epa Research

Evidence Synthesis Report 9

Exploration of Best Practice of Market Surveillance and Type Approval of Internal Combustion Engines Emissions for Non-Road Mobile Machinery (EXAMINE_NRMM)

Authors: Rita Hagan, Eoin McGillicuddy and Aoife Donnelly

www.epa.ie

Rialtas na hÉireann
Government of Ireland

Environmental Protection Agency

The EPA is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: Implementing regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.

Knowledge: Providing high quality, targeted and timely environmental data, information and assessment to inform decision making.

Advocacy: Working with others to advocate for a clean, productive and well protected environment and for sustainable environmental practices.

Our Responsibilities Include:

Licensing

- Large-scale industrial, waste and petrol storage activities;
- Urban waste water discharges;
- The contained use and controlled release of Genetically Modified Organisms;
- Sources of ionising radiation;
- Greenhouse gas emissions from industry and aviation through the EU Emissions Trading Scheme.

National Environmental Enforcement

- Audit and inspection of EPA licensed facilities;
- Drive the implementation of best practice in regulated activities and facilities;
- Oversee local authority responsibilities for environmental protection;
- Regulate the quality of public drinking water and enforce urban waste water discharge authorisations;
- Assess and report on public and private drinking water quality;
- Coordinate a network of public service organisations to support action against environmental crime;
- Prosecute those who flout environmental law and damage the environment.

Waste Management and Chemicals in the Environment

- Implement and enforce waste regulations including national enforcement issues;
- Prepare and publish national waste statistics and the National Hazardous Waste Management Plan;
- Develop and implement the National Waste Prevention Programme;
- Implement and report on legislation on the control of chemicals in the environment.

Water Management

- Engage with national and regional governance and operational structures to implement the Water Framework Directive;
- Monitor, assess and report on the quality of rivers, lakes, transitional and coastal waters, bathing waters and groundwaters, and measurement of water levels and river flows.

Climate Science & Climate Change

- Publish Ireland's greenhouse gas emission inventories and projections;
- Provide the Secretariat to the Climate Change Advisory Council and support to the National Dialogue on Climate Action;
- Support National, EU and UN Climate Science and Policy development activities.

Environmental Monitoring & Assessment

- Design and implement national environmental monitoring systems: technology, data management, analysis and forecasting;
- Produce the State of Ireland's Environment and Indicator Reports;
- Monitor air quality and implement the EU Clean Air for Europe Directive, the Convention on Long Range Transboundary Air Pollution, and the National Emissions Ceiling Directive;
- Oversee the implementation of the Environmental Noise Directive;
- Assess the impact of proposed plans and programmes on the Irish environment.

Environmental Research and Development

- Coordinate and fund national environmental research activity to identify pressures, inform policy and provide solutions;
- Collaborate with national and EU environmental research activity.

Radiological Protection

- Monitoring radiation levels and assess public exposure to ionising radiation and electromagnetic fields;
- Assist in developing national plans for emergencies arising from nuclear accidents;
- Monitor developments abroad relating to nuclear installations and radiological safety;
- Provide, or oversee the provision of, specialist radiation protection services.

Guidance, Awareness Raising, and Accessible Information

- Provide independent evidence-based reporting, advice and guidance to Government, industry and the public on environmental and radiological protection topics;
- Promote the link between health and wellbeing, the economy and a clean environment;
- Promote environmental awareness including supporting behaviours for resource efficiency and climate transition;
- Promote radon testing in homes and workplaces and encourage remediation where necessary.

Partnership and Networking

- Work with international and national agencies, regional and local authorities, non-governmental organisations, representative bodies and government departments to deliver environmental and radiological protection, research coordination and science-based decision making.

Management and Structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

1. Office of Environmental Sustainability
2. Office of Environmental Enforcement
3. Office of Evidence and Assessment
4. Office of Radiation Protection and Environmental Monitoring
5. Office of Communications and Corporate Services

The EPA is assisted by advisory committees who meet regularly to discuss issues of concern and provide advice to the Board.

EPA RESEARCH PROGRAMME 2021–2030

Exploration of Best Practice of Market Surveillance and Type Approval of Internal Combustion Engines Emissions for Non-Road Mobile Machinery (EXAMINE_NRMM)

(FTP-2024-05)

EPA Research Evidence Synthesis Report

Independent scientific research funded by the Environmental Protection Agency

Prepared by

Technological University Dublin

Authors:

Rita Hagan, Eoin McGillicuddy and Aoife Donnelly

ENVIRONMENTAL PROTECTION AGENCY
An Ghníomhaireacht um Chaomhnú Comhshaoil
PO Box 3000, Johnstown Castle, Co. Wexford, Ireland

Telephone: +353 53 916 0600 Fax: +353 53 916 0699
Email: info@epa.ie Website: www.epa.ie

ACKNOWLEDGEMENTS

This report is published as part of the EPA Research Programme 2021–2030. The EPA Research Programme is a Government of Ireland initiative funded by the Department of Climate, Energy and the Environment. It is administered by the Environmental Protection Agency, which has the statutory function of co-ordinating and promoting environmental research. This research study was funded under the EPA Research Fast-Track to Policy funding scheme, which is designed to support short-term, evidence-based research studies where an urgent policy need is demonstrated. This research project was proposed for Fast-Track to Policy funding by the EPA Environmental Monitoring and Surveillance Programme.

The authors would like to acknowledge the members of the project steering committee, namely Luke Tully (Department of Climate, Energy and the Environment) and Brendan Wall, Nithiya Streethran and Yvonne English (EPA). The authors would also like to acknowledge the support of the Research Project Manager on behalf of the EPA, namely Niamh McCormack.

DISCLAIMER

This report is based on research carried out/data from February to June 2025. More recent data may have become available since the research was completed.

The EPA Research Programme addresses the need for research in Ireland to inform policymakers and other stakeholders on a range of questions in relation to environmental protection. These reports are intended as contributions to the necessary debate on the protection of the environment.

EPA RESEARCH PROGRAMME 2021–2030
Published by the Environmental Protection Agency, Ireland

ISBN: 978-1-80009-385-0 April 2026

Price: Free Online version

Project Partners

Rita Hagan
School of Food Science and Environmental Health
Technological University Dublin
Grangegorman Lower
Dublin 7
D07 H6K8
Tel.: +353 1 206 307
Email: rita.hagan@tudublin.ie

Dr Eoin McGillicuddy
School of Chemical and BioPharmaceutical Sciences
Technological University Dublin
Grangegorman Lower
Dublin 7
D07 H6K8
Tel.: +353 1 220 5569
Email: eoin.mcgillicuddy@tudublin.ie

Dr Aoife Donnelly
School of Food Science and Environmental Health
Technological University Dublin
Grangegorman Lower
Dublin 7
D07 H6K8
Tel.: +353 1 220 5657
Email: aoife.donnelly@tudublin.ie

Contents

List of Figures and Tables

Figures

Tables

Executive Summary

Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016 established the requirements for market surveillance of engines in non-road mobile machinery (NRMM). NRMM covers a broad range of machinery with or without bodywork and wheels, that include an installed combustion engine and that are not intended for carrying passengers or goods on the road. The regulation was transposed into Irish law as S.I. 735 of 2021, designating the Environmental Protection Agency as the market surveillance authority for NRMM in Ireland. The term “market surveillance” indicates activities carried out and measures put in place by national authorities to ensure that engines that are made available on the market comply with the relevant legislation. The process of NRMM market surveillance in Ireland is currently in development and will be advised by the recommendations and findings in this evidence synthesis report. Recent reports estimate that the NRMM sector accounts for about 2% of greenhouse gas emissions in the European Union (EU). The reports further state that 75% of these emissions are caused by two sectors, construction and agriculture, and the remaining 25% is caused by various machinery in other sectors. This indicates that reducing emissions from NRMM used in construction and agriculture could provide measurable environmental benefits.

This evidence synthesis review examines how market surveillance is performed in a selection of EU countries as well as in the United Kingdom (UK) (including Northern Ireland). Countries within the EU that have similar populations and environmental conditions to Ireland were prioritised for inclusion. EU countries with larger populations were reviewed next, and from those the Netherlands and Germany were chosen, as they also have similar climatic and environmental conditions to Ireland. To balance this, some countries with smaller populations were examined, and from those Estonia and Malta were chosen. Countries in the south-west of the EU were excluded due to significant differences in climatic and environmental conditions. In total, 10 EU countries and the UK (including Northern Ireland) were chosen to be examined in more detail.

Most of the findings on how market surveillance is conducted in the selected countries were obtained during a long period of email correspondence with individuals and organisations identified in citing publications, from Informative Inventory Reports, from other contacts, and through web searches.

The research has uncovered that there is no clear strategy of streamlined market surveillance in place across Europe. The processes are highly variable and there are significant differences in how the countries manage their market surveillance. Some countries, such as Denmark and Ireland, are currently only in the process of developing a strategy. In other countries where a strategy is already in place, it can be reactive, proactive or a combination of reactive and proactive, with some countries implementing vastly differing approaches.

As the research uncovered that there is no uniform way of conducting market surveillance of NRMM among the EU countries and the UK (including Northern Ireland), it leaves numerous options open for devising a strategy for market surveillance in Ireland. However, it is recommended that the process starts with bringing together representatives from the Department of Enterprise, Trade and Employment and the Environmental Protection Agency for initial strategy discussions, as these are the designated authorities. The National Standards Authority of Ireland, as the appointed approval authority under S.I. 735 of 2021, should also be included in early-stage discussions. As the appointed approval authority, it has confirmed that a product placed on the market needs to comply with the approved type requirements. As discussions progress, further organisations, such as the Road Safety Authority and Irish Tax and Customs, should be invited to provide input. Taking an example from the Automotive Market Surveillance Authority, the use of a combination of risk-based, random and complaint-driven approaches to select vehicles or engines for testing would be a good starting point.

It is further recommended that additional resources be assigned for cross-departmental collaboration in relation to NRMM. A further undertaking of this collaboration would be to devise an educational plan to increase knowledge of NRMM, both among the general public and among owners, users and procurers of this machinery, as there is clearly a lack of understanding about this vast sector.

1 Introduction

1.1 Project Aim

The main aim of this evidence synthesis report is to investigate how market surveillance of non-road mobile machinery (NRMM) is conducted in a selection of countries in the European Union (EU) as well as in the United Kingdom (UK) (including Northern Ireland), to establish if there are separate processes of implementation within each country or if there is a uniform system within the EU. The objective is to prepare for creating a process for market surveillance of NRMM in Ireland in accordance with Regulation (EU) 2016/1628 of the European Parliament and of the Council of 14 September 2016.

