions Number and severity of instances of different or divergent interpretations Stakeholders' views regarding the clarity and consistency of existing provisions | <ul style="list-style-type: none"> Legal analysis of relevant EU legislation and ECJ case-law Interviews with Member States authorities Interviews with economic operators |

ANNEX 4: QUESTIONNAIRE FOR NATIONAL AUTHORITIES

QUESTIONNAIRE FOR INTERVIEWS WITH NATIONAL AUTHORITIES

This questionnaire was prepared in the framework of the ***Evaluation study on the application of the provisions of the Council Directive 95/60/EC on fiscal marking of gas oil and kerosene*** (the 'Study') commissioned by the European Commission - Directorate General for Taxation and Customs Union (DG TAXUD).

The Study is implemented by a group of consulting firms and research institutes led by Economisti Associati. A letter of introduction from DG TAXUD is attached.

The Study pursues the double objective of: (i) ascertaining the ***status of transposition and implementation*** of the Directive 95/60/EC across the 28 Member States (the 'Status of Implementation'); and (ii) assessing the ***effects resulting from the introduction of the common marker*** commonly known as Euromarker (Solvent Yellow 124).

This questionnaire is solely concerned with the assessment of the status of transposition and implementation.

The questionnaire is subdivided into three sections, namely:

- The first section focuses on the ***actual application*** of the provisions mandating the use of the Euromarker for the gas oil and kerosene subject to excise duty rebate or exemption;
- The second section focuses on ***economic aspects***, in particular the quantities of 'marked' gas oil and kerosene released for consumption;
- The third section deals with the ***control and enforcement mechanisms*** put in place to prevent the misuse of rebated or exempted gas oil and kerosene and on the results achieved through these control and enforcement mechanisms

The questionnaire is supported by two tables summarizing the available information on the application of the Euromarker in your country as well as the use of alternative schemes (refunds, vouchers). These tables were established based on the analysis of a variety of sources, but there are gaps and uncertainties regarding various aspects. ***Verifying the accuracy of these tables is a key part of the interview.***

It is possible that the information required to answer some questions may not be available within your service. In such a case, we kindly ask you to direct us to the services capable of provide the relevant data.

Section 1 – Implementation of Provisions Concerning the Euromarker

Our interpretation of the status of implementation of Directive 95/60/EC in your country is summarized in the attached two tables, the first dealing with gas oil and the second one covering kerosene. The tables were prepared on the basis of various secondary sources (tables published by DG TAXUD, OECD reports on subsidies for energy products, etc.).

Q#1.1 Could you please verify the accuracy of the information provided in the tables? Could you please help us in filling the gaps?

Q#1.2 In particular, could you please indicate whether our understanding or interpretation regarding the following situations is correct?

- Case A (e.g. interpretation regarding the applicability of a certain rebate)
- Case B (e.g. clarification concerning the applicability of a certain refund scheme)
- Case C (the Euromarker is applied at stage X of the value chain)

Q#1.3 The Euromarker is not used when a product is released for consumption with a fully paid duty rate for propellant use. Could you please indicate when a product is considered as released for consumption in practice in your Country? Wholesale? Retail?

Q#1.4 EU Member States may choose not to use the Euromarker on grounds of public health or safety or for other technical reasons. Which of these reasons apply for which products and cases?

Q#1.5 Could you please indicate what were the motivations for not applying the Euromarker in the following situations?

- Case A (e.g. use of refund instead of Euromarker for gas oil uses under Article 8.2)
- Case B (e.g. use of refund instead of Euromarker for kerosene uses under Article 9)

The Study covers the whole period since the introduction of the Euromarker until today. For simplicity, the two tables attached focus on three years, namely 2005, 2010 and 2016.

Q#1.6 Could you please tell us whether there were changes in the years not shown in the tables? If so, which were the main changes?

Based on available information, we understand that Directive 95/60/EC was transposed into national legislation through the following pieces of legislation:

- Law or Decree A
- Law or Decree B

In addition, we understand that practical aspects concerning the implementation of the Euromarker and/or alternative refund schemes are covered by the [annual budget law/circulars issued by the Ministry of Finance].

Q#1.7 Could you please tell us whether there are other pieces of national legislation concerning the transposition of Directive 95/60 and/or the practical implementation of the Euromarker?

Q#1.8 Could you please indicate whether the Euromarker is currently utilized (or it is envisaged to be utilized in the future) for other uses/products beyond those explicitly

envisaged by Directive 95/60/EC? If yes, could you please tell us what are the main motivations?

| Types of Uses/Products | Do you currently utilize the Euromarker? | | Is the utilization of the Euromarker envisaged in the future? | | Motivations for current or future utilization |
|--|--|----|---|----|---|
| | Yes | No | Yes | No | |
| Uses of gas oil or kerosene for which the Euromarker is not mandatory under Directive 95/60/EC | | | | | |
| Gas oil or kerosene used in <u>metallurgy</u> (spraying gas oil in coal-fired kilns, firing up burners in kilns, etc.) | | | | | |
| Gas oil or kerosene used as <u>solvents</u> | | | | | |
| <u>Other uses</u> of gas oil and kerosene (specify) | | | | | |
| Products for which the Euromarker is not mandatory under Directive 95/60/EC | | | | | |
| <u>Lubricants</u> | | | | | |
| <u>Other products</u> (specify) | | | | | |

Section 2 – Economic Aspects

Based on information provided by DG TAXUD, we understand that the quantities of 'marked' gas oil and kerosene released for consumption over the [.....- ..] period are as indicated in the table below (value in litres)

| Years | Gas Oil | Kerosene |
|-------|---------|----------|
| 2016 | | |
| 2015 | | |
| 2014 | | |
| 2013 | | |
| 2012 | | |
| 2011 | | |
| 2010 | | |
| 2009 | | |
| 2008 | | |
| 2007 | | |
| 2006 | | |
| 2005 | | |
| 2004 | | |
| 2003 | | |

Q#2.1 *Could you please confirm the above figures? Could you please help us in filling the gaps in the table, by providing data for the missing years?*

Q#2.2 *In case you cannot provide precise figures, could you at least provide orders of magnitude? (i.e. in year X the quantity of marked gas oil was about one third/half the quantity in year Y)?*

We are interested in assessing the relative importance of 'marked' gas oil and kerosene across the various economic sectors and possible uses.

Q#2.3 *Are there detailed statistics regarding the quantities of 'marked' gas oil and kerosene broken down by economic sector and/or type of use? If yes, could you please provide us with these data and/or indicate where we could retrieve them?*

Q#2.4 *In case there are no detailed statistics, could you at least provide orders of magnitude? For instance, in year [...], considering the total quantity of marked gas oil/kerosene indicated in the table above, what percentage went to agriculture? What went to navigation?*

We understand that the quantities of the chemical substance (Solvent Yellow 124) purchased by operators (e.g. wholesalers) for the purpose of 'marking' gas oil and kerosene are communicated to national authorities to allow for the necessary controls.

Q#2.5 If the above is correct, could you please provide data on the quantities purchased in the relevant years?

As discussed in Section 1 above, there are cases in which the use of the Euromarker is replaced or supplemented by refund schemes, and we are interested in assessing the importance of the gas oil and kerosene benefitting from these refund schemes.

Q#2.6 Could you provide us with the data on the quantities of gas oil and kerosene benefitting from refund schemes supplementing or replacing the use of the Euromarker?

Section 3 – Control and Enforcement Mechanisms

Directive 95/60/EC requires Member States authorities to adopt the necessary measures to ensure that improper use of the 'marked' gas oil and kerosene is avoided and, in particular, to avoid that these 'marked' products are used in road-going motor vehicles

Q#3.1 Could you please provide information on the control mechanisms put in place in your country? For instance, are there mandatory periodical inspections for certain types of operators (e.g. wholesalers)? Which entities are responsible for carrying out these inspections?

Q#3.2 What about the road checks? How are they carried out?

Q#3.3 Could you please provide data on the number of control activities performed, divided by type (e.g. periodical inspections, road checks, etc.)?

Q#3.4 Could you please indicate the number of proportion of controls involving (i) quick tests or (ii) simple visual inspection?

It appears that in some countries not all customs laboratories are equipped to perform the analyses required to verify the presence of the Euromarker. Is this the case in your country? If yes:

Q#3.5 Could you please indicate which customs laboratories are in the position to perform these analyses?

We are interested in assessing the magnitude of the excise duty fraud linked to the fraudulent use of 'marked' gas oil and kerosene and the impact of the control measures put in place.

Q#3.6 How severe is the problem of fraud in 'marked' gas oil and kerosene in your country? How has the problem evolved over time? What are the main drivers?

Q#3.7 Could you please provide an estimate of the extent of the fraud (i.e. tax loss) related to 'marked' gas oil and kerosene in your country?

Q#3.8 What were the results of the control mechanisms put in place in your country? Could you please provide data on the number of cases of fraudulent use detected and the quantities of 'marked' gas oil and kerosene seized?

Directive 95/60/EC requires Member States authorities to consider the fraud in 'marked' gas oil and kerosene as an offence under national law and to adopt appropriate sanctions.

Q#3.9 Could you please tell us what are the sanctions (imprisonment, fines) envisaged by criminal law for the fraudulent use of 'marked' gas oil and kerosene?

