13th UIC Sustainability Conference

VIENNA 2016

ESRS targets and data collection

Emissions and air quality: which framework?

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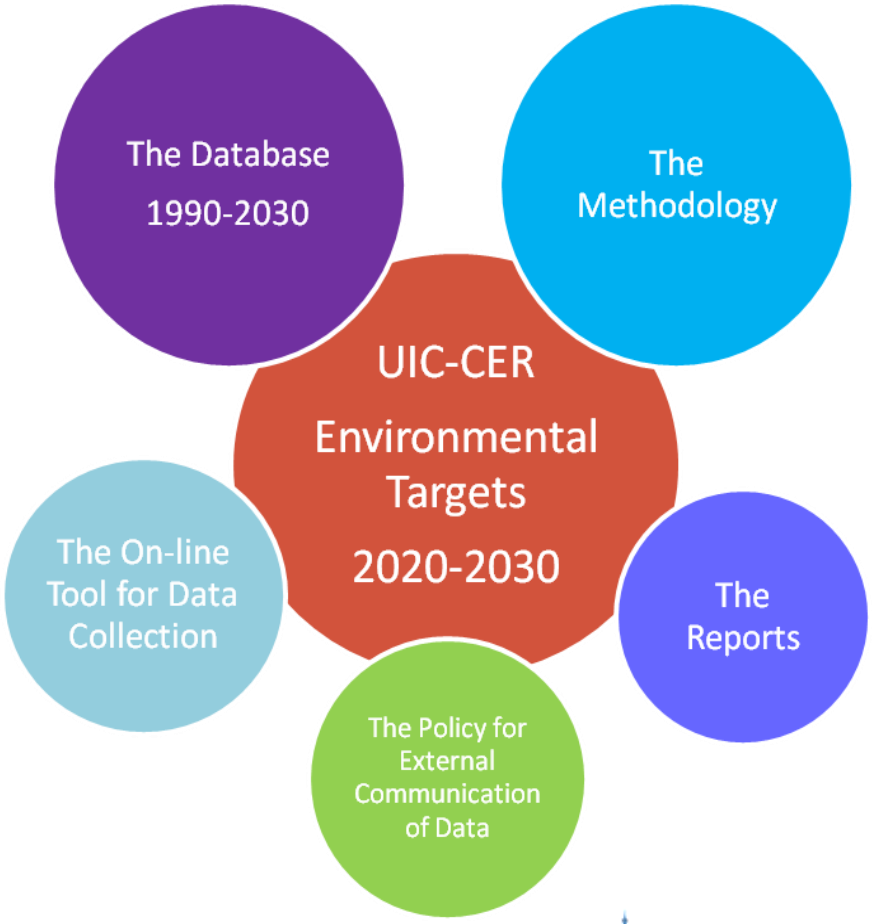
ESRS - Environmental Strategy Reporting System



- Targets: 2020 and 2030, central to the system
- Database: contains all the data
- Methodology: guidelines to collect data
- On-line tool: collects and displays data from railways in a user-friendly way
- Reports: present the yearly progress of UIC towards the targets
- Policy for Communication of Data: to share data internally and externally