1.1.1 Background

The term non-road mobile machinery covers a broad range of machinery with or without bodywork and wheels, that include an installed combustion engine and that are not intended for carrying passengers or goods on the road. Compared with road vehicles, NRMM covers a wide range of machinery, such as mobile machinery used in construction, agriculture and gardening. According to the European Commission (no date), this machinery is generally used off the road in many different sectors, including:

- the small gardening and handheld equipment sector (lawnmowers, chainsaws, etc.);
- the construction machinery sector (excavators, loaders, bulldozers, etc.);
- the agricultural and farming machinery sector (harvesters, cultivators, etc.);
- railcars, locomotives and inland waterway vessels.

Regulation (EU) 2016/1628 introduced requirements relating to gaseous and particulate pollutant emission limits and type approval for internal combustion engines for NRMM. On 19 December 2021, the European Union (Internal Combustion Engines for Non-Road Mobile Machinery) (Gaseous and Particulate Pollutant Emission Limits and Type-Approval) Regulations 2021 were signed into law in Ireland (S.I. 735 of 2021). These regulations transposed into Irish law the requirements of Regulation (EU) 2016/1628. Under S.I. 735 of 2021, the Environmental Protection Agency (EPA) was designated as the market surveillance authority for NRMM in Ireland, and the National Standards Authority of Ireland was designated the type approval authority.

The requirements for the market surveillance of engines that are installed in or intended to be installed in NRMM and that are subject to EU type approval are established in Regulation (EU) 2016/1628. The term “market surveillance” indicates activities carried out and measures put in place by national authorities to ensure that engines that are made available on the market comply with the legislation. EU Member States are obliged to establish or appoint market surveillance authorities that are responsible for carrying out market surveillance and the control of engines on the market within their territory. In doing so, they shall perform documentary checks and, where appropriate, physical or laboratory checks on engines. The obligations of engine manufacturers’ representatives for market surveillance are to ensure that the required EU type approval certificate can be provided to the approval authorities, as well as to provide all information and documentation necessary to demonstrate conformity to the approval authority, if requested. Established principles of risk assessment and complaints need to be considered too. It would be pertinent for economic operators to prepare by making such documentation and information readily available as is deemed necessary for the market surveillance authorities to carry out their activities.

As this regulation covers all the EU countries, it will help avoid internal market distortions and fragmentation, create fair competition on global markets and avoid unfair competition from non-compliant low-cost products. It will also ensure that the internal market for NRMM engines functions well. Further effects of the regulation will be protecting the health of EU citizens, protecting the environment and improving air quality in the EU (European Commission, no date, a).

1.1.2 Market surveillance in the EU

When a product is released in any country within the EU market, it can be moved within the EU without restrictions because of the free movement of goods legislation (Title II – Free Movement of Goods – Articles 28 to 37 of the Treaty on the Functioning of the European Union). For this process to function in a safe way, it is necessary to have in place an effective market surveillance process to protect all customers within the EU. Although each individual state is responsible for its own market surveillance, there is a need for surveillance to be consistent throughout the EU. For market surveillance to be carried out in an efficient manner, it needs to be ensured that the economic operators are resourced to perform their duties properly (Environmental Protection Agency, 2025).

Article 4 of Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products and amending Directive 2004/42/EC and Regulations (EC) No 765/2008 and (EU) No 305/2011 states that for certain products to be placed on the market in the EU there must be an economic operator based in the EU in place that is responsible for making sure that the product is compliant with EU standards.

A product that is covered by the harmonised legislation in the EU can move freely within the Single Market. However, individual countries are responsible for their own market surveillance at the national level. To facilitate European cooperation on market surveillance, Administrative Cooperation Groups have been established. These groups consist of members appointed by EU countries, and these members represent national market surveillance authorities competent to conduct market surveillance in specific sectors. They meet several times a year to discuss market surveillance issues in their area of competence and to ensure efficient, comprehensive and consistent market surveillance. From time to time, stakeholders or other relevant bodies may be invited to join the meetings to discuss specific issues (European Commission, no date, b).

To further assist with the implementation of market surveillance in Europe, the EU Product Compliance Network is focused on structuring the coordination and cooperation between the different market surveillance authorities in the EU countries. The aim of this is twofold: to streamline market surveillance within the EU and to facilitate cooperation in terms of enforcement activities between the Member States. The network also continuously monitors the implementation of its work programme. In addition, it facilitates the identification of common priorities for market surveillance activities and the exchange of information across sectors on product evaluations – including risk assessment, test methods and results, recent scientific developments and new technologies, emerging risks and other aspects relevant to control activities – and on the implementation of national market surveillance strategies and activities. It further organises cross-sectoral joint market surveillance and testing priorities and defines the priorities and other activities aiming to make the application of the Market Surveillance Regulation (Regulation (EU) 2019/1020) effective and uniform within the EU (European Commission, 2025a).

The Information and Communication System on Market Surveillance (ICSMS) has been set up to facilitate communication between market surveillance authorities in the EU and the European Free Trade Association (EFTA) countries and provides a platform where information about non-compliant products can be found. The establishment of the platform eliminates duplication of work and helps remove unsafe products from the market faster. Market surveillance authorities can further use the ICSMS platform to share and exchange information on market surveillance measures, coordinate activities and inspections, share resources and test products, and develop best practices and ensure that market surveillance is efficient and uniform across all EU countries to prevent misrepresentation of competition (European Commission, 2025b).

2 Overview of the Research

Research for another EPA-funded project, *Emissions from and Fuel Consumption Associated with Off-road Vehicles and Other Machinery* (EFFORT), published as EPA Research Report 412 (Hagan *et al*., 2022a), had previously been conducted by the research team. Some of the findings were subsequently published as a review article, "Non-road Mobile Machinery Emissions and Regulations: A Review", in the journal *Air* (Hagan *et al*., 2022b).

As a starting point, the research team began by looking at the geographical locations of the organisations that had cited these publications. Citing publications from outside the EU were excluded from the review (with the exception of those from the UK).

Countries within the EU that have similar populations and environmental conditions to Ireland were prioritised for inclusion in the review. The research team went on to review countries within the EU with larger populations, and from those the Netherlands and Germany were chosen, as they also have similar climatic and environmental conditions. To balance this, some countries with smaller populations were examined, and from those Estonia and Malta were chosen.

Countries in the south-west of the EU were excluded due to significant differences in climatic and environmental conditions.

Table 2.1. Countries examined in detail

Country	Population
Finland	5.6 m
Denmark	5.9 m
Sweden	10.5 m
The Netherlands	17.9 m
Poland	36.7 m
Romania	19 m
Hungary	9.6 m
Estonia	1.4 m
Germany	83.3 m
Malta	~550,000
UK/Northern Ireland	68.4 m/1.9 m

The scope of research stipulated that the UK should be included in the countries investigated. In total, 10 EU countries and the UK (including Northern Ireland) were examined in detail. The chosen countries are listed in Table 2.1, and Figure 2.1 displays the countries on a map of Europe.

2.1 Email Correspondence

The research began with a long period of email correspondence with individuals and organisations identified in citing publications, the review of Informative Inventory Reports (IIRs), through other contacts and through web searches. The following questions provided the framework for this phase of the research.

- What documentary, physical and/or laboratory checks on engines are performed, on either in-use machines or machines at the point of entry to the market?
- Is there any industry compliance scheme for NRMM in place?
- Who is in charge of the market surveillance of NRMM and how is it done?
- How are the emissions from NRMM calculated?
- If such emissions are calculated from fuel use, how is the amount of fuel that these machines use calculated from the total fuel use?
- How is an inventory of the machines in the different subsectors of NRMM established?
- Which NRMM subsectors and machine emissions are prioritised from an environmental perspective?

In all cases, these questions were modified as required to align with the recipient's position and expertise. Several organisations and authorities were contacted within each country and some responded immediately, some after a gentle reminder and some not at all. In many cases, the person contacted was not directly able to provide the requested information but instead suggested people or organisations that might be better able to help.

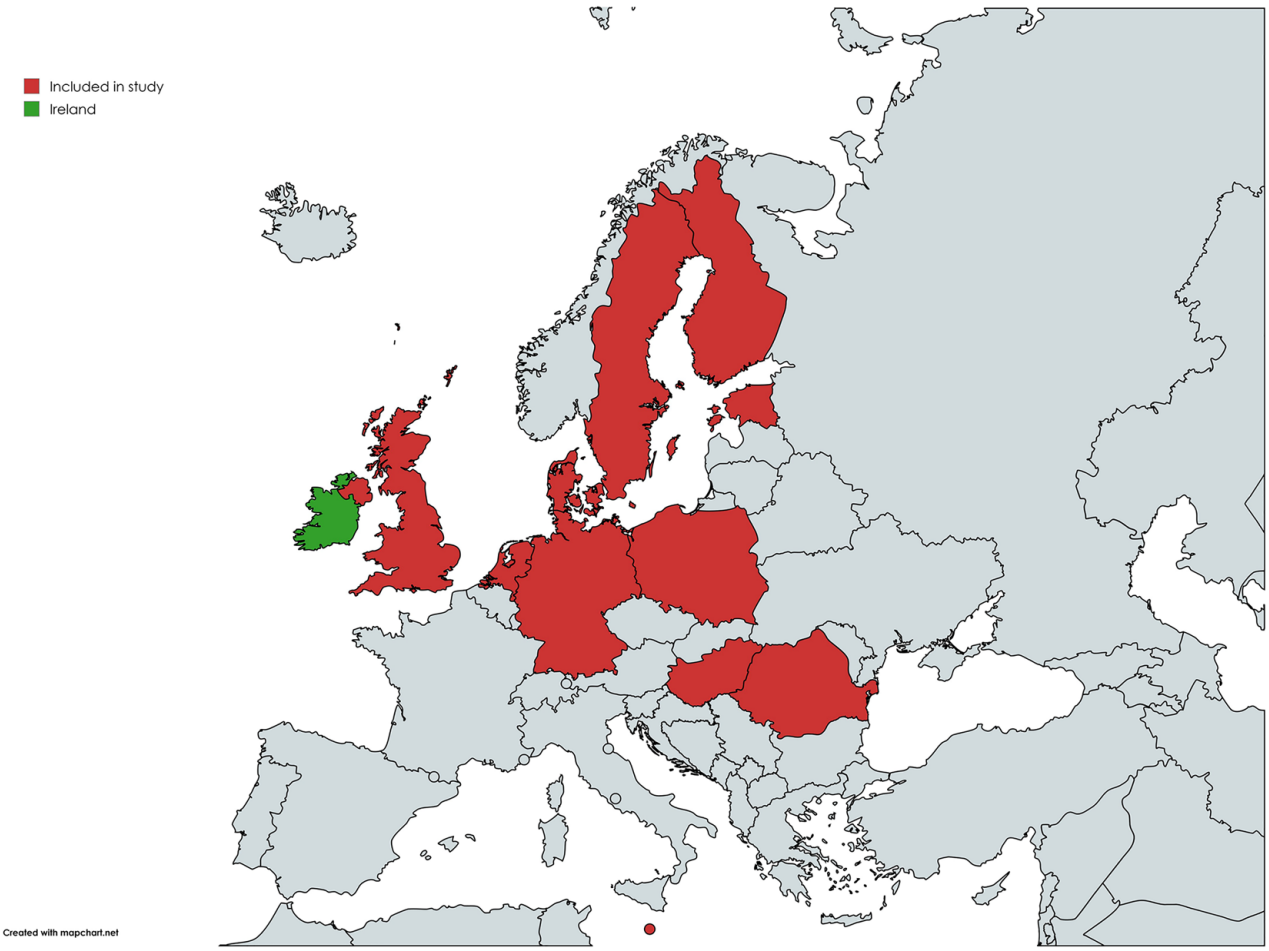

Figure 2.1. Visual display of countries examined in detail, on a map of Europe. Created with MapChart; licensed under CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0/).

