



HM Treasury



Department  
for Environment  
Food & Rural Affairs

# Non-road mobile machinery and red diesel call for evidence: summary of responses

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ISBN 978-1-912809-58-5  
PU2260

# Contents

Chapter 1	Introduction	2
Chapter 2	Summary of responses	3
Chapter 3	Conclusion	7
Annex A	Call for evidence questions	8
Annex B	List of respondents	10

# Chapter 1

## Introduction

- 1.1 At Spring Statement 2018, the government announced a call for evidence on the use of rebated gas oil (often called red diesel) by non-road mobile machinery (NRMM), in order to improve its understanding of what is preventing users from switching to cleaner technologies. Red diesel for agricultural use was outside the scope of this call for evidence, as was use by fishing vessels, home heating and other stationary uses.
- 1.2 'Red diesel' is the term used for gas oil, commonly known as diesel, that is intended for use other than as fuel to propel road vehicles. Gas oil intended for use in diesel engine road vehicles (DERV) has a fuel duty rate of 57.95 pence per litre (ppl). Gas oil intended for other uses is entitled to a rebate of 46.81ppl (an 81% discount) giving an effective duty rate of 11.14ppl.
- 1.3 A call for evidence named 'Non-road mobile machinery and red diesel' was published on 15 May 2018 and closed on 24 July 2018.
- 1.4 We received 78 formal responses to the call for evidence: 16 from manufacturers of alternative technologies, 16 from the construction sector, 7 from quarrying/mining, 6 from airports, 6 from freight (road and rail), 5 from canal boats, 5 from ports and 1 from waste management. The remaining 16 responses were from local government, individuals and NGOs. A list of organisations who responded is provided in Annex B.
- 1.5 The next chapter summarises the responses received. The government is grateful to all those who contributed to the call for evidence, both formally through written responses and during discussions with officials.

# Chapter 2

## Summary of responses

### Overview

- 2.1 A range of views on potential changes to the taxation of red diesel with respect to use in NRMM were expressed.
- 2.2 The vast majority of responses from developers of alternative technology and fuels were in support of changes to the taxation of red diesel. Most felt that the low cost of running a diesel engine using red diesel was providing a barrier to entry for cleaner technology and fuels. One respondent wrote that they were 'hindered by unfavourable cost comparisons with the artificially low cost of diesel', which meant they are unable to compete.
- 2.3 Most responses from users of NRMM were not in favour of a change to taxation of red diesel in NRMM. The majority felt that alternative technology was not sufficiently developed or reliable enough to switch to, or that there simply is no alternative at this time. Some responses suggested alternatives to diesel were simply not cost-competitive, and a change to taxation of red diesel would be a significant cost to business. One respondent wrote 'The business case is that red diesel is cheap and in terms of initial outlay and overall costs red diesel wins.' Most businesses indicated these costs would be passed on to their customers.
- 2.4 Some users and manufacturers of NRMM indicated they would be more supportive of policy change if this focused on ensuring that users operate machinery that meets the latest emissions standards. One respondent wrote 'Without question the most effective approach would be to move the existing NRMM fleet to the latest Stage V engines which provide extremely low emissions across a wide range of engine powered categories.' Other users argued that any additional tax revenue raised through changes to tax treatment of red diesel should be invested into developing new technology for the sector and increasing access to alternative fuels.

### Availability of alternative technology to diesel engines

- 2.5 Though alternatives exist for a variety of machinery, a common theme from the users of NRMM is that development of machinery using alternative fuels or using battery technology is generally in its infancy. One respondent wrote 'due to battery recharging times, two pieces of plant were required to replace one diesel (making this option 6 times more expensive).' Many users of red diesel stated that there are no cleaner alternatives for at least some of their machinery, and the UK is a relatively small market for manufactures of NRMM. For example, airport and port operators indicated that their general

strategy is to implement electric or hybrid solutions, but that alternative technology and fuel is not available for some machinery.

- 2.6 For some construction machinery (e.g. excavators), “hybrid” technology is available, however the main power source is still a diesel engine. This takes the form of a diesel engine operating in conjunction with an energy recovery system; the effectiveness of such a system is highly dependent on the purpose of the machine. For larger machinery most users indicated that there are not reliable hybrid or electrical alternatives on the market due to the power requirements of machinery.
- 2.7 Responses from the alternative fuels and technologies industry suggested several products that are market-ready Liquefied Petroleum Gas (LPG) generators are available from several suppliers and have lower emissions of nitrogen oxides than diesel generators. One response indicated there is also the possibility of converting existing diesel generators to running on LPG. One respondent wrote that they are ‘aware that there are UK based companies, which are trying to develop gas engines to replace dirtier, diesel models. However, efforts are again hampered by the cost of red diesel.’
- 2.8 A few responses highlighted that zero-emissions transport refrigeration units (TRU) have been developed and are ready for wider roll-out, and are price competitive against white diesel but not red diesel.