Countries covered

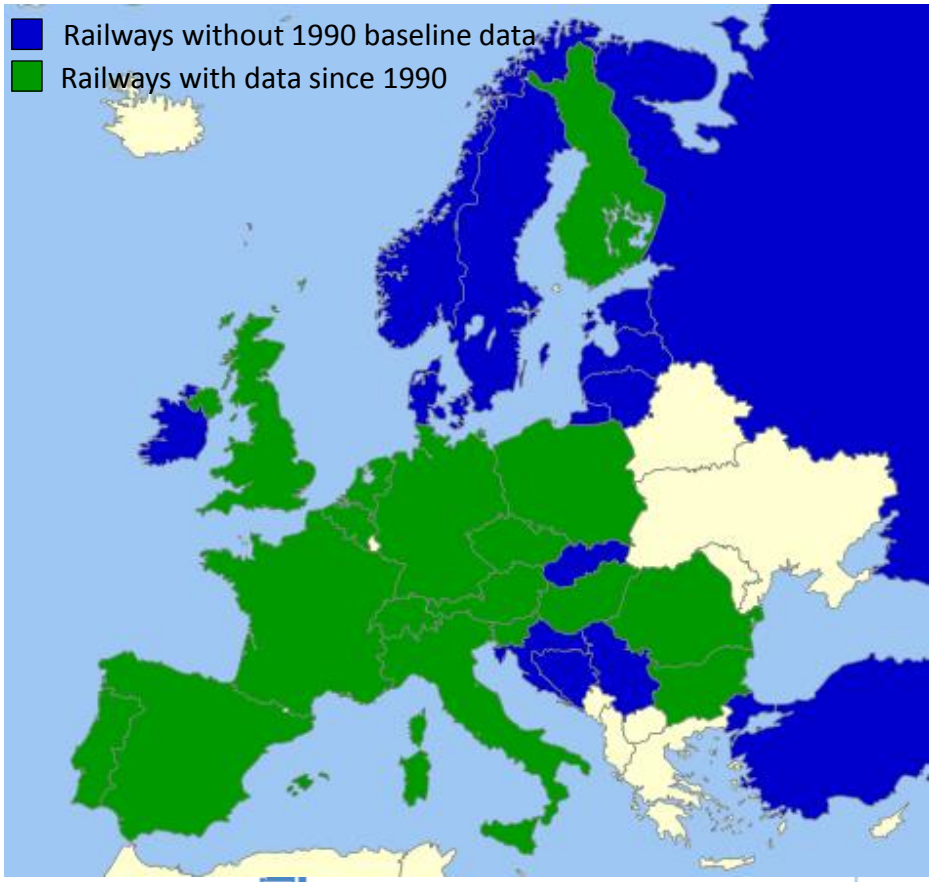
19 railways have sent data for 1990 (CER Commitment)

41 railways in total

Coverage of European UIC members:

93% of passenger traffic (pkm)

75% of freight traffic (tkm)



PM – No_x Emissions: Targets

UIC collects regularly data from all railways to calculate the amount of nitrogen oxides (NO_x) and particulate matter (PM) in exhaust emissions.

Towards the targets

2005 - 2030	2050
- 40%	Zero emissions

	Target	Baseline	Horizon
Climate Protection	• **-40%** specific emissions (per pkm and tkm)	**1990**	**2020**
	• -50% specific emissions (per pkm and tkm) • **-30%** total CO_2 emissions (1990)	**1990**	**2030**
	• Carbon-free train operation	**-**	**2050**
Energy Efficiency	• -30% pkm and tkm	**1990**	**2030**
	• -50% pkm and tkm	**1990**	**2050**
Exhaust Emissions	• -40% Total PM and NOx	**2005**	**2030**
	• Zero emissions of NOx and PM	**-**	**2050**
Noise and Vibrations	• No longer a problem for railways	**-**	**2050**

PM – NO_x Emissions: data collection 2016

The PM and NOx emissions are calculated with 3 different methodologies (called “levels”), according to the data that can be provided by the railways:

Three “levels”, in order of precision:

- Level 1 (expert): the railway provides total annual PM and NOx emissions. It should also specify the methodology used for calculating those emissions
- Level 2 (intermediate): estimate based on the detailed consumption of the diesel fleet, by series
- Level 3 (basic): proxy method. The emissions are calculated based on total diesel consumption and an average European fleet

PM - Nox - Update of diesel fleet data in 2015

All railways have received the template in order to update own fleet data in case of changes.