Several email conversations were had with representatives from the University of Eastern **Finland**, the Finnish Environment Institute, VTT Technical Research Centre, Statistics Finland and the Finnish Transport and Communications Agency. The first four provided detailed information on the reporting process, inventories and Finland's emission calculations model, and the Finnish Transport and Communications Agency shared information on its market surveillance process (personal communications: Finnish Environment Institute, February 2025; VTT Technical Research Centre, March 2025; University of Eastern Finland, March 2025; Statistics Finland, March 2025). The Finnish Ministry of the Environment was also contacted but we received no reply.

The lead author of the **Danish** IIR was contacted at the Department of Environmental Science at Aarhus University, along with individuals at the Danish Ministry of Environment and Gender Equality and the Danish Environmental Protection Agency. Much information about the emissions-reporting process was shared by the first contact, and the second two shared a joint information document about the current state of the market surveillance process in Denmark (personal communications: Aarhus University, March 2025; Ministry of Environment and Gender Equality and the Danish Environmental Protection Agency, April 2025).

In **Sweden**, the following organisations were contacted: the Swedish Environmental Protection Agency, the Swedish Environmental Research Institute (Institutet för Vatten- och Luftvårdsforskning; IVL) and the Swedish Transport Agency. The first of these replied that, given that they were very busy with other assignments, they unfortunately did not have time to engage in our request for information, but IVL and the Swedish Transport Agency shared information about the current market surveillance process in Sweden (personal communications: Swedish EPA, March

2025; Swedish Transport Agency, June 2025; IVL, June 2025).

The Netherlands Organisation for Applied Scientific Research and the National Institute for Public Health and the Environment were contacted. Detailed information about emissions reporting and their emission calculation model was received, as was limited information on market surveillance (personal communication: National Institute for Public Health and the Environment, March 2025; RDW, no date).

The following organisations were contacted in **Poland**: Transport Technical Supervision, the Motor Transport Institute and the National Centre for Emissions Management. The first two shared valuable information on type approval and market surveillance processes, whereas the third shared information on emissions-reporting processes (personal communications: National Centre for Emissions Management, April 2025; Transport Technical Supervision, April 2025).

In **Romania**, the National Environmental Protection Agency, the Ministry of Environment, Water and Forests and the Romanian Automotive Register were contacted. Each provided information relevant for this report (personal communications: Romanian Automotive Register, March 2025; National Environmental Protection Agency, March 2025).

The Ministry of Construction and Transport and the National Transport Authority were contacted for information about processes in **Hungary**. They provided information about type approval and market surveillance processes, respectively (personal communications: National Transport Authority, May 2025; Ministry of Construction and Transport, May 2025).

For **Estonia**, the Ministry of Climate and the Consumer Protection and Technical Regulatory Authority were contacted. No reply was received from the ministry, but a comprehensive reply on type approval and market surveillance was received from the Consumer Protection and Technical Regulatory Authority (personal communication: Consumer Protection and Technical Regulatory Authority, March 2025).

Much information about **Germany** was found online, but the Institute for Energy and Environmental Research was contacted for further clarification. Very helpful complementary answers were provided by the institute (personal communication: Institute for Energy and Environmental Research, April 2025; Institute for Energy and Environmental Research, 2025a,b; Umweltbundesamt, 2025).

The **Malta** Competition and Consumer Affairs Authority and the Climate Action Authority were contacted. Both authorities were very helpful and provided much relevant information (personal communication: Malta Competition and Consumer Affairs Authority, May 2025; Climate Action Authority, June 2025).

Several different organisations and agencies were contacted in the **UK** and **Northern Ireland**, until it became clear that the Driver and Vehicle Standards Agency (DVSA) is the responsible agency for market surveillance in these markets. Much helpful and relevant information was received from the agency (personal communication: DVSA, May 2025).

2.2 Informative Inventory Reports – Synopsis of Emissions Reporting

IIRs from 2024 were sourced from each selected country and where the IIR was not available, the National Inventory Report (NIR) was used instead. No information on market surveillance of NRMM was available in these reports, but a brief synopsis of the process of reporting emissions from NRMM in the chosen countries was compiled and is explained below (Aarhus University, 2025; Al-Hanbali *et al*., 2025; Danish Centre for Environment and Energy, 2024; Elliot *et al*., 2024; Kohv *et al*., 2024; Malta Resources Authority, 2024; National Centre for Emissions Management, 2024; National Environmental Protection Agency of Romania, 2024; Statistics Finland, 2024; TNO Innovation for Life, 2023; Umweltbundesamt, 2024; Van der Net *et al*., 2024; Wever *et al*., 2024).

Statistics **Finland** has recently taken over the emissions and energy consumption calculation of NRMM. As no NRMM inventory currently exists, emissions are calculated using fuel use. Source data used in the calculation of emissions are obtained from a few diverse sources. The emission calculations are carried out using Statistics Finland's own emission calculation model, TYKO, which is based on the US Environmental Protection Agency's emission calculation model (Statistics Finland, no date).

The **Danish** Centre for Environment and Energy completes emission inventories for Denmark, and Danish ministries, research institutes, organisations

and companies contribute with data. The centre's own Danish Emission Model System for Mobile Sources (DEMOS) model is used to calculate the emission inventories for mobile sources. The DEMOS model system comprises database models for various sectors, including one for NRMM (DEMOS-NRMM).

The **Swedish** Environmental Protection Agency is responsible for coordinating the activities for producing the inventory and maintaining the reporting system in Sweden. Emissions are estimated mainly based on official Swedish statistics. The Swedish Environmental Protection Agency engages the Swedish Environmental Emissions Data (Svenska Miljöemissionsdata) consortium members as consultants. The consortium is made up of the Research Institute of Sweden, Statistics Sweden, the Swedish University of Agricultural Sciences and the Swedish Meteorological and Hydrological Institute. Unless otherwise stated, emissions from fuel combustion are determined as the product of fuel consumption, thermal value and emission factors. Each year, there is an in-depth peer review of one sector or part of a sector.

In **the Netherlands**, the Ministry of Infrastructure and Water Management has overall responsibility for the emission inventory and submissions, and it has outsourced the full coordination of the Pollutant Release and Transfer Register to the Emission Registration team at the National Institute for Public Health and the Environment. Data collection is carried out by different task forces that are set up to collect and process the data for the register. Annual sales data for the various types of NRMM are derived from trade organisations. Assumptions on the average use (annual operating hours) and the engine load profile are combined with the rated power output (in kW) and load-dependent fuel and emission factors to estimate NRMM total fuel consumption and emissions, including from machine idling. The Netherlands uses its own model, the Emissions of Mobile Machinery (EMMA) model, to calculate emissions (Emissieregistratie, no date; Geilenkirchen *et al*., 2024; RDW, no date).

In **Poland**, the National Centre for Emissions Management at the Institute of Environmental Protection, National Research Institute, is responsible for compiling the greenhouse gas inventory. Individual experts and institutions further provide activity data for inventory estimates. Greenhouse gas emissions from NRMM are calculated based on fuel consumption. Activity data are taken from official public statistics, commissioned research reports or estimates. Wherever possible, domestic methodologies and emission factors have been developed.

The National Environmental Protection Agency of **Romania** is responsible for the national emission inventory compilation. To collect and compile the inventory data, institutional arrangements are made between the agency and other administrative structures. Inventory compilation starts with the allocation of human resources and prioritisation of actions and improvements, followed by collection of input data, selection of emission factors and documentation of all the work. It is concluded by inserting all collected data into a CollectER database and estimating emissions. Emissions are mainly calculated by multiplying activity data (e.g. production statistics and fuel consumption) by the corresponding emission factors:

$$\text{Activity Data} \times \text{Emission Factor}$$

In **Hungary**, the Air Quality Modelling & Emissions Unit of the Hungarian Meteorological Service compiles the inventories for reporting with the involvement of external institutions and experts, partly on a contractual basis. Emissions are calculated using the same formula as above:

$$\text{Activity Data} \times \text{Emission Factor}$$

where the activity data can be raw material or product, or energy use, etc. The default emission factors are being gradually replaced by country-specific emission factors characteristic of domestic technologies.

In **Estonia**, the Data Management Department of the Estonian Environment Agency, administered by the Ministry of Climate, is responsible for the preparation of the air pollution inventory. The department is responsible for collecting, analysing, storing, reporting and publishing environment-related information and data. It has its own "Integrated Environmental Information System" (KOTKAS), managed by the Estonian Environmental Board, which is responsible for the annual reporting function. It contains data reported by operators that have a pollution permit issued by the board. Each facility submits data on the emissions of pollutants together with the data

regarding burnt fuel, used solvents, amount of distributed liquid fuels, etc. The operator of point sources can directly add their calculated or measured annual emissions into KOTKAS by hand or use calculation modules that use legally regulated national emissions estimation methodologies.

The **German** Environment Agency is the national coordinating agency for Germany. Its tasks include planning, preparation and storage of the inventories, the description of those in the inventory reports and the quality control and quality assurance in all relevant process steps. The German Environment Agency's central system on emissions database is the national, central database for emissions calculation and reporting. It is used for central storage of all information required for emissions calculation (methods, activity rates, emission factors). The agency uses its own emissions calculations model, Transport Emission Model – Mobile Machinery (TREMOD-MM). The national system in Germany has been essentially institutionalised at three levels: the ministerial level, the level of the German Environment Agency and the regional level (Örtl, E., 2020; Umweltbundesamt, 2020).

The Environment and Resources Authority is tasked with the responsibility of assembling the national emission inventories in **Malta**. It gathers all the necessary data and information from relevant entities to estimate emissions for all pollutants. The tasks related to both the emission inventory and the creation of the IIR are conducted collaboratively with various entities.