Q#3.10 Could you please provide us with data on the sanctions actually imposed or indicate where we could obtain these data?

ANNEX 5: STATISTICS ON GAS OIL AND KEROSENE CONSUMPTION

This Annex provides statistics on consumption of gas oil and kerosene and taxation rates of gas oil for all Member States. It consists of two sections, namely:

Section 5.1, which presents statistics on consumption by sector and by type of fuels for the three reference years: 2015, 2010 and 2005. Data were extracted from the Eurostat Statistics, and are expressed in thousand tonnes of oil equivalent (toe).

Section 5.2, which provides data on the tax rates of gas oil used as propellant (expressed in EUR/1 000 litres) as well as the difference in tax rates between gas oil used as propellant and gas oil for heating (non-business) and primary sector uses (again, expressed in EUR/1 000 litres). Calculations were based on data from DG TAXUD Excise Duty Tables on Energy Products and Electricity.

5.1 STATISTICS ON GAS OIL AND KEROSENE CONSUMPTION

Exhibit 5.1 - Total Energy Consumption – Gas Oil – 2015 (1 000 tonnes of oil equivalent)

| Sector | AT | BE | BG | HR | CY | CZ | DK | EE | FI | FR | DE | GR | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | EU28 |
|---|--------------|---------------|--------------|--------------|------------|--------------|--------------|------------|--------------|---------------|---------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|------------|--------------|---------------|--------------|--------------|--------------|--------------|---------------|--------------|---------------|----------------|
| Industry (A) | 363 | 245 | 46 | 115 | 10 | 60 | 172 | 51 | 475 | 941 | 751 | 211 | 160 | 144 | 408 | 37 | 21 | 13 | 4 | 422 | 272 | 194 | 315 | 12 | 46 | 1,119 | 255 | 1,687 | 8,545 |
| Iron & steel industry | 0 | 12 | .. | .. | .. | .. | 1 | 0 | 3 | 12 | 81 | 3 | 1 | .. | 14 | 0 | .. | 0 | .. | 4 | 2 | 2 | 1 | 0 | 0 | 23 | 15 | 0 | 175 |
| Chemical and petrochemical industry | 1 | 23 | 2 | 1 | 1 | .. | 3 | 7 | 4 | 16 | 19 | 2 | 3 | 10 | 114 | 0 | .. | 6 | .. | 1 | 54 | 2 | 2 | 0 | 3 | 41 | 21 | 90 | 428 |
| Non-ferrous metal industry | 0 | 1 | .. | 1 | .. | .. | 0 | 0 | 6 | 4 | 15 | .. | 1 | .. | 6 | 0 | .. | 0 | .. | 0 | 3 | 0 | 0 | 0 | 0 | 13 | 9 | 0 | 60 |
| Non-metallic minerals (glass, pottery & Transport equipment | 5 | 9 | 4 | 3 | 1 | 2 | 8 | 1 | 12 | 46 | 80 | 9 | 6 | 32 | 47 | 7 | 2 | 1 | .. | 5 | 31 | 26 | 22 | 2 | 3 | 140 | 16 | 162 | 684 |
| Machinery | 1 | 7 | .. | 1 | .. | 1 | 1 | 1 | 6 | 6 | 39 | 10 | 1 | 1 | .. | 0 | .. | 0 | .. | 11 | 11 | 3 | 0 | 1 | 1 | 33 | 12 | 156 | 304 |
| Mining and quarrying | 6 | 17 | 3 | 1 | .. | 1 | 9 | 0 | 21 | 42 | 197 | 7 | 4 | 10 | 98 | 0 | .. | 0 | .. | 2 | 18 | 4 | 7 | 1 | 7 | 58 | 23 | .. | 537 |
| Food and tobacco | 6 | 0 | 1 | 11 | 2 | .. | 18 | 5 | 45 | 169 | 15 | 38 | 12 | 25 | 21 | 3 | 2 | 1 | .. | 8 | 64 | 31 | 12 | 3 | 2 | 156 | 68 | 0 | 719 |
| Paper, pulp and print | 18 | 8 | 6 | 9 | 3 | 1 | 12 | 4 | 20 | 45 | 154 | 15 | 4 | 29 | 34 | 3 | 3 | 1 | .. | 5 | 31 | 30 | 26 | 0 | 8 | 209 | 26 | 29 | 734 |
| Wood and wood products | 1 | 2 | .. | 0 | .. | 2 | 2 | 0 | 3 | 8 | 26 | .. | 0 | 2 | 16 | 0 | .. | 0 | .. | 0 | 6 | 4 | 0 | 0 | 1 | 53 | 23 | 27 | 176 |
| Construction | 2 | 0 | .. | 0 | .. | 1 | 2 | 4 | 6 | 40 | 11 | 1 | 4 | 2 | .. | 8 | 2 | 0 | .. | 0 | 9 | 6 | 13 | 0 | 1 | 15 | 33 | 0 | 162 |
| Textile and leather | 319 | 56 | 27 | 87 | 3 | 47 | 113 | 27 | 330 | 534 | .. | 94 | 122 | .. | 21 | 15 | 9 | 3 | .. | 383 | 29 | 79 | 220 | 5 | 17 | 315 | .. | 158 | 3,013 |
| Non-specified (industry) | 1 | 1 | 2 | 0 | .. | .. | 0 | 0 | 3 | 7 | 19 | .. | 0 | 1 | 27 | 0 | 1 | 0 | .. | 0 | 4 | 5 | 3 | 0 | 1 | 25 | 1 | 40 | 141 |
| Transport (B) | 5,516 | 7,155 | 1,815 | 1,303 | 247 | 3,981 | 2,432 | 509 | 2,155 | 32,383 | 32,944 | 2,254 | 2,559 | 2,665 | 22,090 | 737 | 1,313 | 1,574 | 111 | 5,893 | 9,818 | 3,886 | 3,676 | 1,267 | 1,276 | 21,383 | 3,848 | 25,478 | 200,266 |
| Rail | 41 | 48 | 16 | 18 | .. | 86 | 81 | 19 | 23 | 161 | 319 | 41 | 49 | 36 | 22 | 66 | 51 | 5 | .. | 32 | 84 | 10 | 113 | 0 | 12 | 88 | 2 | 626 | 2,049 |
| Road | 5,475 | 6,922 | 1,798 | 1,243 | 247 | 3,891 | 2,204 | 478 | 2,044 | 32,099 | 32,306 | 1,989 | 2,504 | 2,557 | 21,526 | 668 | 1,251 | 1,569 | 99 | 5,482 | 9,730 | 3,828 | 3,520 | 1,267 | 1,264 | 20,895 | 3,799 | 24,224 | 194,878 |
| International aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | 0 | .. | 0 | 0 | .. | 0 | 0 | 0 | .. | .. | 0 | 0 |
| Domestic aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | 0 | .. | 0 | 0 | .. | 0 | 0 | 0 | .. | .. | 0 | 0 |
| Domestic navigation | 1 | 185 | .. | 42 | .. | 3 | 134 | 12 | 89 | 123 | 319 | 223 | 6 | 71 | 541 | 3 | 5 | 0 | 12 | 379 | 2 | 47 | 44 | 0 | 0 | 339 | 46 | 629 | 3,256 |
| Pipeline transport | 0 | 0 | .. | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | 0 | .. | 0 | 1 | 0 | 0 | 0 | 0 | 0 | .. | 0 | 1 |
| Non-specified (transport) | 0 | 0 | .. | .. | .. | .. | 14 | .. | .. | .. | .. | 1 | 0 | .. | .. | 0 | 6 | 0 | .. | 0 | 0 | .. | 0 | 0 | 0 | 62 | .. | 0 | 83 |
| Other sectors (C) | 1,367 | 3,669 | 143 | 319 | 117 | 350 | 705 | 129 | 997 | 10,573 | 17,638 | 1,557 | 342 | 581 | 3,516 | 181 | 54 | 256 | 35 | 691 | 2,085 | 461 | 424 | 72 | 261 | 4,541 | 355 | 1,231 | 52,649 |
| Services | 224 | 825 | 14 | 46 | 20 | 12 | 53 | 28 | 193 | 1,974 | 6,572 | 59 | 19 | 233 | 153 | 48 | 2 | 70 | 27 | 102 | 345 | 54 | 21 | 6 | 73 | 840 | 222 | 617 | 12,851 |
| Residential | 925 | 2,555 | .. | 87 | 67 | .. | 201 | 4 | 315 | 5,361 | 11,031 | 1,381 | 0 | 176 | 1,287 | 25 | 9 | 167 | 2 | 7 | 72 | 55 | 0 | 0 | 121 | 1,937 | 30 | 135 | 25,949 |
| Agriculture / forestry | 219 | 289 | 128 | 159 | 23 | 329 | 326 | 97 | 338 | 2,753 | .. | 3 | 322 | 173 | 1,930 | 102 | 41 | 18 | 3 | 380 | 1,668 | 259 | 261 | 66 | 66 | 1,548 | 85 | 239 | 11,825 |
| Fishing | 0 | 0 | .. | 28 | 2 | .. | 124 | .. | 34 | 271 | .. | 11 | 1 | .. | 147 | 5 | 2 | 0 | 3 | 160 | 0 | 87 | 0 | 0 | 0 | 213 | 17 | 0 | 1,105 |
| Non-specified (other) | 0 | 0 | .. | .. | 6 | 8 | .. | .. | 117 | 215 | 35 | 103 | 0 | .. | .. | 1 | .. | 0 | .. | 41 | 0 | 8 | 142 | 0 | 0 | 3 | .. | 241 | 919 |
| Final energy consumption (D=A+B+C) | 7,246 | 11,069 | 2,003 | 1,737 | 374 | 4,390 | 3,310 | 689 | 3,627 | 43,897 | 51,332 | 4,021 | 3,061 | 3,390 | 26,014 | 954 | 1,388 | 1,843 | 150 | 7,006 | 12,175 | 4,541 | 4,415 | 1,351 | 1,582 | 27,044 | 4,457 | 28,396 | 261,460 |
| Bunkers (E) | 17 | 1,536 | 67 | .. | 77 | .. | 444 | 93 | 45 | 122 | 1,039 | 310 | .. | 149 | 231 | 125 | 41 | .. | 266 | 2,000 | 142 | 112 | 45 | .. | .. | 1,701 | 793 | 1,629 | 10,984 |
| Consumption of the energy branch (F) | 0 | 2 | .. | .. | .. | 16 | .. | 15 | .. | 6 | 18 | .. | 3 | .. | .. | 6 | 4 | .. | .. | 3 | 49 | 0 | 66 | 0 | 0 | 18 | 0 | 648 | 856 |
| Total Consumption (G=D+E+F) | 7,263 | 12,608 | 2,069 | 1,737 | 451 | 4,406 | 3,753 | 797 | 3,673 | 44,025 | 52,390 | 4,331 | 3,064 | 3,539 | 26,245 | 1,085 | 1,433 | 1,843 | 416 | 9,009 | 12,366 | 4,653 | 4,526 | 1,351 | 1,582 | 28,763 | 5,250 | 30,673 | 273,300 |