### Types of machinery used

- 2.9 For those responses which provided an overview of the NRMM used, most agreed with the set of machinery defined in Annex A of the call for Evidence document.
- 2.10 Some machinery is consistently used by businesses in most sectors. Mobile generators, lighting equipment and forklifts were commonly given as examples in responses. Large machinery such as cranes and telehandlers were used in both construction and port locations.
- 2.11 Responses from the construction and mining and quarrying sectors provided a similar range of large machinery: dump trucks, excavators etc., but had a range of smaller machinery that suited the needs of the site. A number of responses indicate they use plant hire machinery for the majority of their operations.
- 2.12 One response from the road surfacing sector indicated the use of pavers, rollers and tractors in their business.
- 2.13 A wide range of vehicles operate within airports and ports that are fuelled using red diesel to support airport/port operations. Some large tugs for aircraft and ships do not have electric alternatives on the market.
- 2.14 Rail freight is largely transported using locomotives that are fuelled by red diesel.
- 2.15 The refrigeration of goods transported by road is generally powered by a transport refrigeration unit (TRU), which run on red diesel.

## Power source of machinery

- 2.16 The vast majority of NRMM used by respondents are powered by diesel engines and use red diesel.
- 2.17 Several responses from users indicated that some of their fleet were electric or used alternative fuels, although no response indicated that none of the NRMM runs on diesel.

## Geography of operations

- 2.18 Responses from the mining and quarrying sector indicated that most of their operational sites are in rural areas, and most felt that their business operations should fall outside of the scope of this call for evidence.
- 2.19 More than half of responses indicated a mixture of urban and rural activities, other than those set in a precise location (e.g. airports).

## Age and operation of machinery

- 2.20 From the responses received, there is a range of attitudes to buying/hiring new NRMM and maintaining old machinery.
- 2.21 Some responses indicated that users and owners keep their NRMM as up-to-date as is economically practical; as they view reliability and fuel efficiency as a high priority for their business. More than half of responses suggested that the users and owners base decisions on replacing their NRMM on a variety of factors including cost, reliability and fuel efficiency. Some responses indicated that NRMM varies in lifespan partially due to expense and specialism of the equipment. Most equipment can be rebuilt to ensure a long operational life.
- 2.22 Some responses indicated that users do look to operate machinery efficiently – fuel costs are substantial even at the fuel duty rate charged for red diesel. Technology exists such as GPS to evaluate efficiency of use of machinery, and users seek to use this in conjunction with operator training to maximise fuel efficiency. However, other responses held the view that machinery more powerful than required is often used.

## Barriers to using cleaner technology

- 2.23 More than three quarters of respondents that had identified alternatives to using diesel engines cited the relatively high buying and running cost as a barrier to adopting cleaner technology. For example, all rail freight companies that provided responses suggested that an increase in fuel costs would not drive the adoption of cleaner locomotives, due to the expense and limited availability of alternatives to diesel fuel. One respondent wrote 'Rail freight markets could not bear an increase in costs without significant modal shift from rail to road.' Many companies using red diesel are small, and may struggle to absorb the additional fuel cost if red diesel tax rate was changed.
- 2.24 On the other hand, several responses presented estimates of the costs of alternatives, showing that the rebate to red diesel prevents the cleaner solutions from being cost competitive.

- 2.25 Around a quarter of respondents who use red diesel were concerned that higher fuel costs would mean businesses would have less money to invest in cleaner machines. There was broad agreement by users of red diesel that any additional cost burden from removing the rebate would be passed on to customers, some of which are taxpayer funded.
- 2.26 Around half of responses noted the practicality of alternatives compared to diesel engines. NRMM needs to operate in a wide range of conditions, some of which are not suitable for running a battery-powered engine. Some users were also concerned about the need to charge battery-powered engines, perhaps increasing the number of plant required to complete the project.
- 2.27 A few responses also highlighted that there would need to be investment in infrastructure to ensure alternative fuels are more widely available.
- 2.28 A small number of responses added that there are environmental costs to alternatives to diesel that need to be considered. For example, batteries used in battery-powered technology need to be disposed of.
- 2.29 Some responses cited reliability concerns with alternatives, and in the case of using LPG potential health and safety concerns of operating the machinery. Some users were concerned that retrofitting machinery to use alternative fuels could invalidate manufacturers' warranties, and that this fear prevented investment in cleaner technologies.
- 2.30 A number of users of red diesel stated that where alternatives do exist, they are new and represent a riskier investment. One respondent stated that newer, alternatively powered NRMM represent a more risky investment prospect, due to the potential for a serious or unforeseen defect to take place which would render the plant inoperable or take a long time to address, which could lead to loss of production and therefore revenue.