In the **UK (including Northern Ireland)**, the Department for Environment, Food and Rural Affairs (Defra) is responsible for meeting the UK Government's commitments to international reporting on air quality pollutant emissions. The National Atmospheric Emissions Inventory is prepared by a consortium led by Ricardo (www.ricardo.com) under the National Atmospheric Emissions Inventory contract with the Department for Energy Security and Net Zero. The UK Air Pollutant Inventory programme (which is part of the National Atmospheric Emissions Inventory programme), managed by Defra, is responsible for submitting the official UK emissions datasets to the public under the National Emission Ceiling Regulations and to the United Nations Economic Commission for Europe (UNECE) Secretariat under the Convention on Long-Range Transboundary Air Pollution. Ricardo is responsible for compiling the emission inventories and submitting them on behalf of Defra.

Broadly speaking, the emissions are calculated the same way in all parts of the UK. There is no industry compliance scheme for NRMM in the UK, although emissions are regulated through regulation stages (personal communication: Ricardo, March 2025).

In summary, it can be concluded that emissions are primarily calculated using fuel use and sales statistics in most of the selected countries, as there are currently very few physical inventories of NRMM in existence.

Emissions from NRMM are generally reported under the following Nomenclature for Reporting (NFR) codes:

- 1.A.2.gvii – Mobile Combustion in Manufacturing Industries and Construction: Other
- 1.A.4.aii – Commercial/Institutional: Mobile
- 1.A.4.bii – Household and Gardening Mobile Combustion
- 1.A.4.cii – Off-road Vehicles and Other Machinery from Agriculture/Forestry/Fishing
- 1.A.5.b – Other Mobile Combustion (including Military, Land Based and Recreational Boats).

3 Examination of the Research Findings

3.1 Market Surveillance in the Selected Countries

A country-specific report on market surveillance best practice in a selection of EU countries as well as in the UK (including Northern Ireland) follows below.

3.1.1 Finland

The Finnish Transport and Communications Agency has been appointed as the market surveillance authority in accordance with Regulation (EU) 2016/1628. This appointment is based on Finland's national Environmental Protection Act (527/2014). Both reactive market surveillance (i.e. based on notifications or complaints) and proactive market surveillance (e.g. different kinds of surveillance campaigns) are implemented in Finland. An example of proactive market surveillance is intermittent surveillance campaigns focused on the statutory marking of engines of different NRMM product groups. As part of market surveillance, the Finnish Transport and Communications Agency further supports NRMM manufacturers and operators on questions concerning the implementation of Regulation (EU) 2016/1628.

3.1.2 Denmark

The Danish Environmental Protection Agency is responsible for the market surveillance of NRMM in Denmark. However, it is still in the process of setting up its market surveillance strategy. At present, market surveillance of NRMM is conducted only if the Danish Environmental Protection Agency receives an enquiry about a potential compliance issue. No such enquiry has been received to date.

Market surveillance will most likely initially consist of documentary checks to establish whether there appears to be a general issue with machines that are non-compliant. Market surveillance can then be broadened to also include physical and/or laboratory checks if the preliminary results show there is a general issue with non-compliant machines.

3.1.3 Sweden

Replies were received from the Swedish Transport Agency and IVL. The Swedish Transport Agency reported having a reactive market surveillance process that is based on received information or suspicions. The process is the same for the different machinery in all NRMM subsectors. IVL further elaborated on the process, saying that the market surveillance of NRMM is primarily focused on engine emissions and compliance with EU Stage V standards and regulations.

Two authorities are responsible for inspections and machine controls depending on the type of machine:

- the Swedish Transport Agency is responsible for NRMM that are also classified as vehicles;
- the Swedish Work Environment Authority is responsible for other NRMM.

Swedish Machine Testing and Kiwa are accredited testing organisations, and they are conducting periodic technical and conformity inspections on NRMM and lifting equipment. The inspection intervals vary depending on the machine class and type of machine. There is a requirement for some machines to be inspected after the first 48 months of use and every second year after that, whereas other machines require inspection every year (personal communication: Swedish Transport Agency, June 2025; IVL, June 2025).

3.1.4 The Netherlands

Market surveillance in the Netherlands is dependent on the type of machinery. Unfortunately, no sector-specific information was obtained.

3.1.5 Poland

The Office of Competition and Consumer Protection (UOKiK) is the main authority monitoring how the entire market surveillance system functions. Several market surveillance authorities, including

environmental and mining inspection bodies, are responsible for checking the compliance of engines used in NRMM.

These authorities are responsible for the following.

- **Engine compliance checks:**
  - ensuring engines meet Regulation (EU) 2016/1628 and related legal requirements;
  - checking for safety risks or formal non-compliance;
  - inspecting engines at the point of manufacture, import and end use.
- **Division of responsibility:**
  - the Chief Inspectorate for Environmental Protection handles most machinery, except for mining machinery;
  - the President of the Higher Mining Authority handles engines used in mining operations.
- **Supporting tasks:**
  - working with other national and EU/EFTA authorities and the National Revenue Administration;
  - providing technical opinions to customs authorities on engine compliance;
  - reporting final legal decisions to the competition office;
  - contributing to EU and international market surveillance cooperation.
- **Reporting and data sharing:**
  - submitting inspection plans and yearly reports;
  - notifying the Transport Technical Supervision Director of any enforcement decisions;
  - entering data about non-compliant or dangerous engines into the EU's information system (including who supplied the information and what actions were taken).

The President of the UOKiK is further responsible for collaboration and communication, planning and reporting, oversight and feedback, and registering non-compliant and/or unsafe engines (National Centre for Emissions Management, no date).

3.1.6 Romania

Market surveillance in Romania is handled by the Ministry of Economy, but no information on how it is conducted was obtained.

3.1.7 Hungary

Market surveillance in Hungary is handled by the Budapest Capital Government Office.

According to Article 7 of Regulation (EU) 2016/1628, the inspections shall be carried out by the competent regional transport authorities. The competent regional transport authorities shall receive the plan of the inspection to be carried out for the current year from the central professional management body.

The regional transport authorities competent for each region may only carry out inspection at the commercial units located in their own territory and may not carry out comprehensive inspections covering the entire territory of the country. The regional transport authorities prepare quarterly performance reports on the results of the inspections carried out in the current year, which are sent to the central professional management state administration body.

The inspections are mostly carried out without prior notice at the premises, shops and warehouses of the traders. The inspections are mostly aimed at verifying the existence, content and validity of the documents required for the distribution of the inspected product. The transport authorities sanction any deficiencies that are revealed during the on-site inspections in accordance with the provisions of national and EU legislation. Most sanctions are implemented by prohibiting the distribution of the product.

3.1.8 Estonia

Market surveillance in Estonia is handled by the Consumer Protection and Technical Regulatory Authority. This type of machinery is checked during routine market surveillance procedures, for example inspections at the retailer. The authority works closely with customs, checking machinery that enters the EU. It also carries out market surveillance inspections at retailers and/or importers, including e-commerce web shops. The type of machinery to be checked is chosen and put into a work plan assessing the risks it poses. When assessing risks, notifications from other Member States, number of accidents and other factors are taken into consideration. Machinery from outside the EU goes through customs and is randomly checked. Customs also relies on "risk lists" provided by market

surveillance authorities, which contain certain types of machinery that are considered more dangerous. Physical checks upon market entry usually involve checking the marking. Laboratory checks are rare, if not non-existent, due to the cost.

3.1.9 Germany

The Kraftfahrt-Bundesamt (Federal Motor Transport Authority) is Germany's associated type approval and market surveillance authority (Kraftfahrt-Bundesamt, no date, a,b). It is the competent market surveillance authority for the following products:

- motor vehicles and motor vehicle trailers as well as systems, components and separate technical units for these vehicles;
- agricultural and forestry vehicles;
- internal combustion engines for NRMM in use with rail vehicles.

Market surveillance is carried out in different processes. These processes are based on the authority's own investigations and projects, but they can also be in response to events and information received by the authority. If the products do not comply with the corresponding regulations or expose a serious risk, measures such as recalls and public warnings are taken. Sanctions for administrative offences can also be imposed.

Market surveillance of two- or three-wheel vehicles and quadricycles, agricultural and forestry vehicles and internal combustion engines for NRMM in use with rail vehicles is authorised by the European Market Surveillance and Compliance of Products Regulation (Regulation (EU) 2019/1020) in conjunction with the following regulations: Regulation (EU) 167/2013 (agricultural and forestry vehicles), Regulation (EU) 168/2013 (two- or three-wheel vehicles and quadricycles) or Regulation (EU) 2016/1628 (internal combustion engines for NRMM in use with rail vehicles).

3.1.10 Malta

The Technical Regulations Division of the Malta Competition and Consumer Affairs Authority is involved in the market surveillance of NRMM, specifically under Regulation (EU) 2016/1628, which sets emission limits and type approval requirements for internal combustion engines used in NRMM with regard to the requirements of the EU Machinery Directive. Checks include physical inspections, documentary checks and checks at the border, as well as checks in response to notifications, complaints or reports received from consumers, economic operators or other stakeholders. NRMM may also be used on public roads, in which case they would be subject to road registration, meaning that the national transport authority would also be involved in the market surveillance.

Additionally, the Technical Regulations Division utilises the ICSMS to coordinate with the market surveillance authorities of other EU Member States, enabling efficient exchange of information regarding non-compliant products and supporting harmonised enforcement actions across the EU.

3.1.11 UK (including Northern Ireland)

The UK Government has kept some of the EU legislation following Brexit. In Article 7, Chapter II of the national regulations originating from Regulation (EU) 2016/1628, the obligations of market surveillance authorities are listed as follows (Legislation.gov.uk, 2016).

- Market surveillance authorities shall perform documentary checks and, where appropriate, physical and laboratory checks of engines, on an adequate scale and on the basis of adequate samples. When doing so, they shall take account of established principles of risk assessment, of any complaints and of any other relevant information.
- Market surveillance authorities may require economic operators to make such documentation and information available as is deemed necessary for the purpose of carrying out the authorities' activities.

Market surveillance in the UK (including Northern Ireland) is handled by the DVSA. This agency has a market surveillance unit, which inspects vehicles, trailers and equipment to make sure safety and environmental standards are met. This unit is responsible for NRMM and agricultural and forestry vehicles in the UK (including Northern Ireland). The programme is undertaken by three individuals, who conduct broad market surveillance of economic

operators and inspection of products via online sellers and platforms and in the field. They check for approval markings/documentation (relevant engine emissions), including compliance with the UK approval scheme (personal communication: DVSA, May 2025).

The DVSA is responsible for checking a wide range of automotive products, including vehicles (both road and off-road), vehicle components, vehicle-related safety equipment and NRMM. The agency conducts investigations and tests both within an annual programme of tests and inspections of products on the UK market and as a result of reports from the industry or the general public.