Source: Eurostat, Energy database.

Exhibit 5.2 - Total Energy Consumption – Kerosene – 2015 (1 000 tonnes of oil equivalent)

| Sector | AT | BE | BG | HR | CY | CZ | DK | EE | FI | FR | DE | GR | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | EU28 | |
|---|----------|-----------|----------|----------|-----------|----------|----------|----------|----------|------------|----------|----------|----------|------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------------|--------------|----------|
| Industry (A) | 0 | 3 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 89 | 1 | 0 | .. | .. | .. | 0 | 0 | .. | .. | 1 | .. | .. | .. | 1,296 | 1,393 | |
| Iron & steel industry | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | .. | 0 | |
| Chemical and petrochemical industry | 0 | 0 | .. | 3 | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 17 | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 20 | |
| Non-ferrous metal industry | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Non-metallic minerals (glass, pottery & building mat. industry) | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 2 | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 2 | |
| Transport equipment | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 25 | 25 | |
| Machinery | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | 1 | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 1 | |
| Mining and quarrying | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 11 | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 11 | |
| Food and tobacco | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | 58 | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 58 | |
| Paper, pulp and print | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Wood and wood products | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | : | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Construction | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Textile and leather | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 1 | 0 | : | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 1 | |
| Non-specified (industry) | 0 | 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 1 | .. | .. | .. | 1,271 | 4 | |
| Transport (B) | 0 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 2 | |
| Rail | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | : | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | |
| Road | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | 2 | .. | .. | .. | .. | 0 | 2 | |
| International aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Domestic aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Domestic navigation | 0 | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 2 | |
| Pipeline transport | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Non-specified (transport) | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Other sectors (C) | 1 | 56 | .. | .. | 15 | 3 | .. | .. | .. | 158 | 3 | 4 | 0 | 776 | 5 | 0 | .. | 1 | .. | 6 | 0 | 1 | 3 | 0 | .. | .. | .. | 1,966 | 2,057 | |
| Services | 1 | 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | 2 | 0 | .. | .. | .. | 0 | 14 | |
| Residential | 0 | 29 | .. | .. | 15 | .. | .. | .. | .. | 158 | 3 | 4 | 0 | 776 | 1 | 0 | .. | 1 | .. | 6 | 0 | .. | 1 | 0 | .. | .. | .. | 1,966 | 2,802 | |
| Agriculture / forestry | 0 | 6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | 1 | .. | 0 | .. | .. | .. | 0 | 7 | |
| Fishing | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | |
| Non-specified (other) | 0 | 9 | .. | .. | .. | 3 | .. | .. | .. | .. | .. | .. | 0 | .. | 4 | 0 | .. | .. | .. | 0 | 0 | .. | .. | 0 | .. | .. | .. | 0 | 16 | |
| Final energy consumption (D=A+B+C) | 1 | 61 | .. | 3 | 15 | 3 | .. | .. | .. | 158 | 3 | 4 | 0 | 865 | 6 | 0 | .. | 1 | .. | 6 | .. | 1 | 3 | .. | .. | .. | .. | 3,262 | 4,392 | |
| Bunkers (E) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | 0 | 0 | 0 | 0 |
| Consumption of the energy branch (F) | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | 0 | 0 | 0 | .. | .. | 0 | 0 | 0 | 0 | 2 | |
| Total Consumption (G=D+E+F) | 1 | 61 | 0 | 3 | 15 | 3 | 0 | 0 | 0 | 158 | 3 | 4 | 0 | 865 | 6 | 0 | 0 | 1 | 0 | 6 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 3,262 | 4,395 | |

Source: Eurostat, Energy database.

Exhibit 5.3 - Total Energy Consumption – Gas Oil – 2010 (1 000 tonnes of oil equivalent)

