



**LONDON LOW EMISSION**  
CONSTRUCTION PARTNERSHIP



# **Non-road Mobile Machinery Register**

3<sup>rd</sup> February 2017  
Daniel Marsh

SUPPORTED BY  
**MAYOR OF LONDON**



# What is “non-road mobile machinery”?

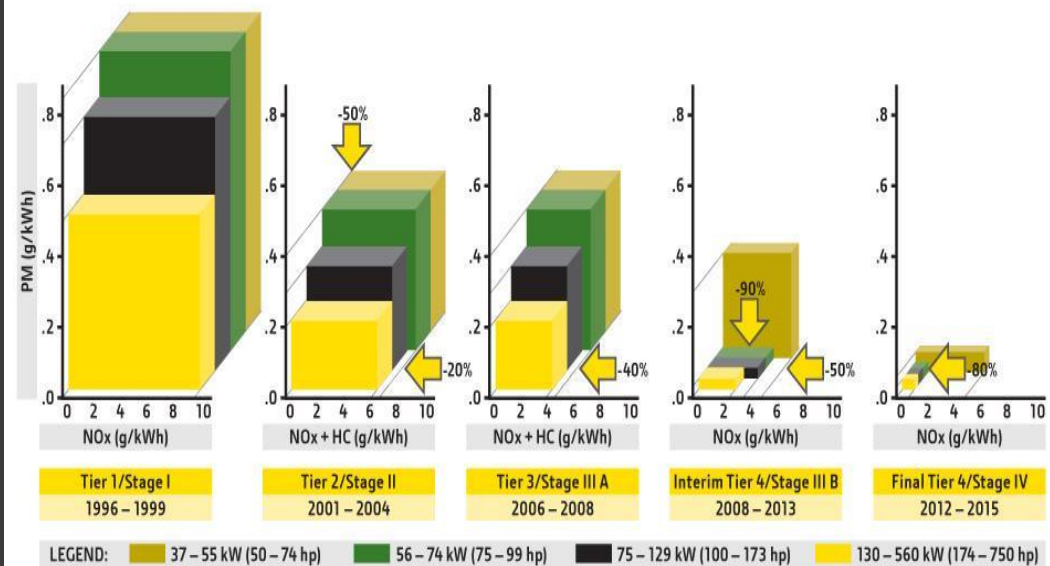


# Outline of Non-Road Mobile Machinery (NRMM) Emissions Regulations

Directive 97/68/EC (emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery) adopted in 1997

The Directive requires that, in order to be placed on the EU market, engines for use in NRMM must be approved to demonstrate compliance with pollutant emission limits.

EPA and EU nonroad emissions regulations: 37 – 560 kW (50 – 750 hp)



# London's LEZ for NRMM

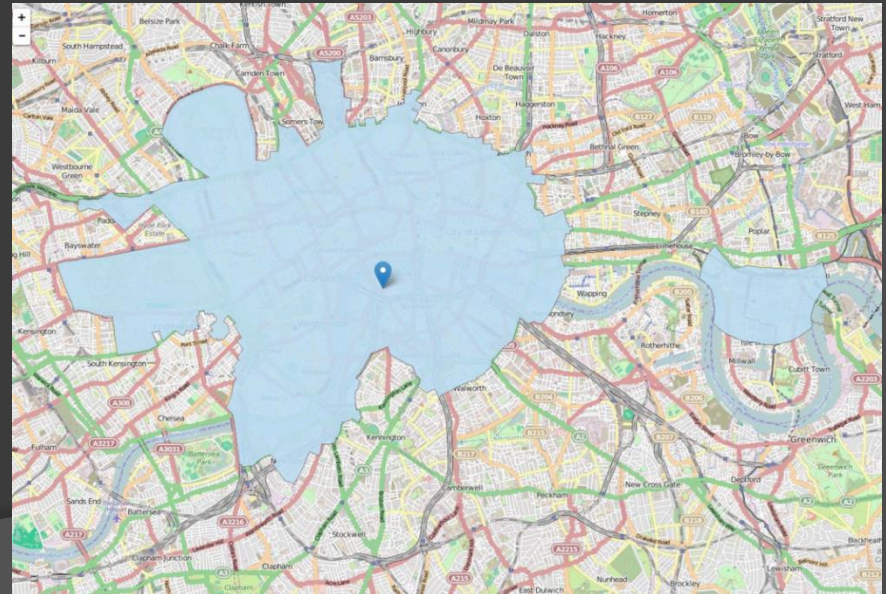
**1<sup>st</sup> September 2015**

NRMM (net power 37-560kW) used on **all developments** across the 'central activity zone' & Canary Wharf will be required to meet stage IIIB of the directive as a minimum