The annual programme of tests and inspections includes checks of any relevant documentation. The selection of products to be tested is usually based on the actual or expected market share of the product, but other products are also added to ensure that a comprehensive number of manufacturers are inspected, as well as to ensure that the products to be tested cannot be predicted beforehand. The inspections are conducted using a proportionate risk-based approach.

If the DVSA receives a report from the industry or from the general public that unsafe or illegal vehicles or components are being sold or manufactured by a particular organisation, they will review the information and decide on an action. Actions may include further investigation of the report, asking for additional information or collaborating with another department or agency.

If a decision is made to act on the information, this can be done by checking if the businesses have the correct documentation, entering and searching the premises or inspecting and/or seizing any related products or documents.

The potential investigations are prioritised by considering the potential scale and severity of the problem and the risk that the alleged problem presents to road safety, the environment, fair competition or other aspects of government policy; the quality of the report concerning the potential breach of regulation; history of previous breaches or offences; and other deciding factors.

If the DVSA finds evidence of breaches of regulations, or unsafe or illegal vehicles, products or parts, it has a few options for how to proceed. It can offer advice and guidance, issue warnings or recall notices, issue fines or prosecute the individual or business.

Before making a decision on what action to take, all individual facts are considered and all the evidence is checked. The action is also based on what the level of intent was and whether the offence was committed deliberately, recklessly or because of negligence; the level of cooperation from the perpetrator; history of previous offences and personal circumstances; and whether the public has been put at risk.

Examples of action that the DVSA can take are:

- providing advice and guidance;
- issuing a warning or a fine;
- working with manufacturers to recall and fix or stop selling the product;
- taking the offender to court, in very serious cases.

The DVSA will regularly communicate its findings from inspections and tests to the general public and industry. It can do this by issuing press releases containing factual information about offences and convictions. This is done to help to advance public protection and to act as a deterrent (Driver and Vehicle Standards Agency, 2024).

An example of a vehicle and component testing case conducted during 2024 is described below.

The aim of the case was to check the supply of new NRMM for sale in the UK, focusing on smaller imported products, to make sure that the engines met the type approval requirements and had the relevant approval markings as prescribed in the Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018.

A further aim was to check the supply of new agricultural and forestry vehicles for sale in the UK to ensure that these vehicles too met the type approval requirements as required in the Agricultural and Forestry Vehicles (Type-Approval) Regulations 2018.

Open-source research was carried out on more than 100 UK-based online suppliers of NRMM. Requests were sent for type approval information to 10 of these suppliers, and type approval information was received for all relevant products.

During the year, 29 NRMM products were bought from online platforms. It was found that 22 of the NRMM products purchased did not have relevant

type approval markings. The online platforms were contacted and the products were removed from sale. Open-source research of suppliers of agricultural and forestry machines was carried out. Requests for type approval information were sent to four suppliers within the UK and the EU, and type approval information was received for all relevant products. Three industry exhibitions across the UK were attended, with no non-compliant products identified.

According to the DVSA website, future work will continue to be shaped by the ongoing concern regarding the small NRMM products available on the UK market through online platforms. Further research will be done online and test purchases will continue to be made. Research on agricultural and forestry machines will continue and type approval certification for machines placed on the UK market through distributors and online selling platforms will be checked. Checks will be made to ensure that products for sale have the relevant type approval (Driver and Vehicle Standards Agency, 2025).

Type approval in Northern Ireland

To be placed on the market in Northern Ireland, NRMM must hold either a valid EU or UK(NI) type approval. The correct markings must be displayed on the engine to prove it has the right type approval. Both approval schemes are based on Regulation (EU) 2016/1628 as it applies in EU law. This regulation was retained as legislation in Great Britain, and the EU version continues to apply directly in Northern Ireland.

When introducing vehicles and components on the Northern Irish market, manufacturers can continue to use EU type approvals to show compliance. This is made possible due to the Northern Ireland Protocol and Windsor Framework agreements, which indicate that EU law continues to apply in Northern Ireland for the purposes of type approval. A separate UK(NI) type approval scheme was established as a consequence of the agreements. It follows the EU legislation (i.e. directly incorporating all EU legislative amendments) but is implemented by the Vehicle Certification Agency, which is the only type approval authority under the scheme.

UK(NI) type approvals are valid in both Northern Ireland and Great Britain and enable manufacturers to access the UK market without the need for additional EU or GB type approvals. These kinds of type approvals are recognised by their type approval number or mark, which is identified with the designation “n11”. It is important to note, however, that UK(NI) approvals are not recognised by the EU and cannot be used to place vehicles or components on the EU market.

EU and UK(NI) type approvals are considered separate legislative frameworks even though they follow the same legislative requirements. And the GB type approval is a further separate legislative framework, making it important to consider the following (Vehicle Certification Agency, 2024):

- it is possible to hold EU, UK(NI) and GB type approvals for the same vehicle/component/technical unit type;
- type approvals cannot be used interchangeably between the schemes in the case of unlimited or EU small series applications; for example, EU component approvals cannot be used as part of a UK(NI) type approval application, nor can UK(NI) type approvals be used as part of a GB type approval application.

Type approval in the UK (excluding Northern Ireland)

Regulation (EU) 2016/1628 requires that, in order to be first placed on the EU market, engines for use in NRMM must be approved to demonstrate compliance with pollutant emission limits. The regulation applies to new engines to be installed in NRMM intended for and suitable for moving or being moved on the ground, either on or off the road.

A business that manufactures engines for use in NRMM that will be sold in the UK (including Northern Ireland) or in any EU Member State needs to make sure that the quality of the engine is of the required standard for type approval. And if the business intends to sell NRMM in the same countries, it needs to make certain that the equipment only uses engines that have been correctly type approved. The engines need to have type approval to Stage V (unless they are covered by the provisions for transition engines).

It is important to note that the responsibility for obtaining type approval is that of the engine manufacturer, and not the manufacturer of the NRMM itself or the retailer. However, when an engine is

manufactured outside the EU, the manufacturer of the NRMM needs to ensure that it has an appropriate type approval certificate. This can be done either by direct arrangement with the approval authority or in collaboration with the engine manufacturer's local representative.

Since 1 January 2023, NRMM engines must hold provisional GB type approval in order to be placed on the market in Great Britain. This approval is based on the engine type concerned holding either a valid EU or UNECE R96 type approval.

Approved engines must bear the following markings:

- the trademark or trade name of the engine manufacturer;
- the engine type, engine family (if applicable) and a unique ID number;
- the type approval number.

It must further be ensured that the mark is durable for the useful life of the engine and secured to an engine part necessary for normal engine operation and not normally requiring replacement during the lifetime of the engine. The engine must also be supplied with a supplementary movable plate that can be positioned to make the marks visible when the engine is installed in a machine, if necessary. It is required that the engine bears all the relevant markings before it leaves the production line.

It is important to note that engines approved in accordance with the provisional GB approval scheme should carry the marking of the underlying EU or UNECE type approval. Marking of the provisional GB type approval number is optional (Vehicle Certification Agency, 2024).

3.1.12 Ireland

The Department of Enterprise, Trade and Employment is the designated single liaison office. The National Standards Authority of Ireland is the designated type approval authority, and the EPA is the assigned authority responsible for the market surveillance of NRMM, as well as some other sectors. The process of market surveillance of NRMM is currently in development and will be informed by the recommendations in this evidence synthesis report.

3.2 Current Situation of Market Surveillance in the Selected Countries

This research project found that there is no clear strategy in place across Europe with regard to market surveillance of NRMM. The processes are highly variable, and significant differences exist in how the countries are managing market surveillance. Some countries, such as Denmark and Ireland, are currently in the process of developing a strategy, whereas other countries have reactive, proactive or both types of processes, or something else entirely. Figure 3.1 provides a visual representation of the different strategies in the examined countries.

Apart from differences in processes, there is also wide variation in the nominated authorities responsible for market surveillance of NRMM. They range from transport and technical offices via ministries and government offices to environmental agencies. The full list of nominated authorities in the selected countries is shown in Table 3.1, along with the different processes in the examined countries.

3.3 Key Machinery

According to a recent report from the VTT Technical Research Centre of Finland (Söderena *et al*., 2024), it can be estimated that the NRMM sector accounts for about 2% of greenhouse gas emissions in the EU. This information is, however, based on available information from 2010. Another recent report (European Federation for Transport and Environment, 2024) estimates the total percentage of CO_2 equivalent emissions from NRMM to be 3.1% of the climate emissions in the EU. Both reports state that 75% of these emissions are caused by two sectors, construction and agriculture, and the remaining 25% is caused by various machinery in other sectors. Söderena *et al*. (2024) go on to say that the highest potential in CO_2 reduction is in agriculture and construction machinery, and that the remainder of the machinery covers machine types where market-driven electrification has developed furthest, for example mining and cargo handling. This indicates that reducing emissions from NRMM used in the construction and agriculture sectors could provide measurable environmental benefits.