| Sector | AT | BE | BG | HR | CY | CZ | DK | EE | FI | FR | DE | GR | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | EU28 |
|---|---------------|---------------|--------------|--------------|--------------|---------------|---------------|--------------|---------------|----------------|----------------|---------------|--------------|---------------|---------------|--------------|--------------|--------------|------------|--------------|---------------|---------------|---------------|--------------|--------------|---------------|---------------|---------------|----------------|
| Industry (A) | 375 | 222 | 32 | 147 | 14 | 96 | 276 | 42 | 508 | 886 | 1,741 | 296 | 30 | 137 | 474 | 33 | 20 | 10 | 2 | 387 | 438 | 266 | 221 | 16 | 73 | 1,119 | 281 | 2,039 | 10,180 |
| Iron & steel industry | 0 | 12 | 0 | .. | .. | 0 | 1 | 0 | 8 | 6 | 31 | 1 | 2 | 0 | 20 | .. | .. | 2 | 0 | 3 | 2 | 2 | 1 | 0 | 1 | 53 | 13 | 0 | 160 |
| Chemical and petrochemical industry | 1 | 8 | 1 | 1 | .. | 0 | 8 | 1 | 6 | 0 | 70 | 8 | 0 | 12 | 0 | 2 | .. | 2 | 0 | 1 | 100 | 2 | 2 | 0 | 4 | 109 | 29 | 163 | 530 |
| Non-ferrous metal industry | 0 | 1 | 1 | .. | .. | 0 | 0 | 0 | 8 | 6 | 33 | 2 | 0 | 0 | 7 | .. | .. | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 1 | 59 | 5 | 0 | 129 |
| Non-metallic minerals (glass, pottery & building mat. industry) | 7 | 4 | 1 | 1 | .. | 1 | 12 | 2 | 16 | 37 | 296 | 3 | 3 | 26 | 70 | 6 | 2 | 0 | 0 | 4 | 48 | 27 | 6 | 1 | 4 | 144 | 23 | 151 | .. |
| Transport equipment | 1 | 5 | 0 | .. | .. | 1 | 2 | 1 | 6 | 8 | 90 | 15 | 0 | 1 | 0 | 1 | .. | 0 | 0 | 3 | 9 | 2 | 0 | 2 | 1 | 88 | 9 | 95 | 341 |
| Machinery | 9 | 13 | 1 | 2 | .. | 2 | 49 | 2 | 30 | 45 | 495 | 0 | 0 | 13 | 141 | 1 | .. | 0 | 0 | 3 | 19 | 3 | 1 | 1 | 12 | 76 | 61 | 0 | 979 |
| Mining and quarrying | 5 | 0 | 1 | 17 | .. | 0 | 28 | 4 | 36 | 103 | 26 | 27 | 10 | 36 | 25 | 2 | 1 | 0 | 0 | 6 | 65 | 40 | 14 | 5 | 4 | 65 | 23 | 0 | 542 |
| Food and tobacco | 27 | 5 | 4 | 10 | .. | 1 | 32 | 5 | 23 | 46 | 310 | 15 | 0 | 35 | 56 | 4 | 3 | 1 | 0 | 0 | 69 | 23 | 24 | 0 | 12 | 241 | 32 | 57 | 1,035 |
| Paper, pulp and print wood and wood products | 1 | 1 | 0 | 1 | .. | 0 | 3 | 1 | 5 | 12 | 70 | 3 | 0 | 3 | 25 | .. | .. | 0 | 0 | 0 | 6 | 1 | 4 | 0 | 2 | 62 | 13 | 31 | 244 |
| Construction | 317 | 40 | 21 | 111 | .. | 49 | 128 | 21 | 332 | 580 | .. | 112 | 15 | 0 | 51 | 12 | 10 | 3 | 0 | 366 | 85 | 140 | 154 | 7 | 25 | 63 | 0 | 117 | 2,760 |
| Textile and leather | 2 | 1 | 2 | 1 | .. | 1 | 1 | 0 | 5 | 7 | 33 | 3 | 0 | 4 | 42 | .. | 2 | 0 | 0 | 0 | 6 | 1 | 1 | 0 | 1 | 62 | 4 | 44 | 223 |
| Non-specified (industry) | 3 | 131 | 0 | 1 | 14 | 39 | 8 | 2 | 19 | 18 | 246 | 107 | 0 | 0 | 36 | .. | .. | 2 | 2 | 0 | 17 | 18 | 5 | 0 | 3 | 88 | 66 | 1,382 | 2,208 |
| Transport (B) | 5,330 | 7,075 | 1,441 | 1,186 | 338 | 3,492 | 2,649 | 451 | 2,433 | 31,753 | 28,449 | 2,730 | 2,414 | 2,304 | 22,703 | 728 | 951 | 1,760 | 108 | 6,783 | 9,740 | 4,366 | 3,172 | 1,450 | 1,111 | 24,172 | 3,653 | 22,483 | 195,221 |
| Rail | 49 | 34 | 20 | 29 | .. | 95 | 79 | 51 | 33 | 175 | 348 | 20 | 55 | 41 | 64 | 67 | 61 | 3 | 0 | 34 | 115 | 16 | 147 | 0 | 9 | 635 | 1 | 616 | 2,796 |
| Road | 5,280 | 6,890 | 1,421 | 1,122 | 338 | 3,393 | 2,420 | 392 | 2,317 | 31,440 | 27,823 | 2,434 | 2,357 | 2,261 | 22,017 | 656 | 882 | 1,757 | 94 | 6,393 | 9,621 | 4,305 | 2,966 | 1,450 | 1,102 | 22,604 | 3,607 | 21,076 | 188,417 |
| International aviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domestic aviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domestic navigation | 1 | 151 | 0 | 36 | .. | 4 | 136 | 8 | 84 | 137 | 278 | 276 | 1 | 1 | 622 | 5 | 6 | .. | 14 | 357 | 3 | 45 | 59 | 0 | .. | 932 | 45 | 791 | 3,991 |
| Pipeline transport | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Non-specified (transport) | 0 | 0 | 0 | .. | .. | 0 | 14 | 0 | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 2 | .. | 0 | 0 | 0 | 0 | 0 | 0 | .. | 0 | 0 | 0 | 16 |
| Other sectors (C) | 1,676 | 4,308 | 157 | 421 | 124 | 352 | 999 | 94 | 1,289 | 12,433 | 20,667 | 2,642 | 260 | 875 | 4,335 | 165 | 53 | 260 | 14 | 653 | 2,518 | 572 | 315 | 67 | 526 | 4,634 | 833 | 1,099 | 62,337 |
| Services | 261 | 973 | 33 | 76 | 24 | 10 | 65 | 26 | 252 | 2,912 | 7,217 | 211 | 0 | 431 | 241 | 32 | 3 | 52 | 8 | 68 | 655 | 108 | 28 | 0 | 191 | 1,148 | 535 | 565 | 16,124 |
| Residential | 1,191 | 2,914 | 2 | 142 | 72 | 0 | 431 | 4 | 541 | 6,152 | 13,399 | 1,912 | 0 | 215 | 1,907 | 25 | 7 | 187 | 0 | 7 | 109 | 124 | 0 | 0 | 272 | 1,867 | 70 | 168 | 31,716 |
| Agriculture / forestry | 224 | 421 | 120 | 172 | 20 | 328 | 358 | 64 | 343 | 2,816 | .. | 520 | 260 | 229 | 2,003 | 96 | 40 | 21 | 4 | 348 | 1,755 | 240 | 198 | 67 | 63 | 1,619 | 183 | 149 | 12,662 |
| Fishing | 0 | 0 | 1 | 32 | 4 | 0 | 144 | 0 | 37 | 308 | .. | 0 | 0 | 0 | 183 | 10 | 2 | 0 | 2 | 169 | 0 | 100 | 0 | 0 | .. | 0 | 37 | 0 | 1,029 |
| Non-specified (other) | 0 | 0 | 0 | .. | 5 | 13 | 0 | 0 | 116 | 245 | 51 | 0 | 0 | 0 | 0 | 2 | .. | 0 | 0 | 60 | 0 | 0 | 89 | 0 | .. | 0 | 8 | 217 | 806 |
| Final energy consumption (D=A+B+C) | 7,381 | 11,604 | 1,630 | 1,755 | 476 | 3,939 | 3,923 | 587 | 4,230 | 45,072 | 50,857 | 5,668 | 2,704 | 3,315 | 27,512 | 926 | 1,023 | 2,030 | 124 | 7,822 | 12,696 | 5,203 | 3,708 | 1,533 | 1,710 | 29,924 | 4,767 | 25,620 | 267,738 |
| Bunkers (E) | 23 | 501 | 53 | 1 | 54 | 0 | 274 | 21 | 64 | 119 | 536 | 350 | 0 | 83 | 241 | 70 | 19 | .. | 262 | 1,549 | 56 | 51 | 11 | 0 | .. | 1,511 | 183 | 978 | 7,010 |
| Consumption of the energy branch (F) | 0 | 10 | 0 | .. | .. | 15 | 0 | 15 | 0 | 29 | 90 | 23 | 21 | 1 | 21 | 5 | 3 | .. | 0 | 2 | 42 | 0 | 55 | 1 | .. | 0 | 15 | 501 | 852 |
| Total Consumption (G=D+E+F) | 22,165 | 35,324 | 4,941 | 5,265 | 1,484 | 11,832 | 12,045 | 1,797 | 12,754 | 135,364 | 153,196 | 17,379 | 8,132 | 10,029 | 82,797 | 2,852 | 3,089 | 6,088 | 635 | #### | 38,186 | 15,661 | 11,191 | 4,600 | 5,131 | 91,283 | 14,499 | 78,338 | 810,181 |

Source: Eurostat, Energy database.

Exhibit 5.4 - Total Energy Consumption – Kerosene – 2010 (1 000 tonnes of oil equivalent)

| Sector | AT | BE | BG | HR | CY | CZ | DK | EE | FI | FR | DE | GR | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | EU28 | |
|---|----------|-----------|----|----------|-----------|----------|----------|----|----------|------------|----------|----------|----------|--------------|----------|----------|----|----------|----------|----------|----------|----------|----------|----------|----------|----|----|--------------|--------------|---|
| Industry (A) | 0 | 1 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 110 | 1 | .. | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | 1,560 | 1,672 | |
| Iron & steel industry | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Chemical and petrochemical industry | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 67 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 67 | |
| Non-ferrous metal industry | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Non-metallic minerals (glass, pottery & building mat. industry) | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 3 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 3 | |
| Transport equipment | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Machinery | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 1 | 1 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 2 | |
| Mining and quarrying | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 8 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 8 | |
| Food and tobacco | 0 | : | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 30 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 30 | |
| Paper, pulp and print | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Wood and wood products | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Construction | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Textile and leather | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 1 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 1 | |
| Non-specified (industry) | 0 | 1 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | 1,560 | 1 | |
| Transport (B) | 0 | 7 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 7 | |
| Rail | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 |
| Road | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| International aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Domestic aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Domestic navigation | 0 | 7 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 7 | |
| Pipeline transport | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Non-specified (transport) | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Other sectors (C) | 4 | 71 | .. | 1 | 15 | 3 | 1 | .. | 0 | 241 | 6 | 6 | 0 | 1,014 | 9 | .. | .. | .. | .. | 7 | 1 | 2 | .. | .. | .. | .. | .. | 2,643 | 4,025 | |
| Services | 4 | 13 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | : | .. | .. | .. | .. | .. | 0 | 18 | |
| Residential | 0 | 50 | .. | 1 | 15 | .. | 1 | .. | 0 | 241 | 6 | 6 | 0 | 1,014 | 9 | .. | .. | .. | .. | 7 | 0 | 1 | .. | .. | .. | .. | .. | 2,643 | 3,995 | |
| Agriculture / forestry | 0 | 7 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | 1 | .. | .. | .. | .. | .. | 0 | 8 | |
| Fishing | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Non-specified (other) | 0 | 0 | .. | .. | .. | 3 | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | 0 | 1 | .. | .. | .. | .. | .. | .. | 0 | 4 | |
| Final energy consumption (D=A+B+C) | 1 | 61 | .. | 3 | 15 | 3 | .. | .. | .. | 158 | 3 | 4 | 0 | 865 | 6 | 0 | .. | 1 | .. | 6 | 0 | 1 | 3 | 1 | .. | .. | .. | 3,262 | 5,704 | |
| Bunkers (E) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Consumption of the energy branch (F) | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | 0 | 3 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | 19 | |
| Total Consumption (G=D+E+F) | 1 | 61 | .. | 3 | 15 | 3 | .. | .. | .. | 158 | 3 | 4 | .. | 865 | 9 | .. | .. | .. | 1 | .. | 6 | .. | 1 | 3 | 1 | .. | .. | 3,262 | 5,722 | |

Source: Eurostat, Energy database.