NRMM used on the site of any **major development** within Greater London will be required to meet stage IIIA of the directive as a minimum

**1<sup>st</sup> September 2020**

Tighter emission standards for CAZ, Canary Wharf and Greater London introduced



# Non-road mobile machinery website

- To inform developers and contractors about which equipment is compliant for use within the NRMM low emission zone
- The SPG requires registration of NRMM details from **all developments** within the Central Activity Zone (CAZ) and Canary Wharf and **all major developments** within Greater London
- Allow for NRMM LEZ exemption application
- Allow for local authority site audits and enforcement

**nrmm.london**

- Create a unique data resource that will add to the understanding of what NRMM equipment is currently being used and allow later assessment to demonstrate the uptake of higher emission standards
- Allow for a more accurate London Atmospheric Emission Inventory (LAEI) to be developed
- It will be a portal for future GLA policy updates

**nrmm.london**

# How is this policy achieved?

- ⦿ Reorganisation of NRMM fleet
- ⦿ Replacing equipment (with new or second hand equipment which meets the policy emission requirements)
- ⦿ Retrofit abatement technologies
- ⦿ Re-engining
- ⦿ Using an alternative machine for the task

# What action is required from industry?

- Register major developments in Greater London and all developments in the central activity zone and Canary Wharf at [nrmm.london](http://nrmm.london)
- Procure NRMM at the minimum required EU emission standard for the development zone
- Record details of all NRMM between 37 – 560 kW



## LONDON'S 'LOW EMISSION ZONE' FOR NON-ROAD MOBILE MACHINERY

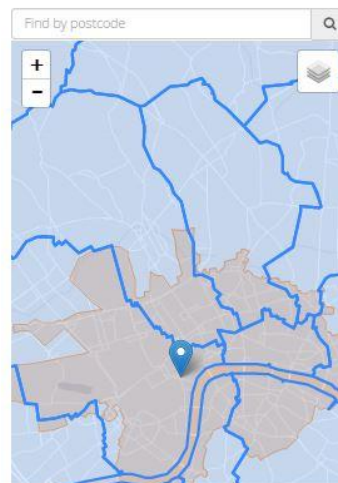
Air pollution is one of the most significant challenges facing London. We are in breach of European legal limits for Nitrogen Dioxide (NO<sub>2</sub>) and many areas exceed safe limits for Particulate Matter (PM) as set by the World Health Organisation. Bold new measures have been proposed by the Mayor to tackle emissions from road transport, particularly diesel vehicles, including an expansion of the Ultra Low Emission Zone. However, this is only half the problem – current estimates of emissions from NRMM used on construction sites are shown to be responsible for 7% of NO<sub>x</sub> emissions, 14% for PM<sub>2.5</sub> and 8% of PM<sub>10</sub> emissions across the Capital and this is why the Mayor is determined to take action.

### WHO NEEDS TO REGISTER?



[How to use the NRMM register](#)  
[How to read engine plates](#)  
[NRMM Exemption policy](#)  
[Retrofit technology](#)  
[Local Authority use](#)

### LOW EMISSION ZONE



### USER LOGIN

**Username \***

**Password \***

[Create new account](#)

[Request new password](#)

[Log in](#)