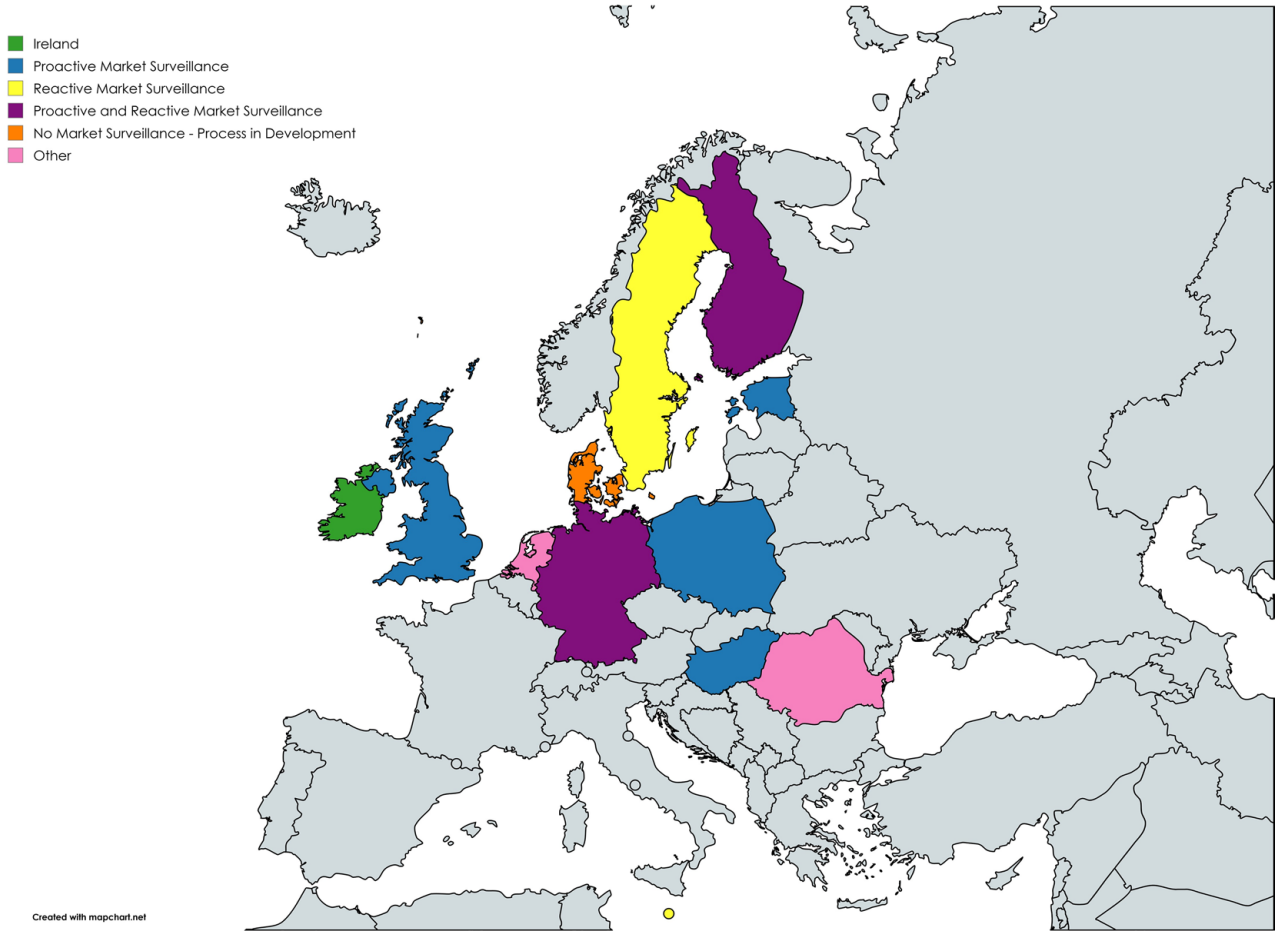

Figure 3.1. Map of different market surveillance strategies in the examined countries. Created with MapChart; licensed under CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0/).

Table 3.1. Processes for market surveillance and responsible authorities in the investigated countries

Country	Reactive	Proactive	Other	Process in development	Responsible authority
Finland	X	X			Transport and Communications Agency
Denmark				X	Environmental Protection Agency
Sweden	X				Swedish Transport Agency
The Netherlands			X		
Poland		X			UOKiK, Chief Inspectorate of Environmental Protection, Higher Mining Authority
Romania			X		Ministry of Economy
Hungary		X			Budapest Capital Government Office, competent regional transport authorities
Estonia		X			Consumer Protection and Technical Regulatory Authority
Germany	X	X			Federal Motor Transport Authority
Malta	X				Technical Regulations Division of the Malta Competition and Consumer Affairs Authority
UK, incl. Northern Ireland		X			DVSA
Ireland				X	EPA

4 Recommendations

This research has concluded that there is no uniform way of conducting market surveillance of NRMM among the EU countries. This leaves numerous options open for devising a strategy for market surveillance of NRMM in Ireland. However, it is recommended that the process starts with bringing together representatives from the Department of Enterprise, Trade and Employment and the EPA for initial strategy discussions, as the former is listed in the National Market Surveillance Strategy 2023–2025 as the single liaison office and the latter as the authority responsible for the market surveillance of NRMM. Representatives from both the National Standards Authority of Ireland, as the authority responsible for type approval, and the Department of Climate, Energy and the Environment, as the parent department for Regulation (EU) 2016/1628 under S.I. 735 of 2021, could also be invited at this early stage. As discussions progress, further organisations such as the Road Safety Authority (which is responsible for the market surveillance of road vehicles and thus can provide information about processes that are in place for that purpose) and Irish Tax and Customs (which establishes cooperation regarding the import of NRMM into Ireland) should be included.

A recent email exchange with the National Standards Authority of Ireland confirmed that it is the type approval authority for Ireland and grants type approval for NRMM in accordance with Regulation (EU) 2016/1628. In terms of market surveillance, the authority confirmed that products on the market need to comply with the approved type in accordance with Regulation (EU) 2016/1628 (personal communication: National Standards Authority of Ireland, June 2025).

A further email exchange with the Road Safety Authority, as the market surveillance authority for road vehicles, confirmed that the role of the Automotive Market Surveillance Authority (AMSA) is to carry out market surveillance to ensure that new vehicles and their components meet the appropriate type approval requirements under Regulation (EU) 2018/858 to ensure that vehicles, systems, components and separate technical units placed or made available on the EU market are compliant and do not pose a risk to safety, health or the environment. AMSA uses a combination of risk-based, random and complaint-driven approaches to select vehicles and products for testing. This is based on substantiated complaints, information made publicly available and information from the European Forum of Exchange on Enforcement (personal communication: Road Safety Authority, June 2025). This approach may be of use when devising a market surveillance protocol for NRMM.

Once an initial process has been developed, it is recommended that contact is established with importers and wholesalers of NRMM in the various sectors in order to facilitate cooperation with regard to future market surveillance activities. When the market surveillance protocol is fully established and implemented, it is further recommended that an attempt for increased collaboration between northern European/Nordic countries with similar climatic and societal circumstances is made in order to begin a process of streamlining protocols for market surveillance of NRMM within the EU.

A further recommendation to improve all NRMM processes, in relation to both market surveillance and emissions reporting, is to assign a dedicated national office for NRMM. The responsibilities of this office would include collecting information on the NRMM currently in use in Ireland in the different sectors, for example by creating surveys to distribute to relevant people (importers/wholesalers/users of NRMM), and collating the information received into NRMM inventories, which was one of the recommendations from the previous EFFORT project. (Hagan *et al.*, 2022a).

It is clear that there is currently a lack of knowledge about NRMM even among users and owners of the machinery, so there needs to be a greater level of education around NRMM. In Finland, for example, there is a repository of four free online courses about NRMM, each aimed at different levels of required knowledge about NRMM: a general course, a course for machine users, a course for contractors and a course for those responsible for procurement

(Motiva, 2023). Creating a similar resource could improve the general understanding of NRMM.

To begin dispersing information about NRMM, it would be advantageous to enlist someone with extensive knowledge of NRMM in general, and of upcoming policy changes, as a speaker at annual industry conferences, such as the Construction Industry Federation and the Association of Farm & Forestry Contractors in Ireland conferences. This would help convey the importance of having an NRMM inventory register, why this information is needed, and how it will be used, as well as preparing attendees for upcoming policy changes.

Use of the ICSMS to collaborate with market surveillance authorities of other EU Member States is recommended. And establishing solid long-term relationships with collaborators and data holders, such as wholesalers, construction companies and similar organisations, would be beneficial both for market surveillance and for reporting activities. The benefits of such relationships can be seen in the way that the Danish system works, for example.

5 Conclusion

This Fast-Track to Policy research project examined market surveillance strategies and processes of NRMM within a select number of EU countries and the UK (including Northern Ireland) with the aim of informing the development of a market surveillance strategy on NRMM in Ireland. The research has shown that there is no single process across the EU countries, and that market surveillance is instead carried out in a range of ways in the selected countries; it can be a reactive or proactive process, or in some cases both. Other countries are still in the process of setting up a system, and some countries have no set process in place. This gives much scope for Ireland to develop a strategy best suited to the Irish conditions. However, in the long run it would be beneficial to streamline the processes across the EU to ensure that Regulation (EU) 2016/1628 is followed correctly.

References

Aarhus University (2025). Supporting documentation for NIR. Available at: https://envs.au.dk/en/research-areas/air-pollution-emissions-and-effects/air-emissions/greenhouse-gases/supporting-documentation (accessed 19.2.2025).

Al-Hanbali, H., Eklund, V., Hytteborn, J., Szudy, M., Mawdsley, I., Genberg Safont, J., Bergström, J., Sundbom, M, Guban, P., Kellner, M. *et al*. (2025). *Informative Inventory Report Sweden 2025*. Swedish Environmental Protection Agency, Stockholm. Available at: https://www.naturvardsverket.se/492c33/contentassets/a793266c97e54f95806a9793fad82217/informative-inventory-report-submission-2025-v1.pdf (accessed 4.3.2025).

Danish Centre for Environment and Energy (2024). *Annual Danish Informative Inventory Report*. Available at: https://dce.au.dk/fileadmin/dce.au.dk/Udgivelser/Videnskabelige_rapporter_500-599/SR595.pdf (accessed 19.2.2025).

Driver and Vehicle Standards Agency (2024). Vehicle Market Surveillance Unit: enforcement policy (2024). Available at: https://www.gov.uk/government/publications/how-dvsa-makes-sure-businesses-make-or-sell-safe-vehicles-or-parts/vehicle-market-surveillance-unit-enforcement-policy (accessed 19.5.2025).

Driver and Vehicle Standards Agency (2025). Vehicle Market Surveillance Unit: results of the 2024 programme (2025). Available at: https://www.gov.uk/government/publications/vehicle-market-surveillance-unit-programme-results-2024/vehicle-market-surveillance-unit-results-of-the-2024-programme#non-road-mobile-machinery-nrmm-and-agricultural-and-forestry-vehicles (accessed 19.5.2025).

Elliot, M., Ingledew, D., Richmond, B., Del Vento, S., Gorji, S., Hamilton, N., Karagianni, E., Kelsall, A., Pany, Y., Passant, N. *et al*. (2024). *UK Informative Inventory Report (1990 to 2022)*. National Atmospheric Emissions Inventory. Available at: https://naei.energysecurity.gov.uk/sites/default/files/cat09/2403141659_UK_IIR_2024_Submission.pdf (accessed 12.3.2025).

Emissieregistratie (no date). Alle emissiegegevens op één plek. Available at: https://www.emissieregistratie.nl/ (accessed 14.3.2025).

Environmental Protection Agency (2025). Market surveillance. Available at: https://www.epa.ie/our-services/monitoring--assessment/waste/chemicals/market-surveillance-/ (accessed 18.2.2025).

European Commission (no date, a). Emissions from non-road mobile machinery. Available at: https://single-market-economy.ec.europa.eu/sectors/automotive-industry/environmental-protection/non-road-mobile-machinery_en (accessed 19.2.2025).

European Commission (no date, b). Administrative cooperation groups (AdCos). Available at: https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation/adcos_en (accessed 19.2.2025).

European Commission (2025a). EU Product Compliance Network. Available at: https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/market-surveillance/organisation/eu-product-compliance-network_en (accessed 19.2.2025).

European Commission (2025b). Information and communication system on market surveillance. Available at: https://single-market-economy.ec.europa.eu/single-market/goods/building-blocks/information-and-communication-system-market-surveillance_en (accessed 19.2.2025).

European Federation for Transport and Environment (2024). Reducing emissions from non-road mobile machinery. Available at: https://www.transportenvironment.org/articles/reducing-emissions-from-non-road-mobile-machinery (accessed 19.2.2025).