Exhibit 5.5 - Total Energy Consumption – Gas Oil – 2005 (1 000 tonnes of oil equivalent)

| Sector | AT | BE | BG | HR | CY | CZ | DK | EE | FI | FR | DE | GR | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | EU28 | |
|---|---------------|---------------|--------------|--------------|--------------|---------------|---------------|--------------|---------------|----------------|----------------|---------------|--------------|---------------|---------------|--------------|--------------|--------------|------------|---------------|---------------|---------------|--------------|--------------|--------------|----------------|---------------|---------------|----------------|---|
| Industry (A) | 462 | 288 | 82 | 166 | 48 | 110 | 387 | 48 | 481 | 1,590 | 1,748 | 450 | 35 | 191 | 507 | 34 | 38 | 16 | 0 | 451 | 536 | 383 | 369 | 20 | 114 | 1,742 | 410 | 2,933 | 13,636 | |
| Iron & steel industry | 0 | 13 | 2 | 1 | .. | 2 | 3 | 0 | 4 | 5 | 33 | 1 | 1 | 0 | 9 | 1 | .. | 2 | 0 | 3 | 2 | 4 | 5 | 0 | 1 | 93 | 22 | 0 | 208 | |
| Chemical and petrochemical industry | 2 | 25 | 3 | 1 | .. | 0 | 10 | 0 | 6 | 0 | 72 | 10 | 0 | 16 | 40 | .. | .. | 4 | 0 | 2 | 90 | 24 | 3 | 0 | 3 | 146 | 25 | 114 | 595 | |
| Non-ferrous metal industry | 1 | 4 | 0 | .. | .. | 0 | 0 | 0 | 2 | 10 | 49 | 2 | 0 | 0 | 7 | .. | .. | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 41 | 3 | 29 | 155 | |
| Non-metallic minerals (glass, pottery & building mat. industry) | 7 | 9 | 2 | 7 | .. | 5 | 27 | 3 | 19 | 37 | 216 | 4 | 5 | 23 | 60 | 6 | 4 | 1 | 0 | 4 | 52 | 34 | 8 | 2 | 6 | 125 | 30 | 204 | 901 | |
| Transport equipment | 1 | 0 | 0 | 1 | .. | 1 | 8 | 1 | 17 | 22 | 83 | 17 | 1 | 4 | 0 | 1 | .. | 0 | 0 | 3 | 22 | 0 | 0 | 0 | 3 | 113 | 30 | 92 | 420 | |
| Machinery | 13 | 17 | 5 | 3 | .. | 1 | 47 | 4 | 22 | 79 | 470 | 0 | 1 | 24 | 124 | .. | 1 | 0 | 0 | 5 | 28 | 6 | 16 | 1 | 17 | 67 | 83 | 112 | 1,146 | |
| Mining and quarrying | 8 | 0 | 6 | 3 | .. | 3 | 52 | 4 | 10 | 80 | 46 | 41 | 9 | 25 | 23 | 1 | 4 | 0 | 0 | 21 | 56 | 44 | 15 | 3 | 4 | 125 | 17 | 0 | 603 | |
| Food and tobacco | 30 | 14 | 13 | 13 | .. | 5 | 57 | 6 | 27 | 67 | 394 | 24 | 1 | 78 | 57 | 7 | 6 | 1 | 0 | 11 | 129 | 34 | 37 | 1 | 14 | 410 | 45 | 265 | 1,747 | |
| Paper, pulp and print | 3 | 2 | 1 | 3 | .. | 0 | 4 | 2 | 6 | 13 | 89 | 3 | 0 | 4 | 28 | .. | .. | 0 | 0 | 0 | 8 | 4 | 0 | 0 | 1 | 68 | 21 | 55 | 315 | |
| Wood and wood products | 8 | 0 | 5 | 1 | .. | 1 | 5 | 1 | 16 | 21 | 37 | 0 | 0 | 2 | 0 | 4 | 2 | 0 | 0 | 1 | 9 | 10 | 2 | 0 | 2 | 40 | 11 | 0 | 179 | |
| Construction | 378 | 36 | 31 | 127 | .. | 83 | 151 | 22 | 307 | 1,204 | .. | 144 | 16 | 0 | 63 | 12 | 15 | 5 | 0 | 399 | 90 | 217 | 199 | 10 | 49 | 167 | 0 | 163 | 3,887 | |
| Textile and leather | 4 | 3 | 11 | 5 | .. | 1 | 3 | 2 | 8 | 13 | 61 | 5 | 0 | 11 | 50 | .. | 3 | 1 | 0 | 0 | 13 | 5 | 5 | 0 | 4 | 170 | 4 | 95 | 480 | |
| Non-specified (industry) | 6 | 164 | 2 | 1 | 48 | 8 | 19 | 3 | 36 | 40 | 198 | 199 | 0 | 5 | 46 | 1 | 2 | 2 | 0 | 1 | 32 | 0 | 78 | 2 | 6 | 178 | 120 | 1,803 | 3,000 | |
| Transport (B) | 5,721 | 6,522 | 1,416 | 1,039 | 355 | 3,322 | 2,372 | 408 | 2,167 | 30,814 | 26,364 | 2,483 | 2,323 | 2,370 | 23,793 | 613 | 779 | 1,824 | 38 | 6,675 | 5,657 | 4,286 | 2,298 | 1,011 | 754 | 25,977 | 3,154 | 21,497 | 186,031 | |
| Rail | 52 | 42 | 30 | 32 | .. | 92 | 75 | 43 | 42 | 217 | 437 | 41 | 59 | 40 | 99 | 83 | 75 | 3 | 0 | 34 | 162 | 26 | 74 | 0 | 12 | 715 | 4 | 639 | 3,128 | |
| Road | 5,667 | 6,330 | 1,386 | 974 | 355 | 3,225 | 2,108 | 357 | 2,058 | 30,467 | 25,605 | 2,106 | 2,262 | 2,328 | 22,921 | 530 | 699 | 1,820 | 38 | 6,372 | 5,489 | 4,242 | 2,183 | 1,011 | 742 | 23,788 | 3,078 | 19,915 | 178,056 | |
| International aviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domestic aviation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | |
| Domestic navigation | 2 | 151 | 0 | 33 | .. | 5 | 159 | 8 | 68 | 130 | 323 | 336 | 1 | 1 | 773 | .. | 5 | .. | 0 | 269 | 5 | 18 | 41 | 0 | .. | 1,473 | 72 | 943 | 4,815 | |
| Pipeline transport | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | |
| Non-specified (transport) | 0 | 0 | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 | |
| Other sectors (C) | 2,121 | 5,171 | 250 | 592 | 113 | 341 | 1,147 | 116 | 1,515 | 14,862 | 24,839 | 4,264 | 222 | 1,093 | 6,444 | 133 | 44 | 302 | 0 | 709 | 3,390 | 983 | 339 | 82 | 638 | 6,453 | 1,278 | 1,541 | 78,981 | |
| Services | 569 | 1,163 | 22 | 133 | .. | 10 | 95 | 39 | 279 | 3,450 | 8,235 | 374 | 6 | 567 | 387 | 30 | 5 | 58 | 0 | 78 | 316 | 510 | 50 | 5 | 214 | 1,713 | 563 | 777 | 19,646 | |
| Residential | 1,309 | 3,490 | 1 | 258 | 85 | 0 | 570 | 6 | 685 | 7,825 | 16,444 | 3,064 | 2 | 246 | 3,539 | 3 | 1 | 227 | 0 | 12 | 461 | 2 | 4 | 0 | 354 | 2,562 | 408 | 145 | 41,703 | |
| Agriculture / forestry | 242 | 518 | 228 | 170 | 28 | 326 | 307 | 71 | 369 | 2,865 | .. | 826 | 214 | 280 | 2,270 | 78 | 37 | 17 | 0 | 348 | 2,613 | 415 | 113 | 77 | 71 | 2,178 | 240 | 197 | 15,096 | |
| Fishing | 0 | 0 | 0 | 31 | .. | 0 | 175 | 0 | 38 | 403 | .. | 0 | 0 | 0 | 248 | 21 | 1 | 0 | 0 | 245 | 0 | 56 | 0 | 0 | .. | 0 | 48 | 0 | 1,266 | |
| Non-specified (other) | 0 | 0 | 0 | .. | .. | 5 | 0 | 0 | 144 | 319 | 160 | 0 | 0 | 0 | 0 | .. | .. | 0 | 0 | 27 | 0 | 0 | 172 | 0 | .. | 0 | 20 | 423 | 1,269 | |
| Final energy consumption (D=A+B+C) | 8,304 | 11,981 | 1,748 | 1,796 | 517 | 3,773 | 3,906 | 572 | 4,163 | 47,266 | 52,951 | 7,196 | 2,580 | 3,655 | 30,743 | 779 | 860 | 2,142 | 38 | 7,835 | 9,583 | 5,652 | 3,006 | 1,113 | 1,506 | 34,172 | 4,842 | 25,971 | 278,648 | |
| Bunkers (E) | 26 | 527 | 113 | 9 | 69 | 0 | 277 | 46 | 50 | 186 | 445 | 394 | 0 | 83 | 123 | 91 | 18 | .. | 154 | 1,573 | 119 | 141 | 0 | 0 | .. | 1,004 | 154 | 910 | 6,510 | |
| Consumption of the energy branch (F) | 0 | 1 | 0 | 5 | .. | 12 | 0 | 22 | 2 | 16 | 65 | 23 | 1 | 6 | 270 | 5 | 5 | .. | 0 | 1 | 39 | 0 | 69 | 2 | .. | 0 | 26 | 698 | 1,266 | |
| Total Consumption (G=D+E+F) | 24,936 | 36,471 | 5,357 | 5,404 | 1,619 | 11,330 | 11,996 | 1,783 | 12,540 | 142,000 | 159,363 | 22,004 | 7,741 | 11,053 | 92,623 | 2,435 | 2,604 | 6,426 | 267 | 25,078 | 28,905 | 17,096 | 9,088 | 3,340 | 4,518 | 103,520 | 14,704 | 79,520 | 843,719 | |

Source: Eurostat, Energy database.