### SEARCH

Search



### TWITTER FEED



## LONDON'S 'LOW EMISSION ZONE' FOR NON-ROAD MOBILE MACHINERY

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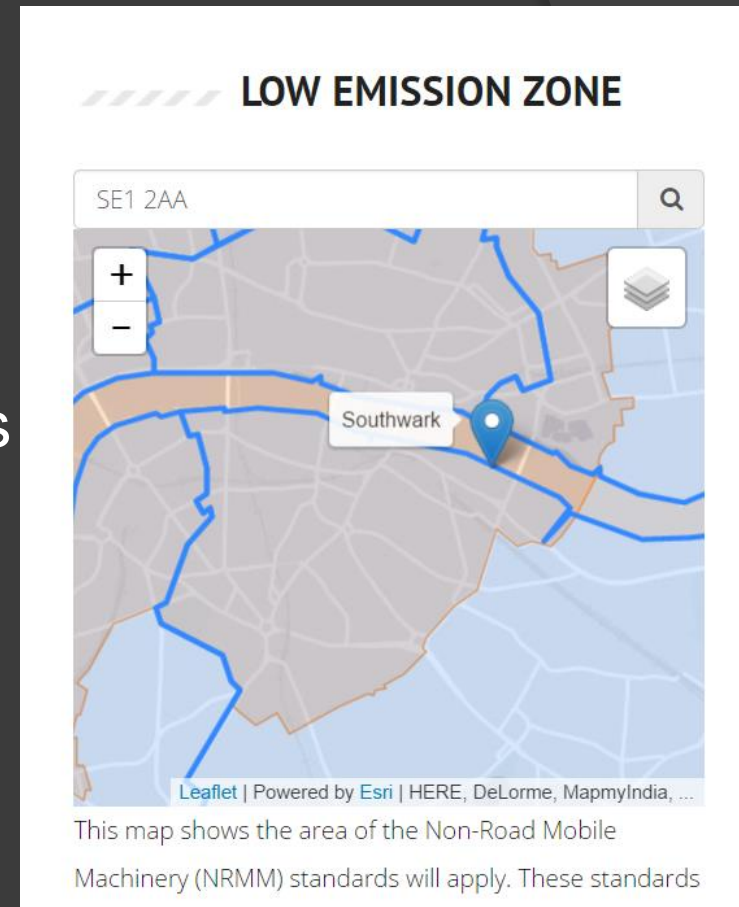


## LONDON'S 'LOW EMISSION ZONE' FOR NON-ROAD MOBILE MACHINERY

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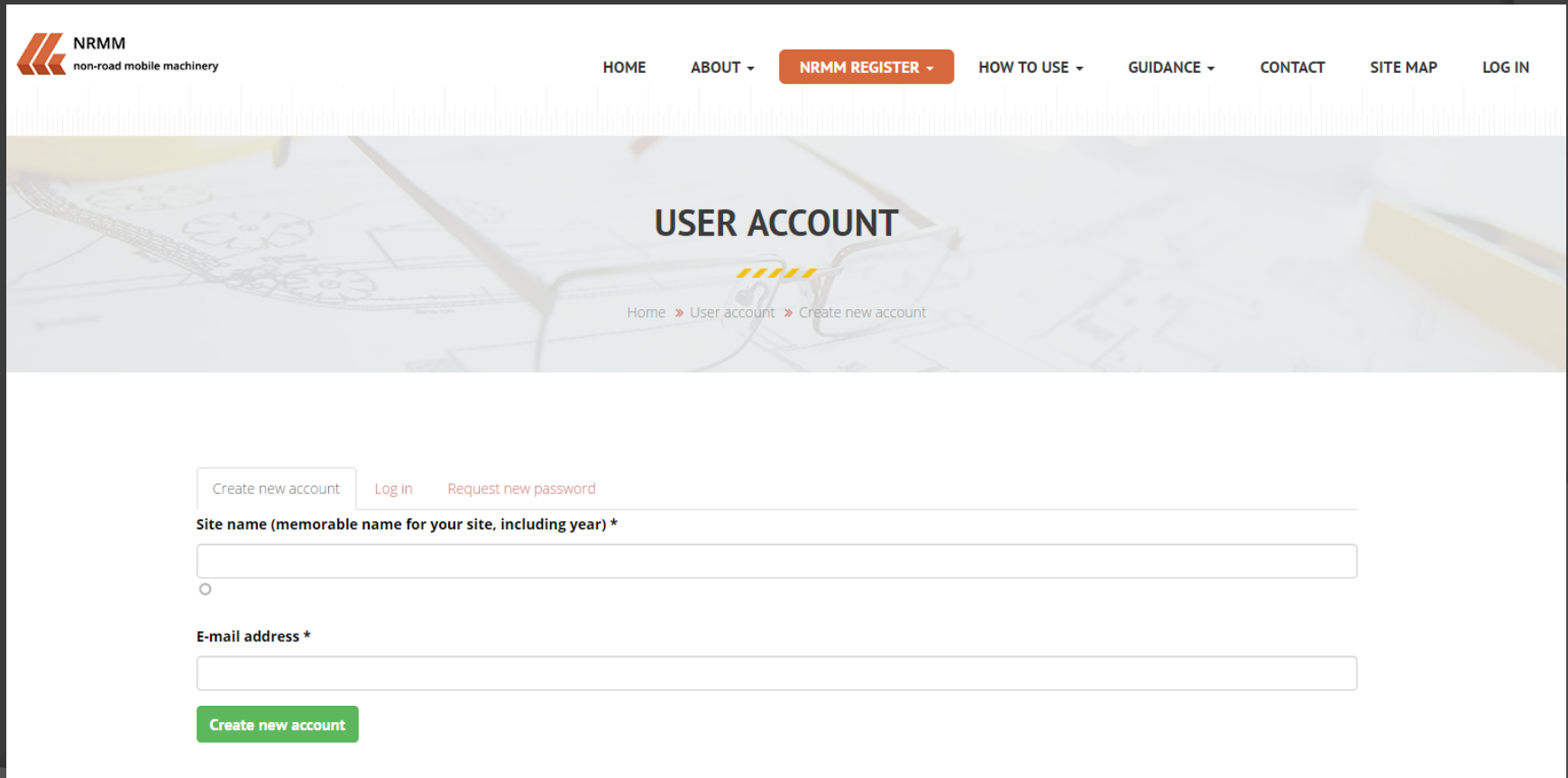
# nrmmlondon