# Chapter 3

## Conclusion

- 3.1 The government is grateful to all those who contributed to the call for evidence, both formally through written responses and during discussions with officials.
- 3.2 The responses from both industry and manufacturers of machinery make it clear that cost and a lack of alternatives to diesel are concerns. This is the case to a greater and lesser extent across sectors. However, the call for evidence has established that for some uses, practical alternatives to red diesel do exist.
- 3.3 We are not setting out any specific proposals at this stage. However, government will continue to pursue policies to reduce the overall environmental impact of diesel use and encourage the uptake of alternatives in industries where a practical substitute for diesel engines is available.

# Annex A

## Call for evidence questions

### Hire companies and users of NRMM, especially those that use red diesel

A.1 The government wants to gather views and insights into how NRMM is used, and in particular why NRMM users choose diesel powered machinery.

1 What NRMM do you use/hire currently?

For each type of machinery identified in question 1 please can you provide the answers to the following questions:

2 What is the power source of the machinery (specify fuel type or if electric or hybrid)?

3 Where do you use it? For what purpose is it typically used, and is it used primarily in urban or rural areas?

4 In a typical year, how many litres of red diesel do you use?

5 How many hours do you use red diesel on average over the course of a typical year? Does this change as the machinery gets older?

6 How old is your NRMM?

7 At what age do you replace your NRMM?

8 Do you buy NRMM new, second-hand or lease? Do you have a policy for deciding to replace/upgrade machinery?

9 What are the criteria you use to decide when to replace your machinery? For example, fuel costs, reliability, safety, maintenance costs.

10 Have you considered alternatives and if so, why do you still use red diesel?

11 Have you implemented any operating procedures to minimise the emissions and/or energy usage of your machinery?

12 What other types of equipment will be available to you next time you come to replace your machinery? What technologies are available? Are there any clean technologies e.g. electricity/alternative fuels?

13 What barriers are there for you picking these cleaner technologies?

14 What does the business case look like, on operating costs, between the alternatively fuelled equipment and the red diesel-powered ones

15 If you know your Standard Industrial Classification<sup>1</sup> code, please also provide this. If you don't know your SIC code, please describe the sector in which your business primarily operates.

## **Manufacturers of machinery and engines**

16 The government would be interested in views from manufacturers of machines and engines which use red diesel on the follow questions:

17 What non-diesel machinery do you sell that could operate in these markets?

18 What cleaner technologies do you have currently?

19 What cleaner technologies are in the pipeline and when will they become available?

20 Do you consider you are faced with commercial pressure to accelerate development of cleaner technologies for these types of machinery? If not, why not?

21 What could accelerate the uptake of cleaner engines?

22 What information do you have on the lifespan of the machinery, red diesel and other engines you currently provide?

23 What information do you have on the cost of lower emission machinery compared with diesel engines?

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<sup>1</sup> <http://resources.companieshouse.gov.uk/sic/>

# Annex B

## List of respondents

Aggregate Industries  
Air Liquide  
AMP Machinery Systems  
AMPS  
Anglo American Platinum  
APPG on Air Pollution  
BAM Nuttall  
Belfast Airport  
Brandon Hire  
British Marine  
British Ports Association  
Calor Gas  
Caroline Pidgeon AM  
Civil Engineering Contractors Association  
Construction Equipment Association  
Construction Plant Hire Association  
Cory Riverside Energy  
Cullimore Group  
DB Cargo  
Dearman  
Edinburgh Airport  
Environmental Innovation Business  
Environmental Services Association  
Federation of Traditional Metal Roofing Contractors  
Forth Ports

Freight on Rail  
Freight Transport Association  
Freightliner  
Gatwick Airport  
Greater London Authority  
Hawk Group  
Heathrow Airport  
Hutchison Ports  
Ingersoll Rand  
Islington Council  
Jackson Civil Engineering  
JCB BT Harrison  
Jones Bros  
Kier Construction  
Liberty Steel  
London Sustainability Exchange  
Longcliffe Quarries  
Longwater Gravel  
Manchester Airports Group  
Markline Construction  
Mineral Products Industry  
Mining Association of the UK  
National Farmers Union  
Off Grid Energy  
Proelectric Services  
Rail Delivery Group  
Rail Freight Group  
Residential Boat Owners Association  
Road Haulage Association  
Road Surface Treatments Association  
Rocks Off Gravel  
Sainsbury's

Scottish and Southern Energy

Shell

Society of Motor Manufacturers and Traders

Sustainable Aviation

Tarmac

Tia Yachts

UK Major Ports Group

Veolia

Vp PLC

Williams Construction

Wood Machinery Solution

In addition, we received responses from 10 individuals.



### **HM Treasury contacts**

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