Exhibit 5.6 - Total Energy Consumption – Kerosene – 2005 (1 000 tonnes of oil equivalent)

| Sector | AT | BE | BG | HR | CY | CZ | DK | EE | FI | FR | DE | GR | HU | IE | IT | LV | LT | LU | MT | NL | PL | PT | RO | SK | SI | ES | SE | UK | EU28 | |
|---|----------|-----------|----------|----------|-----------|----------|----------|----------|----------|------------|----------|-----------|----------|------------|-----------|----------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|--------------|--------------|---|
| Industry (A) | 0 | 5 | .. | .. | 3 | .. | .. | .. | 0 | 0 | .. | 4 | .. | 126 | 4 | .. | .. | .. | .. | 0 | 1 | .. | 1 | .. | .. | .. | .. | 1,575 | 1,719 | |
| Iron & steel industry | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Chemical and petrochemical industry | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 96 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 97 | |
| Non-ferrous metal industry | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | 1 | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 1 | |
| Non-metallic minerals (glass, pottery & building mat. industry) | 0 | 1 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 1 | |
| Transport equipment | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Machinery | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 10 | 3 | .. | .. | .. | .. | 0 | 1 | .. | .. | .. | .. | .. | .. | 0 | 14 | |
| Mining and quarrying | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Food and tobacco | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 5 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 5 | |
| Paper, pulp and print | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Wood and wood products | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Construction | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Textile and leather | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 5 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 5 | |
| Non-specified (industry) | 0 | 3 | .. | .. | 3 | .. | .. | .. | 0 | 0 | .. | 4 | .. | 10 | .. | .. | .. | .. | .. | 0 | 0 | .. | 1 | .. | .. | .. | .. | 1,575 | 1,596 | |
| Transport (B) | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | 2 | .. | .. | .. | .. | 0 | 2 | |
| Rail | 0 | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 |
| Road | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | .. | .. | .. | .. | 0 | 0 | .. | 0 | .. | .. | .. | 0 | 0 | |
| International aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | |
| Domestic aviation | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | |
| Domestic navigation | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | |
| Pipeline transport | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | |
| Non-specified (transport) | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | |
| Other sectors (C) | 4 | 86 | .. | 1 | 14 | 4 | 5 | .. | 0 | 154 | 4 | 12 | .. | 793 | 20 | .. | .. | 1 | 3 | 8 | 0 | 3 | 50 | .. | 1 | .. | 3 | 2,483 | 3,650 | |
| Services | 4 | 18 | .. | .. | .. | .. | 2 | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | 3 | .. | .. | .. | .. | .. | 13 | 39 | |
| Residential | 0 | 61 | .. | 1 | 14 | : | 3 | .. | 0 | 154 | 4 | 12 | .. | 793 | 20 | .. | .. | 1 | 3 | 8 | 0 | .. | 6 | .. | .. | .. | 3 | 2,458 | 3,541 | |
| Agriculture / forestry | 0 | 8 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 13 | 21 | |
| Fishing | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | 0 | 0 | |
| Non-specified (other) | 0 | 0 | .. | .. | .. | 4 | .. | .. | 0 | 0 | .. | .. | .. | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | 44 | .. | 1 | .. | .. | 0 | 49 | |
| Final energy consumption (D=A+B+C) | 4 | 91 | .. | 1 | 17 | 4 | 5 | .. | 0 | 154 | 4 | 16 | .. | 918 | 24 | .. | .. | 1 | 3 | 8 | 1 | 3 | 53 | .. | 1 | .. | 3 | 4,058 | 5,372 | |
| Bunkers (E) | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | |
| Consumption of the energy branch (F) | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | 0 | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | 0 | 0 | .. | .. | .. | .. | .. | .. | .. | .. | |
| Total Consumption (G=D+E+F) | 4 | 91 | 0 | 1 | 17 | 4 | 5 | 0 | 0 | 154 | 4 | 16 | .. | 918 | 24 | 0 | 0 | 1 | 3 | 8 | 1 | 3 | 53 | 0 | 1 | 0 | 3 | 4,058 | 5,372 | |

Source: Eurostat, Energy database.

Exhibit 5.7 – Tax differentials – Gas Oil (EUR/1000 litres)

| MS | Propellant | | | | Heating (difference with propellant) | | | | Agriculture (difference with propellant) | |
|----|------------|------|------|------|--------------------------------------|------|------|------|--|------|
| | 2002 | 2005 | 2010 | 2016 | 2002 | 2005 | 2010 | 2016 | 2010 | 2016 |
| AT | 282 | 317 | 375 | 397 | -213 | -219 | -277 | -299 | -126 | 0 |
| BE | 290 | 358 | 368 | 480 | -285 | -339 | -349 | -461 | -368 | -480 |
| BG | .. | 202 | 307 | 330 | .. | 0 | -281 | 0 | .. | .. |
| HR | .. | .. | .. | 401 | .. | .. | .. | -345 | .. | .. |
| CY | .. | 248 | 330 | 450 | .. | -52 | -205 | -325 | -205 | -450 |
| CZ | .. | 315 | 431 | 403 | .. | -299 | 0 | 0 | 0 | 0 |
| DK | 440 | 405 | 386 | 416 | -158 | -90 | -57 | -91 | -331 | -348 |
| EE | .. | 245 | 393 | 393 | .. | -201 | -282 | 0 | -282 | -272 |
| FI | 329 | 346 | 391 | 506 | -265 | -275 | -320 | -292 | -304 | -292 |
| FR | 374 | 417 | 428 | 498 | -333 | -360 | -372 | -402 | -372 | -370 |
| DE | 455 | 486 | 486 | 486 | -394 | -424 | -409 | -161 | -230 | -230 |
| GR | 245 | 245 | 412 | 330 | -227 | 0 | 0 | -100 | 0 | -200 |
| HU | .. | 345 | 360 | 353 | .. | 0 | 0 | 0 | -288 | -289 |
| IE | 354 | 368 | 449 | 479 | -307 | -321 | -402 | -377 | -402 | -377 |
| IT | 382 | 413 | 423 | 617 | -22 | 0 | -20 | -214 | -330 | -482 |
| LV | .. | 246 | 330 | 341 | .. | -225 | -309 | -284 | -330 | -291 |
| LT | .. | 245 | 274 | 330 | .. | -224 | -253 | -309 | -274 | -309 |
| LU | 253 | 265 | 313 | 338 | -248 | -265 | -313 | -338 | -313 | -338 |
| MT | .. | 245 | 352 | 472 | .. | 0 | -256 | -240 | 0 | 0 |
| NL | 340 | 365 | 432 | 484 | -293 | -318 | -179 | 0 | -179 | 0 |
| PL | .. | 261 | 302 | 344 | .. | -207 | -247 | -289 | .. | .. |
| PT | 272 | 308 | 364 | 402 | -239 | -219 | -188 | -59 | -287 | -312 |
| RO | .. | 207 | 293 | 430 | .. | 0 | 0 | 0 | -272 | -407 |

| | | | | | | | | | | |
|-------------|------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SK | .. | 362 | 368 | 386 | .. | 0 | -142 | 0 | -142 | 0 |
| SI | .. | 341 | 432 | 462 | .. | -246 | -338 | -260 | -302 | -292 |
| ES | 294 | 294 | 331 | 331 | -214 | -209 | -246 | -246 | -252 | -246 |
| SE | 321 | 404 | 425 | 593 | -63 | -33 | -52 | -161 | -234 | -181 |
| UK | 893 | 682 | 617 | 674 | -843 | -606 | -498 | -545 | -496 | -545 |
| EU | .. | 410 | 427 | 488 | .. | -309 | -321 | -271 | -317 | -340 |
| EU15 | 428 | 425 | 440 | 507 | -327 | -324 | -334 | -287 | -339 | -364 |
| EU13 | .. | 277 | 336 | 373 | .. | -193 | -258 | -237 | -162 | -209 |

Source: Economisti Associati, *Evaluation study*, own calculations based on the *Excise Duty Tables*, European Commission.