- Improved user experience
- Improved map with borough boundaries and site location pin
- Advanced site search function filters for key words and phrases
- Returns descriptive error messages
- Start/end date for developments – marked as open or closed
- 'Live' active machinery
- CSV download & print options
- Easier editing
  - keeping information up to date
- Delete request



# Registering for a user account

Site name - registered by development not by developer Group (Development name and year)



The screenshot shows the NRMM (non-road mobile machinery) website's registration page. The header includes the NRMM logo and navigation links: HOME, ABOUT, NRMM REGISTER (highlighted in an orange button), HOW TO USE, GUIDANCE, CONTACT, SITE MAP, and LOG IN. The main content area has a background image of technical drawings and a yellow highlighter. The title 'USER ACCOUNT' is centered, followed by a yellow dashed line and a breadcrumb trail: Home » User account » Create new account. Below this, there are three links: 'Create new account' (active), 'Log in', and 'Request new password'. The registration form consists of two required fields: 'Site name (memorable name for your site, including year) \*' and 'E-mail address \*'. A green 'Create new account' button is at the bottom.

NRMM  
non-road mobile machinery

HOME ABOUT **NRMM REGISTER** HOW TO USE GUIDANCE CONTACT SITE MAP LOG IN

## USER ACCOUNT

Home » User account » Create new account

Create new account Log in Request new password

Site name (memorable name for your site, including year) \*

E-mail address \*

Create new account

# 'My Site' - contact details

Please enter site details for **NRMM\_Seminar\_2017**

///// CONTACT DETAILS

**Contact Name\***

Contact Name

**Contact's Company/Employer\***

Contact's Company/Employer

**Contact Telephone\***

Contact Telephone

**Email ( [edit here](#) )**

danielj.marsh@kcl.ac.uk

///// PLANNING APPLICATION

**Planning Application (if known)**

The planning year and application number e.g. if your planning application is Westminster 13/10921/ADFULL then the borough is Westminster, the year is 2013 and the number is 10921.

**Application Year**

Application Number

///// SITE LOCATION

**Site Postcode**

Site Postcode

**Is the site within the central activity zone or Canary Wharf?**

Please Select...

There are two zones - Greater London (blue), and the Central Activity Zone (CAZ) and Canary Wharf (orange). The central London areas have a tighter emissions standard applied to them.

**Primary borough\***

Sites may span across multiple borough boundaries

**Second Borough**

**Third Borough**

**London Central activity zone**

Map showing the London Central activity zone (orange) and Greater London (blue).

///// SITE DURATION

These dates can be used to defined the sites lifespan. The site will be labeled as 'inactive' if the end date has passed.