European Union (2019). Regulation (EU) 2019/1020 of the European Parliament and of the Council of 20 June 2019 on market surveillance and compliance of products and amending Directive 2004/42/EC and Regulations (EC) No 765/2008 and (EU) No 305/2011 (Text with EEA relevance). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1020 (accessed 11.2.2025).

Geilenkirchen, G., Bolech, M., Hulskotte, J., Dellaert, S., Ligterink, N., van Eijk, E., Geertjes, K., Kosterman, M. and ‘t Hoen, M. (2024). *Methods for Calculating the Emissions of Transport in the Netherlands*. National Institute for Public Health and the Environment, RIVM, Bilthoven, the Netherlands.

Hagan, R., Markey, E., Clancy, J., Keating, M., Donnelly, A., O'Connor, D.J., Morrison, L. and McGillicuddy, E.J. (2022a). *Emissions from and Fuel Consumption Associated with Off-road Vehicles and Other Machinery*. Environmental Protection Agency, Johnstown Castle, Ireland. Available at: https://www.epa.ie/publications/research/air/Research_Report_412.pdf (accessed 10.2.2025).

Hagan, R., Markey, E., Clancy, J., Keating, M., Donnelly, A., O'Connor, D.J., Morrison, L. and McGillicuddy, E.J. (2022b). Non-road mobile machinery emissions and regulations: a review. *Air* 1(1), pp. 14–36. https://doi.org/10.3390/air1010002 (accessed 10.2.2025).

Institute for Energy and Environmental Research (2025a). TREMOD. Available at: https://www.ifeu.de/en/methods-tools/models/tremod (accessed 28.3.2025).

Institute for Energy and Environmental Research (2025b). Update of the models TREMOD/TREMOD-MM for emission reporting 2020 (reporting period 1990–2018). Available at: https://www.ifeu.de/en/project/uba-tremod-2019 (accessed 28.3.2025).

Kohv, N., Pajumägi, M., Zaitseva, O., Mandel, E., Rästa, K., Kupri, H.L., Kiisler, M., Štõkov, S., Kaasik, A. and Mägi, R. (2024). *Estonian Informative Inventory Report 1990–2022*. Estonian Environment Agency, Tallinn. Available at: https://keskkonnaportaal.ee/sites/default/files/Estonian%20Informative%20Inventory%20Report%202024_v1.pdf (accessed 24.3.2025).

Kraftfahrt-Bundesamt (no date, a). Granting type approvals. Available at: https://www.kba.de/EN/Themen_en/Typgenehmigung_en/Typgenehmigungserteilung_en/typgenehmigungserteilung_node_en.html (accessed 3.4.2025).

Kraftfahrt-Bundesamt (no date, b). Market surveillance. Available at: https://www.kba.de/EN/Themen_en/Marktueberwachung_en/marktueberwachung_node_en.html (accessed 3.4.2025).

Legislation.gov.uk (2016). Regulation (EU) 2016/1628 of the European Parliament and of the Council. Changes over time for: Article 7. Available at: https://www.legislation.gov.uk/eur/2016/1628/article/7 (accessed 19.5.2025).

Malta Resources Authority (2024). *Malta's National Inventory Document of Greenhouse Gas Emissions & Removals*. Available at: https://unfccc.int/sites/default/files/resource/Malta_GHGInv_1990-2022_NID_Sep2024_Final.pdf (accessed 6.5.2025).

Motiva (2023). Free online courses. Available in English by changing the language. Available at: https://motiva-verkkokurssit.fi/kurssit/tyokoneet/; https://motiva-verkkokurssit.fi/kurssit/vahapaastoiset-tyokoneet-taustaa-tavoitteet-yms/; https://motiva-verkkokurssit.fi/kurssit/vahapaastoiset-tyokoneet-tyon-suunnittelijalle/ (accessed 21.3.2025).

National Centre for Emissions Management (KOBIZE) (no date). About us. Available at: https://www.kobize.pl/en/page/id/409/about-us (accessed 19.3.2025).

National Centre for Emissions Management (KOBIZE) (2024). *Poland's National Inventory Document 2024*. Available at: https://unfccc.int/sites/default/files/resource/NID%202024%20POL%20v.2.pdf (accessed 1.4.2025).

National Environmental Protection Agency of Romania (2024). *Romania's Informative Inventory Report 2024*. Ministry of Environment, Water and Forests. Available at: https://www.ceip.at/status-of-reporting-and-review-results/2024-submission (accessed 20.3.2025).

Örtl, E. (2020). *Aktualisierung der Modelle TREMOD/TREMOD-MM für die Emissionsberichterstattung 2020 (Berichtsperiode 1990–2018)*. Available at: https://www.umweltbundesamt.de/publikationen/aktualisierung-tremod-mm-2019 (accessed 28.3.2025).

RDW (no date). Hoe u een typegoedkeuring verkrijgt. Available at: https://www.rdw.nl/zakelijk/branches/fabrikant/typegoedkeuring-aanvragen/hoe-u-een-typegoedkeuring-krijgt (accessed 14.3.2025).

Söderena, P., Pihlatie, M. and Nylund, N.-O. (2024). *Pathways for CO_2 Regulation in NRMM*. VTT Research Report No. VTT-CR-0032–24, VTT Technical Research Centre of Finland, Espoo (accessed 24.3.2025).

Statistics Finland (no date). Greenhouse gases: documentation of statistics. Available at: https://stat.fi/en/statistics/documentation/khki#Source%20data%20and%20data%20collections (accessed 24.3.2025).

Statistics Finland (2024). *Greenhouse Gas Emissions in Finland 1990 to 2022*. Available at: https://unfccc.int/sites/default/files/resource/FI_NID_UN_2022_2024-12-16.pdf (accessed 24.3.2025).

TNO Innovation for Life (2023). *Calculating Emissions for Dutch NRMM Fleet EMMA – Mephisto Model*. Available at: https://publications.tno.nl/publication/34641969/9yvJcp/TNO-2023-R12643.pdf (accessed 11.3.2025).

Umweltbundesamt (2020). Aktualisierung der Modelle TREMOD/TREMOD-MM für die Emissionsberichterstattung 2020 (Berichtsperiode 1990–2018) Berichtsteil “TREMOD-MM”. Available at: https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2020-06-29_texte_117-2020_tremod_mm_0.pdf (accessed 11.4.2025).

Umweltbundesamt (2024). *German Informative Inventory Report 2024*. Available at: https://iir.umweltbundesamt.de/2024/_media/wiki/germanys_iir2024_incl_projections-corrigendum.pdf (accessed 11.4.2025).

Umweltbundesamt (2025). *Emissionen fluorierter Treibhausgase in Deutschland*. Available at: https://www.umweltbundesamt.de/themen/klima-energie/fluorierte-treibhausgase-fckw/emissionen/emissionsverlauf (accessed 28.3.2025).

Van der Net, L., Staats, N., Coenen, P.W.H.G., Rienstra, J.D., Zijlema, P.J., Arets, E.J.M.M., Baas, K., van Baren, S.A., Dröge, R., Geertjes, K. and Honig, E. (2024). *Greenhouse Gas Emissions in the Netherlands 1990–2022. National Inventory Report 2024*. National Institute for Public Health and the Environment (RIVM), Bilthoven, the Netherlands.

Vehicle Certification Agency (2024). Type approval for non-road mobile machinery (NRMM). Available at: https://www.vehicle-certification-agency.gov.uk/vehicle-type-approval/what-is-vehicle-type-approval/non-road-mobile-machinery-nrmm/ (accessed 12.5.2025).

Wever, D., Bolech, M., Coenen, P.W.H.G., Dellaert, S.N.C., Dröge, R., Geilenkirchen, G., Honig, E., van Huet, B., Kosterman, M., van Mill, S.E.H. and van Zanten, M.C. (2024). *Informative Inventory Report 2024. Emissions of Transboundary Air Pollutants in the Netherlands 1990–2022*. National Institute for Public Health and the Environment (RIVM), Bilthoven, the Netherlands.

Bibliography

Cleaner Construction for London (2024). *Non-Road Mobile Machinery (NRMM) Practical Guide v.6*. Available at: https://www.london.gov.uk/sites/default/files/2024-05/NRMM-Practical-Guide-Accessible-May2024.pdf (accessed 12.3.2025).

European Commission (no date). The European Green Deal – striving to be the first climate-neutral continent. Available at: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en (accessed 9.1.2025).

Helms, H. and Heidt, C. (2014). Erarbeitung eines Konzepts zur Minderung der Umweltbelastung aus NRMM. Available at: https://www.umweltbundesamt.de/publikationen/erarbeitung-eines-konzepts-zur-minderung-der (accessed 19.5.2025).

Lončarević, Š., Ilinčić, P., Šagi, G. and Lulić, Z. (2022). Problems and directions in creating a national non-road mobile machinery emission inventory: a critical review. *Sustainability* 14(6), p. 3471.

Ministry of the Environment Finland (2024). *Annual Climate Report 2024*. Available at: https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/165896/YM_2024_36.pdf?sequence=1&isAllowed=y (accessed 10.2.2025).

Ramírez, A., de Keizer, C., Van der Sluijs, J.P., Olivier, J. and Brandes, L. (2008). Monte Carlo analysis of uncertainties in the Netherlands greenhouse gas emission inventory for 1990–2004. *Atmospheric Environment* 42(35), pp. 8263–8272.

Sitoumus2050 (no date). Työkonealan green deal – sopimus. Available at: https://sitoumus2050.fi/tyokone#/ (accessed 19.12.25).

Winther, M. and Nielsen, O.K. (2006). Fuel use and emissions from non-road machinery in Denmark from 1985–2004 – and projections from 2005–2030. Danish Environmental Protection Agency, Odense.

Appendix 1 Recommendations from the EFFORT Research Project Reaffirmed by EXAMINE_NRMM Findings

There is a need to devise a methodology for registering and recording the number, age, fuel use and other relevant data for all the different machines in the NRMM category. This will also be of use for market surveillance activities.

During the data collection phase of the EFFORT project, it emerged that not all contacts had an understanding of what non-road mobile machines are, despite nominally working in the area. Similarly, it was not clear to the contacts who is in charge of these machines and where relevant information, such as the manufacturer, type approval number, engine power, annual operating hours or even the age of the machine, can be found. This supports the recommendation to devise an educational resource relating to NRMM to share information about different aspects of NRMM with people with different levels of needs and interests. An educational resource would support market surveillance too, as it may help the owner or user of the NRMM to know what information is needed and to be able to collate all the information in one place, thus making the surveillance process more straightforward.

The level of detail in the data available and, consequently, the country-specific emission inventories vary hugely between different countries. This gives rise to the need to unify the standards of inventory development and regulations in the long term, to make comparison between emission inventories in different countries easier. The same principle applies to market surveillance strategies and processes between the different countries.