Exhibit 5.8 – Tax differentials - Gas Oil (%)

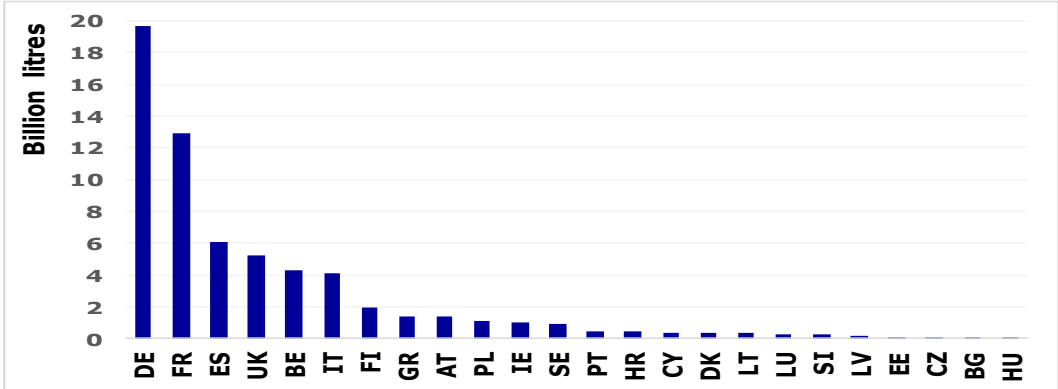
| MS | Heating (difference with propellant) | | | | Agriculture (difference with propellant) | |
|----|--------------------------------------|---------|---------|---------|--|---------|
| | 2002 | 2005 | 2010 | 2016 | 2010 | 2016 |
| AT | -75.5% | -69.1% | -73.9% | -75.3% | -33.6% | .. |
| BE | -98.3% | -94.8% | -95.0% | -96.1% | -100.0% | -100.0% |
| BG | .. | 0.0% | -91.7% | 0.0% | .. | .. |
| HR | .. | .. | .. | -86.2% | .. | -100.0% |
| CY | .. | -21.0% | -62.2% | -72.3% | -62.2% | .. |
| CZ | .. | -95.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| DK | -36.0% | -22.3% | -14.6% | -21.8% | -85.7% | -83.6% |
| EE | .. | -82.0% | -71.8% | 0.0% | -71.8% | -69.2% |
| FI | -80.6% | -79.6% | -81.9% | -57.7% | -77.7% | -57.7% |
| FR | -89.1% | -86.4% | -86.8% | -80.7% | .. | -74.2% |
| DE | -86.5% | -87.4% | -84.3% | -33.0% | -47.4% | .. |
| GR | -92.7% | 0.0% | 0.0% | -30.3% | 0.0% | -60.6% |
| HU | .. | 0.0% | 0.0% | 0.0% | -80.0% | -82.0% |
| IE | -86.6% | -87.1% | -89.5% | -78.6% | -89.5% | -78.6% |
| IT | -5.6% | 0.0% | -4.7% | -34.7% | -78.0% | -78.0% |
| LV | .. | -91.5% | -93.6% | -83.3% | -100.0% | -85.3% |
| LT | .. | -91.4% | -92.3% | -93.6% | -100.0% | -93.6% |
| LU | -98.0% | -100.0% | -100.0% | -100.0% | -100.0% | .. |
| MT | .. | 0.0% | -72.5% | -50.9% | .. | .. |
| NL | -86.3% | -87.2% | -41.4% | 0.0% | -41.4% | .. |
| PL | .. | -79.5% | -81.9% | -84.1% | .. | .. |
| PT | -87.7% | -70.9% | -51.7% | -14.8% | -78.7% | -77.6% |
| RO | .. | 0.0% | 0.0% | 0.0% | 0.0% | .. |
| SK | .. | 0.0% | -38.7% | 0.0% | -38.7% | .. |
| SI | .. | -72.2% | -78.1% | -56.2% | -70.0% | -63.2% |
| ES | -72.9% | -71.2% | -74.4% | -74.4% | -76.2% | -74.4% |
| SE | -19.7% | -8.3% | -12.3% | -27.1% | -54.9% | -30.6% |
| UK | -94.3% | -88.9% | -80.8% | -80.8% | -80.4% | -80.8% |

Source: own calculations based on the Excise Duty Tables, European Commission.

ANNEX 6: STATISTICAL INFORMATION FOR VOLUMES OF MARKED GAS OIL

Exhibit B.2 Quantities of Marked Gas Oil – 2016

No information is available for Malta, and The Netherlands. Slovakia is not considered due to discontinuation of the Euromarker. The figure for Italy underestimates the total volume as there is no information on marked gas oil used in navigation and fishing. The figure for

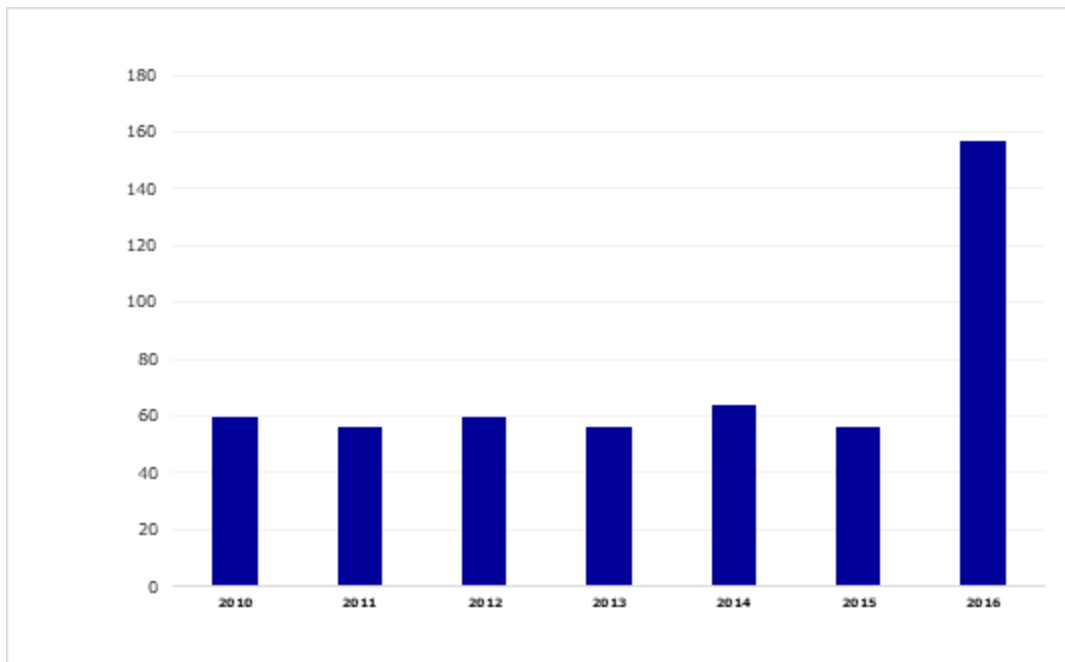


Sweden also includes kerosene, which, however, accounts for only a marginal share.

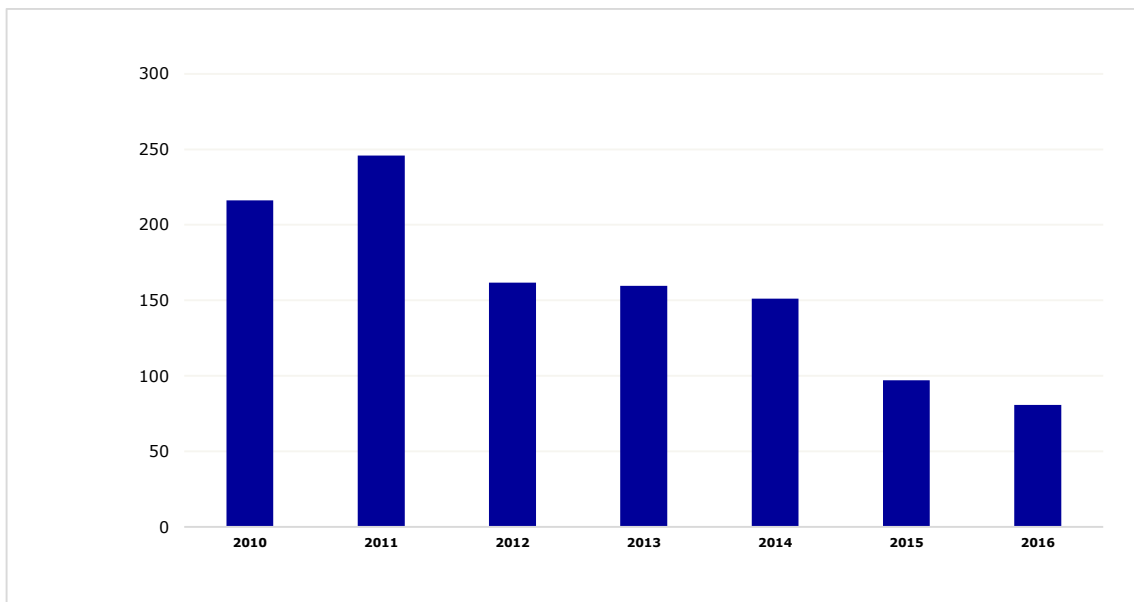
Source: Economisti associati

Evolution of marked gas oil in Lithuania, Estonia, Bulgaria for the period 2010 to 2016.