For each **CATEGORY**:

- Railcar > 130 kW
- Locomotive 130 - 560 kW
- Locomotive 560 - 2000 kW
- Locomotive > 2000 kW

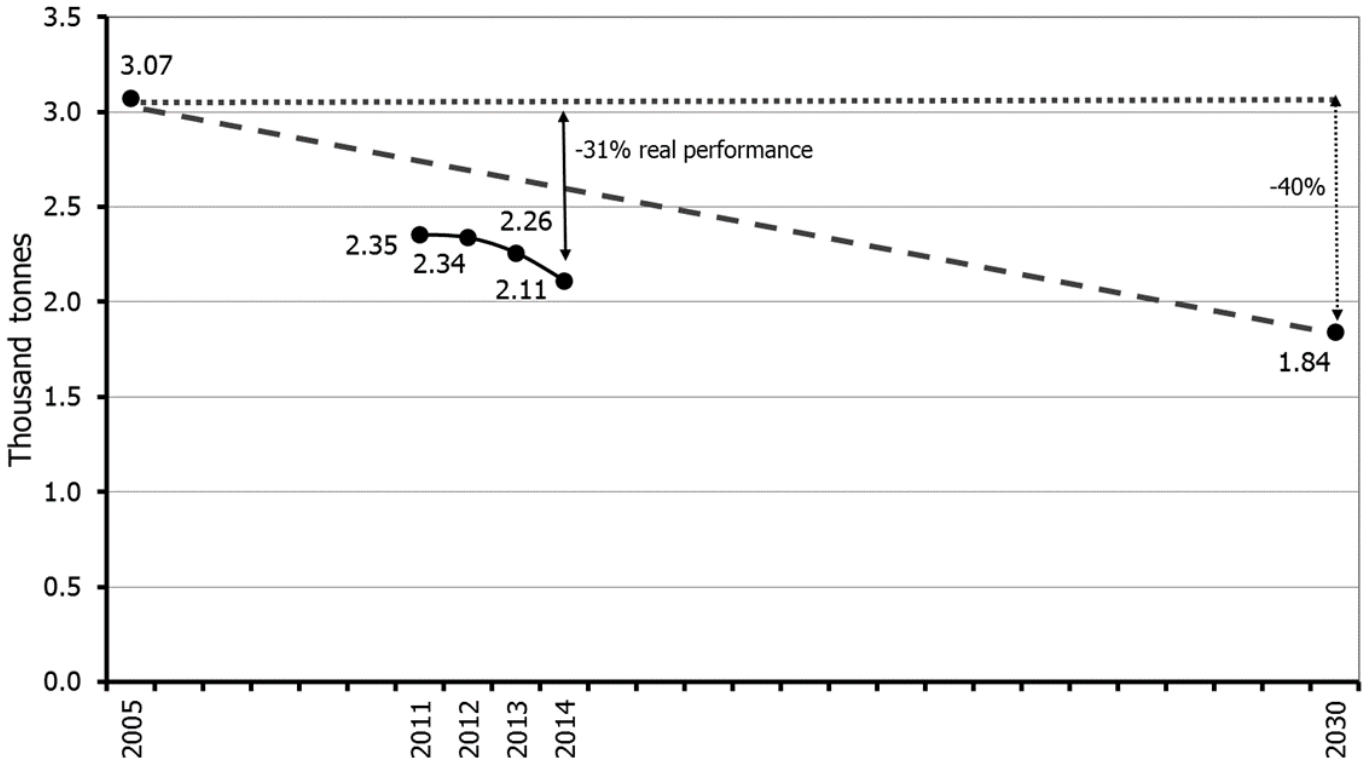
and **EMISSION STANDARDS**:

- Pre-UIC
- UIC 1
- UIC 2
- IIIA
- IIIB

The railway operator should report:

- Number of traction engines
- Number of traction Units
- Average annual mileage per vehicle (train-km)
- Average annual mileage per vehicle (gross tonne km)
- Particular emission performance of engines