**Start Date (if known)**

**End Date (if known)**

Submit

Ideally registered by project manager who will stay with project through all phases of development

Ability to 'edit' ownership if staff or contractor changes

Allows retrospective registration for developments

# Registering NRMM

Please enter machinery use details for **NRMM\_Seminar\_2017** - **Inside CAZ**

## DEPLOYMENT

Deployment Start Date \*



Deployment End Date \*



Duration (days)

## MACHINERY

Machinery Type \*

Machinery Manufacturer \*

Engine Manufacture Year \*

Engine Power \* (37kw - 560kw)

Plant ID \*

This is a unique identifier for this machine e.g License plate number (for road going NRMM), company or hire fleet ID number or engine serial number.

EU engine emission stage \*

## RETROFIT

Retrofit Type

Submit

Engine EU Type Approval number \*

Please edit the above example - see [How to read engine plates](#).

# Active machinery

**Advanced Filter**

Filter active machinery by date

**All** **Today** **Range**

Filter by Exception Status

Filter by deletion requested: ☐

**CSV** **Print**

Show 25 entries

Search:

Deployment	Site Name	Plant Id	Type	Manufacturer	Engine Approval	Engine	Duration	Machinery	Exemption	Actions
Date					Number	Power Kw		Use Status	Status	

- Select and view 'active' only NRMM or select historical data
- Intelligent search on keywords
- CSV download and print options
- Edit entries

# Adding retrofit

**RETOFIT**

**Retrofit Type**  

Diesel Particulate Filter - Regenerative

**Retrofit Company**  

GreenUrban Technologies Ltd

**Retrofit Date**  

2016-12-12

**Retrofit Approver**  

Energy Savings Trust

**Retrofit Details**  

CRFX93

**Submit**

Only retrofit technology that has been registered and endorsed by the Energy Saving Trust NRMM certification scheme should be fitted to your machinery

# Applying for an exemption

If the NRMM details submitted do not meet the minimum standard required for the LEZ zone that the development is registered in a 'hidden' field is made available for an exemption request.

All exemption requests are dealt with by the GLA within 10 working days and their decision is final!

///// MACHINERY

Machinery Type \*

Excavator

Machinery Manufacturer \*

Caterpillar

Engine Manufacture Year \*

2013

Engine Power \* (37kw - 560kw)

104

Plant ID \*

Cat\_22

Engine EU Type Approval number \*

e11\*97/68AB\*2004/26\*XXXX\*YY

This is a unique identifier for this machine e.g License plate number (for road going NRMM), company or hire fleet ID number or engine serial number.

Please edit the above example - see [How to read engine plates.](#)