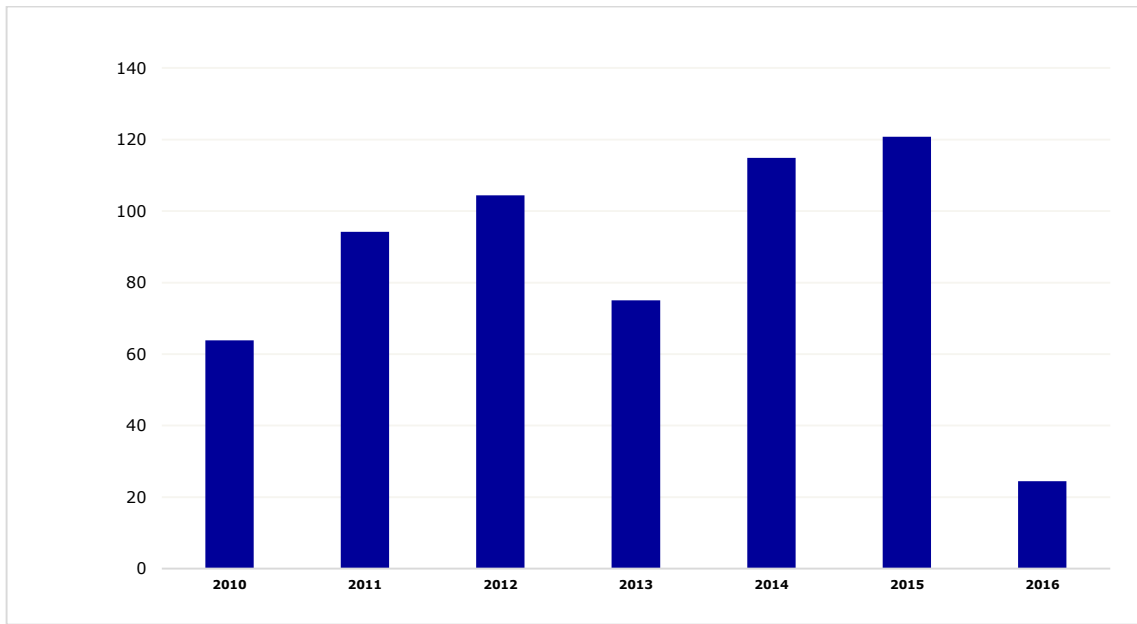
Latvia



Estonia

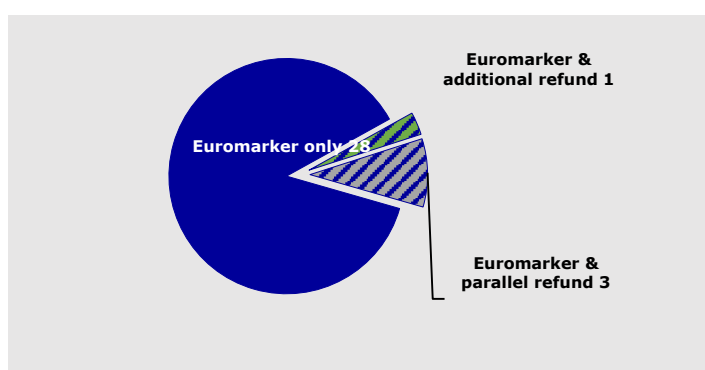
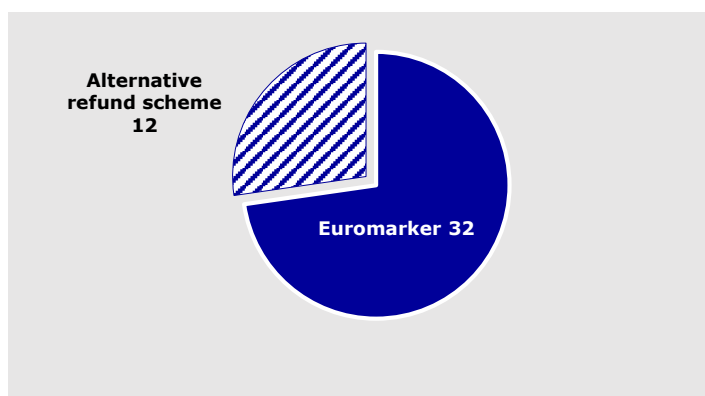


Bulgaria



ANNEX 7: STATISTICAL INFORMATION FOR VOLUMES OF MARKED KEROSENE

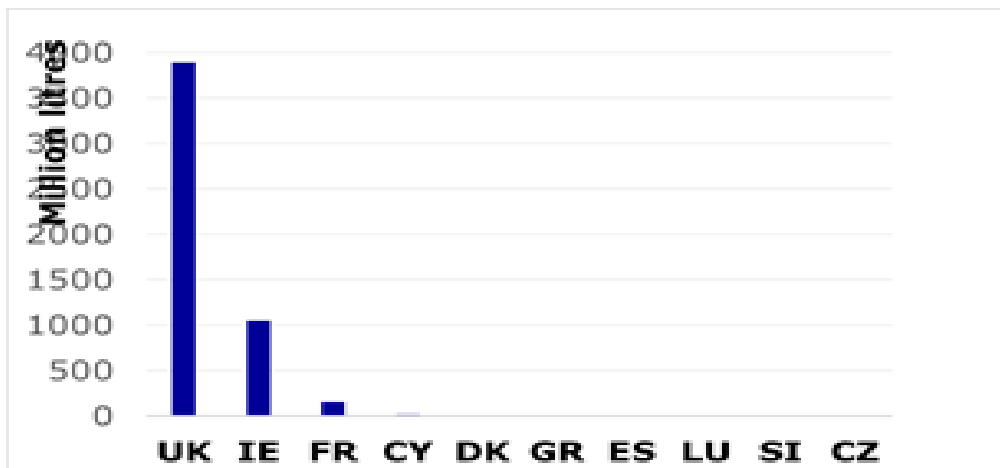
Use of Euromarker compared to refund systems in the EU (number of schemes⁷⁶)



In 2016 the Euromarker was used to mark kerosene in 16 Member States. The Euromarker was used in three quarters of the situations in which some form of tax relief was envisaged, i.e. in 32 cases out of a total of 44 schemes, while alternative refund schemes were active in the remaining situations. The Euromarker coexisted with parallel or additional refund schemes only in a handful of cases.

⁷⁶ There can be more than one scheme operated in a Member State

Exhibit B.7 Quantities of Marked Kerosene – 2016



No information is available for Germany, Malta, Latvia, Lithuania, The Netherlands, Belgium and Sweden.

ANNEX 8: NATIONAL DYES USED

The Dyeing of Gas Oil and Kerosene

Out of the 24 Member States making use of national dyes, half of them utilise one single dye, which is applied to gas oil and (more rarely) kerosene for all rebated/exempted uses, and the rest make use of two dyes. **Red dyes are the most common**, being applied in 55% of the cases in which a national dye is utilized, compared with 29% for blue dyes and 13% for green dyes. Black and yellow dyes are rarely used, being applied, respectively, only in Greece (gas oil for maritime uses) and the UK (kerosene).

The dominant role of red dyes is confirmed by the fact that they are utilized by three quarters of Member States for the colouring of gas oil for heating, which is by far the most important fuel use subject to fiscal marking. In practice, **it can be estimated that between 80% and 85% of all gas oil that was marked in 2016 carried a red colour**⁷⁷.

Fuel dyeing may involve the utilisation of different substances, which makes fuels carrying the same colour not fully identical. For instance, various colouring agents, such as Solvent Red 19, Solvent Red 24, Solvent Red 161 or Solvent Red 164, may be used to obtain 'red' gas oil. However, many Member States utilise the same substance or allow for the use of several colouring agents, which **de facto renders the various national systems broadly compatible**. The situation regarding the colouring agents allowed in the case of 'red' gas oil for heating uses is summarized below⁷⁸.

| Member State | Colouring Agents Allowed |
|-----------------------|---|
| Austria | Any red agent allowed |
| Belgium | Any red agent allowed |
| Croatia | Solvent red 19 or any other red agent |
| Czech Republic | Solvent red 19 or two other red agents |
| Finland | Solvent red 19 or two other red agents |
| France | Solvent Red 24, Solvent Red 19 or any other agent with identical features |
| Germany | Solvent Red 19 or two other agents |
| Greece | Solvent Red 19 |
| Italy | Solvent Red 161 |
| Latvia | Solvent Red 19 or two other agents (same as in Germany) |
| Lithuania | Solvent Red 19 or two other agents (same as in Germany) |
| Luxembourg | Any red agent allowed |
| Poland | Solvent Red 19 or Solvent Red 164 |
| Portugal | Solvent Red 19 |
| United Kingdom | Solvent Red 24 |

⁷⁷ Estimate based on the breakdown of marked fuel by energy uses in the various countries, as presented in the country profiles in Volume 2. In a few cases, precise figures are not available and this explains the range in the estimate.

⁷⁸ Information on the colouring agents allowed in the various countries was primarily retrieved from the 'Vademecum of fiscal marking' and the notifications made by some Member States under Directive (EU) 2015/1535, supplemented by some other sources (Croatia's Customs Code and Czarnocka J and others, Dyeing and marking system in European Union and Poland, Chemik, 2011).