As some of the data holders were reluctant to share information for fear of sensitive information reaching competitors, the research highlighted the potential benefits that could be gained from the establishment of new regulations to assure data holders that the information received will be used only to establish details about the NRMM fleet in Ireland, to compile an accurate pollutant emission inventory and as a foundation for market surveillance.

During the research for the EFFORT project, it emerged that some countries have built up long-standing relationships between industry, research facilities and reporting agencies to establish a way of transferring information between the data holder and the reporting agency. This kind of relationship-building is recommended to facilitate Irish NRMM emission reporting and market surveillance.

A further recommendation to resolve some of the other issues would be a mandatory registration form to be filled in at the time of purchase of each machine and for each company to have a file that includes all the relevant data for each NRMM in its fleet, which would be updated every time a new NRMM was acquired. While this may be challenging for some sectors in the NRMM category, it would greatly aid implementation of Regulation (EU) 2016/1628 and facilitate market surveillance. For large industrial machinery providers and resellers, for example, it would be relatively easy to keep a file for each machine. This file would include the following information about each machine in stock: manufacturer, EU approval number, type of machine, age of machine, type of fuel used, engine size and power output (kW). This file would be updated with each new machine arriving in stock. When a machine is sold, this recorded information would be added to the other documentation involved in completing the sale. When the transaction is completed, the new owner of the machine would then be required to add information on the amount of fuel bought (yearly, monthly, etc., depending on type and use), where the fuel is bought from and the operating hours of the machine (annual, monthly, etc., depending on frequency of use) to the existing file. Alternatively, data-sharing agreements could be set up between the EPA and the main data holders.

It is also recommended to make it mandatory to report the type and amount of fuel used in NRMM as part of the already mandatory public service reporting to the Sustainable Energy Authority of Ireland. Another option would be for the authority carrying out the business

energy use survey (i.e. the Central Statistics Office) to add a question asking what portion of the fuel is used for NRMM. Having all the relevant documents together in one file would make the document check more straightforward.

Some difficulties with this type of documentation may arise when it comes to small and infrequently used machines, particularly those used in private households and gardening. These machines are often filled from bulk tanks, which makes it difficult to specify the amount of fuel used and hours of usage for each machine. However, registration forms for such NRMM could be adapted to better suit the intended use. Keeping a record of each machine as it enters the market, whether imported or manufactured locally, and ensuring that this record travels with the machine as it changes owner is the first recommended step in starting to compile an accurate inventory of the NRMM fleet in Ireland as well as to facilitate market surveillance.

Abbreviations

AMSA	Automotive Market Surveillance Authority
Defra	Department for Environment, Food and Rural Affairs (UK)
DVSA	Driver and Vehicle Standards Agency (UK)
EFFORT	Emissions from and Fuel Consumption Associated with Off-road Vehicles and Other Machinery
EFTA	European Free Trade Association
EPA	Environmental Protection Agency
EU	European Union
ICSMS	Information and Communication System on Market Surveillance
IIR	Informative Inventory Report
IVL	Institutet för Vatten- och Luftvårdsforskning (Swedish Environmental Research Institute)
NI	Northern Ireland
NIR	National Inventory Report
NRMM	Non-road mobile machinery
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
UOKiK	Office of Competition and Consumer Protection (Poland)

An Ghníomhaireacht Um Chaomhnú Comhshaoil

Tá an GCC freagrach as an gcomhshaol a chosaint agus a fheabhsú, mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ar thionchar díobhálach na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialáil: Rialáil agus córais chomhlíonta comhshaoil éifeachtacha a chur i bhfeidhm, chun dea-thorthaí comhshaoil a bhaint amach agus díriú orthu siúd nach mbíonn ag cloí leo.

Eolas: Sonraí, eolas agus measúnú ardchaighdeáin, spriocdhírithe agus tráthúil a chur ar fáil i leith an chomhshaoil chun bonn eolais a chur faoin gcinnteoireacht.

Abhcóideacht: Ag obair le daoine eile ar son timpeallachta glaine, táirgiúla agus dea-chosanta agus ar son cleachtas inbhuanaithe i dtaobh an chomhshaoil.

I measc ár gcuid freagrachtaí tá:

Ceadúnú

- Gníomhaíochtaí tionscail, dramhaíola agus stórála peitril ar scála mór;
- Sceitheadh fuíolluisce uirbigh;
- Úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe;
- Foinsí radaíochta ianúcháin;
- Astaíochtaí gás ceaptha teasa ó thionscal agus ón eitlíocht trí Scéim an AE um Thrádáil Astaíochtaí.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Iniúchadh agus cigireacht ar shaoráidí a bhfuil ceadúnas acu ón GCC;
- Cur i bhfeidhm an dea-chleachtais a stiúradh i ngníomhaíochtaí agus i saoráidí rialáilte;
- Maoirseacht a dhéanamh ar fhreagrachtaí an údaráis áitiúil as cosaint an chomhshaoil;
- Caighdeán an uisce óil phoiblí a rialáil agus údaruithe um sceitheadh fuíolluisce uirbigh a fhorfheidhmiú
- Caighdeán an uisce óil phoiblí agus phríobháidigh a mheasúnú agus tuairisciú air;
- Comhordú a dhéanamh ar líonra d'eagraíochtaí seirbhíse poiblí chun tacú le gníomhú i gcoinne coireachta comhshaoil;
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Dramhaíola agus Ceimiceáin sa Chomhshaol

- Rialacháin dramhaíola a chur i bhfeidhm agus a fhorfheidhmiú lena n-áirítear saincheisteanna forfheidhmithe náisiúnta;
- Staitisticí dramhaíola náisiúnta a ullmhú agus a fhoilsiú chomh maith leis an bPlean Náisiúnta um Bainistíocht Dramhaíola Guaisí;
- An Clár Náisiúnta um Chosc Dramhaíola a fhorbairt agus a chur i bhfeidhm;
- Reachtaíocht ar rialú ceimiceán sa timpeallacht a chur i bhfeidhm agus tuairisciú ar an reachtaíocht sin.

Bainistíocht Uisce

- Plé le struchtúir náisiúnta agus réigiúnacha rialachais agus oibriúcháin chun an Chreat-treoir Uisce a chur i bhfeidhm;
- Monatóireacht, measúnú agus tuairisciú a dhéanamh ar chaighdeán aibhneacha, lochanna, uiscí idirchreasa agus cósta, uiscí snámha agus screamhuisce chomh maith le tomhas ar leibhéil uisce agus sreabhadh abhann.

Eolaíocht Aeráide & Athrú Aeráide

- Fardail agus réamh-mheastacháin a fhoilsiú um astaíochtaí gás ceaptha teasa na hÉireann;
- Rúnaíocht a chur ar fáil don Chomhairle Chomhairleach ar Athrú Aeráide agus tacaíocht a thabhairt don Idirphlé Náisiúnta ar Ghníomhú ar son na hAeráide;
- Tacú le gníomhaíochtaí forbartha Náisiúnta, AE agus NA um Eolaíocht agus Beartas Aeráide.

Monatóireacht & Measúnú ar an gComhshaol

- Córais náisiúnta um monatóireacht an chomhshaoil a cheapadh agus a chur i bhfeidhm: teicneolaíocht, bainistíocht sonraí, anailís agus réamhaisnéisiú;
- Tuairiscí ar Staid Thimpeallacht na hÉireann agus ar Tháscairí a chur ar fáil;
- Monatóireacht a dhéanamh ar chaighdeán an aeir agus Treoir an AE i leith Aeir Ghlain don Eoraip a chur i bhfeidhm chomh maith leis an gCoinbhinsiún ar Aerthruailliú Fadraoin Trasteorann, agus an Treoir i leith na Teorann Náisiúnta Astaíochtaí;
- Maoirseacht a dhéanamh ar chur i bhfeidhm na Treorach i leith Torainn Timpeallachta;
- Measúnú a dhéanamh ar thionchar pleananna agus clár beartaithe ar chomhshaol na hÉireann.

Taighde agus Forbairt Comhshaoil

- Comhordú a dhéanamh ar ghníomhaíochtaí taighde comhshaoil agus iad a mhaoiniú chun brú a aithint, bonn eolais a chur faoin mbeartas agus réitigh a chur ar fáil;
- Comhoibriú le gníomhaíocht náisiúnta agus AE um thaighde comhshaoil.

Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéil radaíochta agus nochtadh an phobail do radaíocht ianúcháin agus do réimsí leictreamaighnéadacha a mheas;
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha;
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta;
- Sainseirbhísí um chosaint ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Ardú Feasachta agus Faisnéis Inrochtana

- Tuairisciú, comhairle agus treoir neamhspleách, fianaise-bhunaithe a chur ar fáil don Rialtas, don tionscal agus don phobal ar ábhair maidir le cosaint comhshaoil agus raideolaíoch;
- An nasc idir sláinte agus folláine, an geilleagar agus timpeallacht ghlan a chur chun cinn;
- Feasacht comhshaoil a chur chun cinn lena n-áirítear tacú le hiompraíocht um éifeachtúlacht acmhainní agus aistriú aeráide;
- Tástáil radóin a chur chun cinn i dtithe agus in ionaid oibre agus feabhsúchán a mholadh áit is gá.

Comhpháirtíocht agus Líonrú

- Oibriú le gníomhaireachtaí idirnáisiúnta agus náisiúnta, údaráis réigiúnacha agus áitiúla, eagraíochtaí neamhrialtais, comhlachtaí ionadaíocha agus ranna rialtais chun cosaint chomhshaoil agus raideolaíoch a chur ar fáil, chomh maith le taighde, comhordú agus cinnteoireacht bunaithe ar an eolaíocht.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an GCC á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóir. Déantar an obair ar fud cúig cinn d'Oifigí:

1. An Oifig um Inbhunaitheacht i leith Cúrsaí Comhshaoil
2. An Oifig Forfheidhmithe i leith Cúrsaí Comhshaoil
3. An Oifig um Fhianaise agus Measúnú
4. An Oifig um Chosaint ar Radaíocht agus Monatóireacht Comhshaoil
5. An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tugann coistí comhairleacha cabhair don Ghníomhaireacht agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

epa Research

Evidence Synthesis Report 9

Exploration of Best Practice of Market Surveillance and Type Approval of Internal Combustion Engines Emissions for Non-Road Mobile Machinery (EXAMINE_NRMM)

Authors:

Rita Hagan, Eoin McGillicuddy and Aoife Donnelly

EPA Research: McCumiskey House, Richiew, Clonskeagh, Dublin 14.

Phone: 01 268 0100
Twitter: @EPAResearchNews
Email: research@epa.ie

EPA Research Webpages
www.epa.ie/our-services/research/

www.epa.ie

Rialtas na hÉireann
Government of Ireland