EU engine emission stage \*

EU Stage IIIA

///// RETROFIT

Retrofit Type

- None -

///// EXEMPTION

Exemption Request \*

Exemption Request

Submit

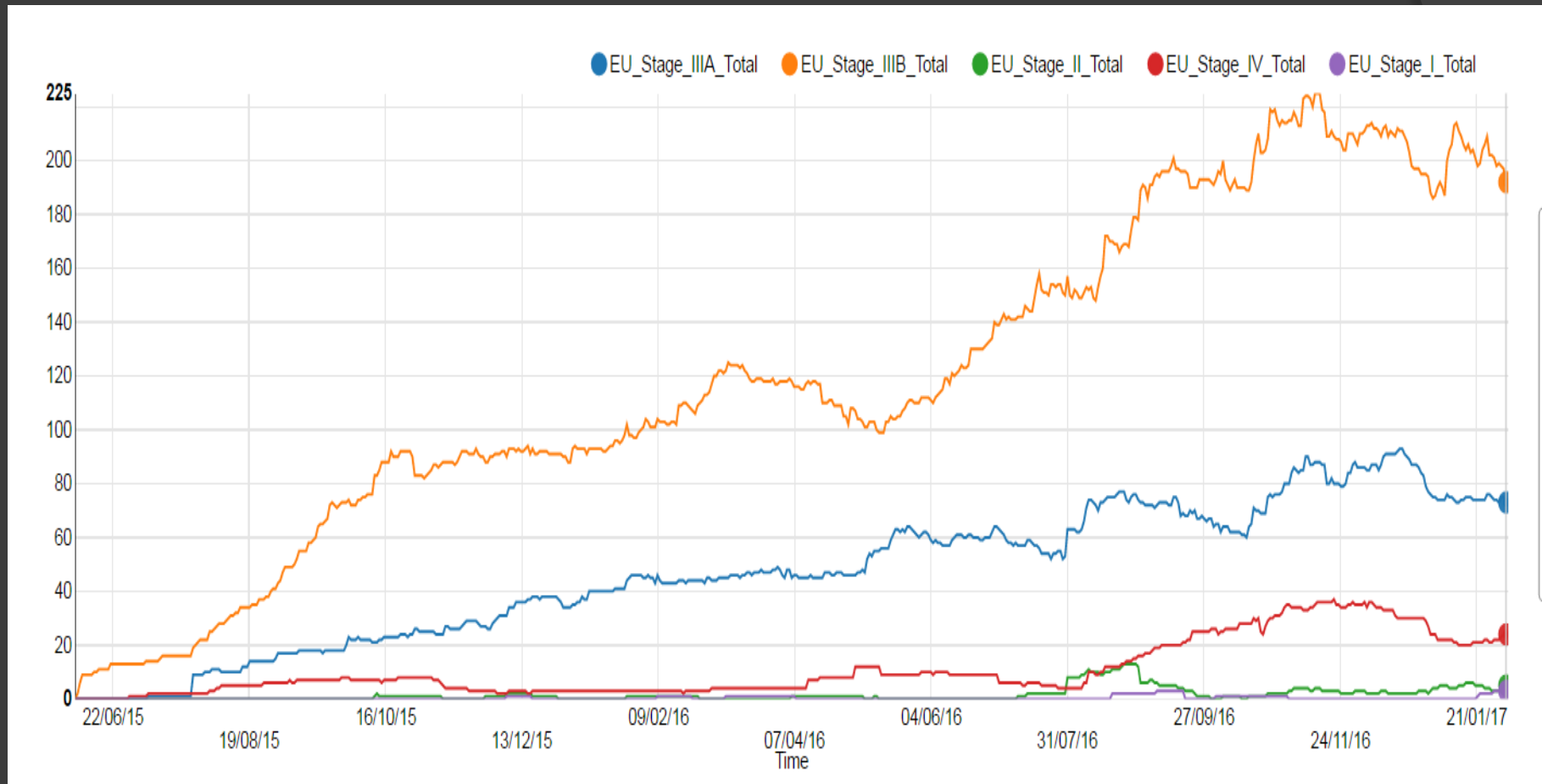
# NRMM register – use so far...

Nrmm.london went live at the start of the policy in September 2015

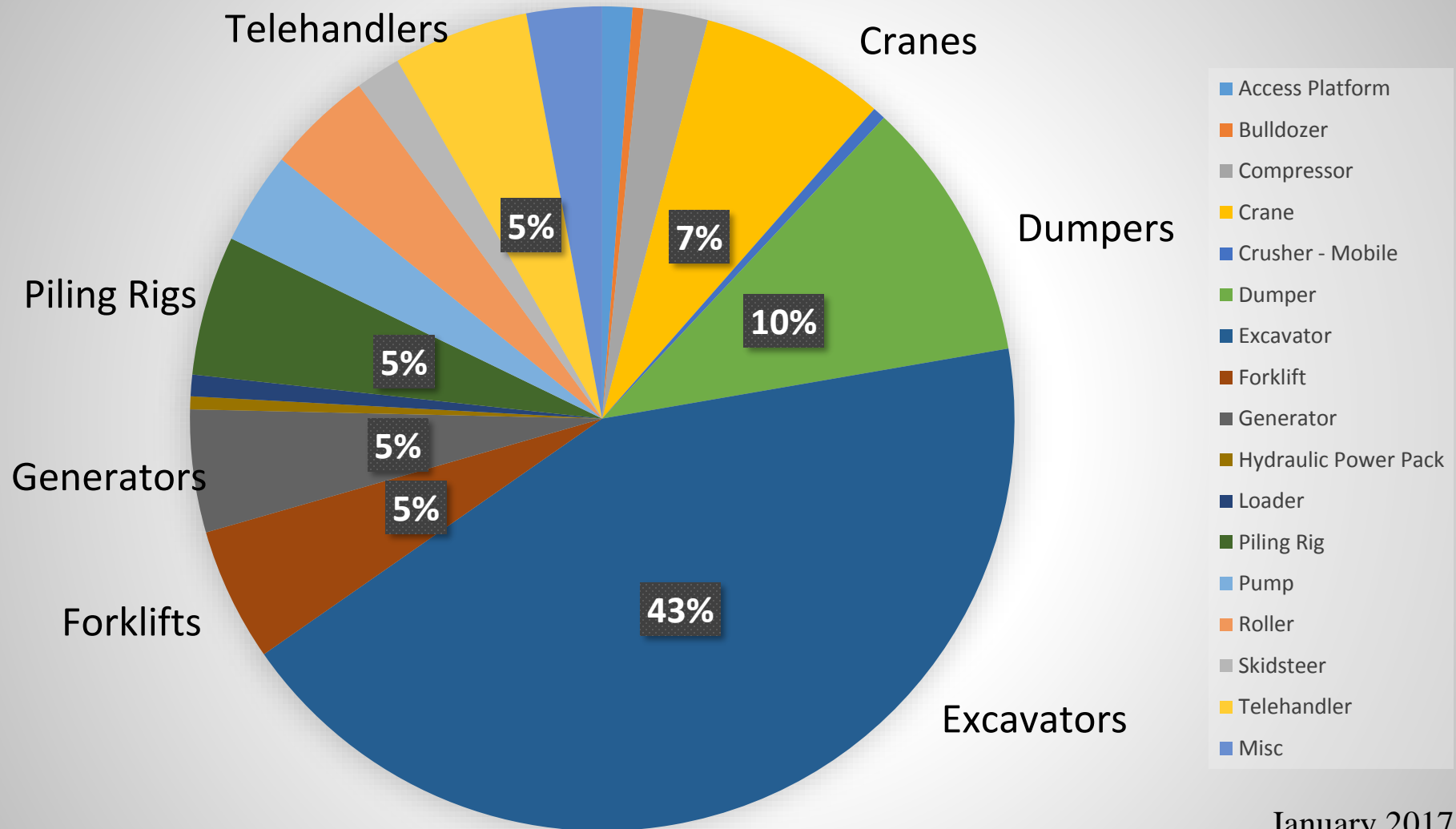
Use as of February 2017:

- ◎ 537 registered sites
  - 345 have not yet uploaded details of plant
- ◎ **1185** pieces of registered NRMM

# NRMM registered by EU emission stage



# NRMM by type



January 2017



llecp.org.uk

nrmm.london

@ConstructionDustUK

[erg-construction@kcl.ac.uk](mailto:erg-construction@kcl.ac.uk)

# The future?

- Stage V regulation was proposed in 2014 and finalised in September 2016
- Stage V engines will start to be manufactured in 2019
- Regulated engines will include compression ignition (CI) engines below 19 kW and above 560 kW, spark ignited (SI) engines above 19 kW
- Adopting particle number (PN) emission limits for several categories of CI engines between 19 and 560 kW

# NRMM Stage V emission standards

Category	Ign.	Net Power	Date	CO	HC	NOx	PM	PN
		<i>kW</i>		<i>g/kWh</i>				<i>1/kWh</i>
NRE-v/c-1	CI	$P < 8$	2019	8.00	7.50 <sup>a,c</sup>		0.40 <sup>b</sup>	-
NRE-v/c-2	CI	$8 \leq P < 19$	2019	6.60	7.50 <sup>a,c</sup>		0.40	-
NRE-v/c-3	CI	$19 \leq P < 37$	2019	5.00	4.70 <sup>a,c</sup>		0.015	$1 \times 10^{12}$
NRE-v/c-4	CI	$37 \leq P < 56$	2019	5.00	4.70 <sup>a,c</sup>		0.015	$1 \times 10^{12}$
NRE-v/c-5	All	$56 \leq P < 130$	2020	5.00	0.19 <sup>c</sup>	0.40	0.015	$1 \times 10^{12}$
NRE-v/c-6	All	$130 \leq P \leq 560$	2019	3.50	0.19 <sup>c</sup>	0.40	0.015	$1 \times 10^{12}$
NRE-v/c-7	All	$P > 560$	2019	3.50	0.19 <sup>d</sup>	3.50	0.045	-

<sup>a</sup> HC+NOx

<sup>b</sup> 0.60 for hand-startable, air-cooled direct injection engines

<sup>c</sup> A = 1.10 for [gas engines](#)

<sup>d</sup> A = 6.00 for [gas engines](#)

Source [dieselnet.com](http://dieselnet.com)