TOTAL PM EMISSIONS Rail Diesel Traction



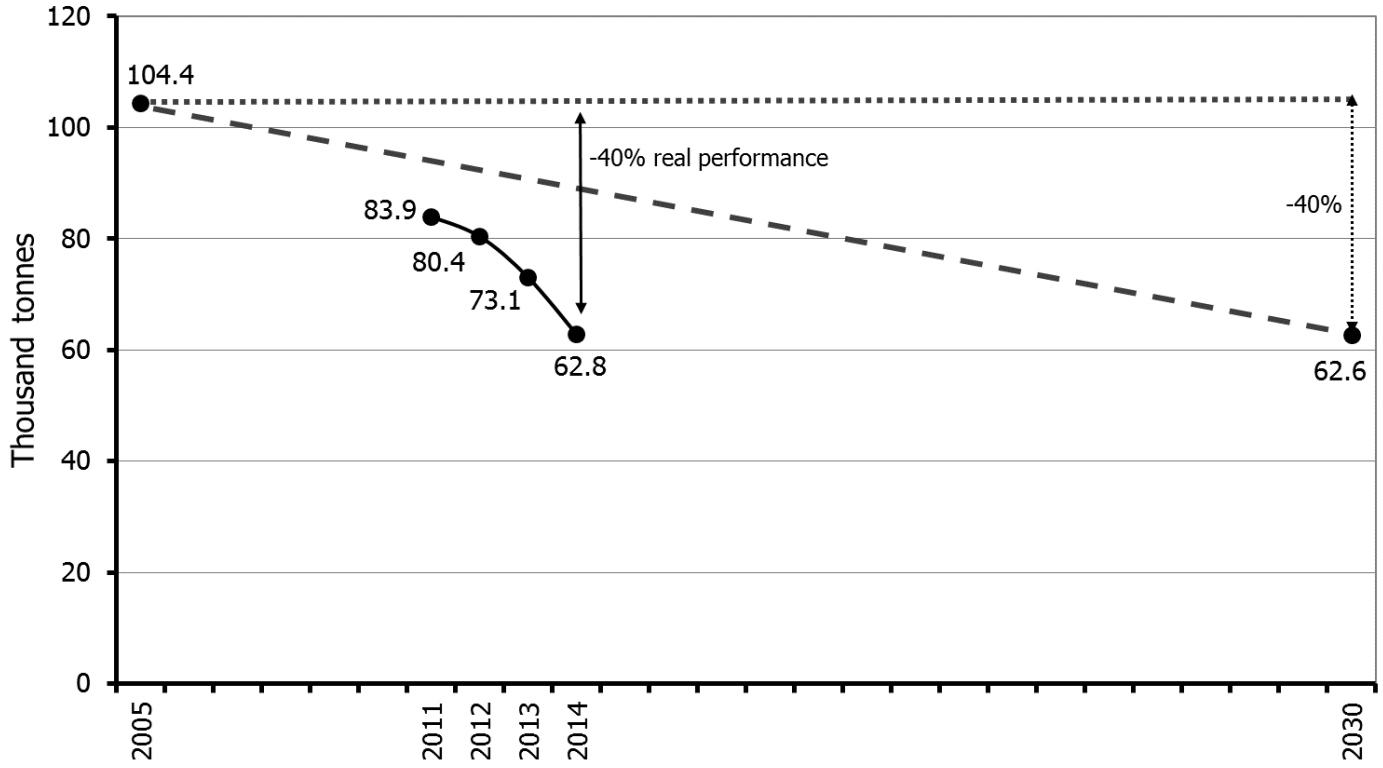
2014 total emissions:

2.11 kton in 2014

6.4% from 2013

31% from 2005

TOTAL NOx EMISSIONS Rail Diesel Traction



2014 total emissions:

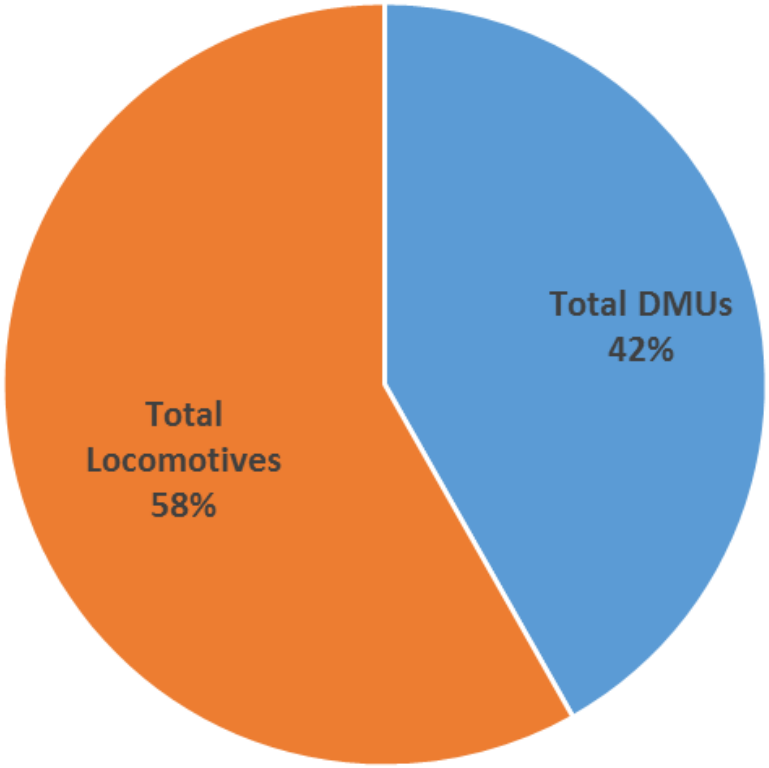
62.8 kton in 2014

14% from 2013

40% from 2005

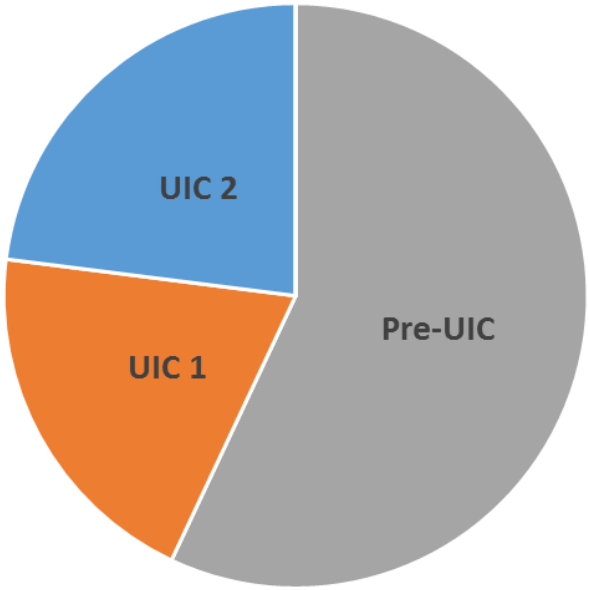
PM – NO_x Emissions: fleet data collection 2016

Share of locomotives and DMUs in the diesel fleet of European UIC members per vehicles class in 2015

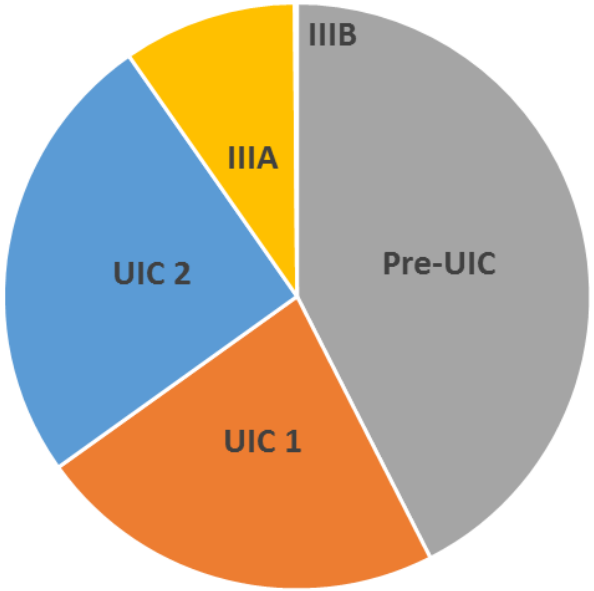


PM – NO_x Emissions: fleet data collection 2016

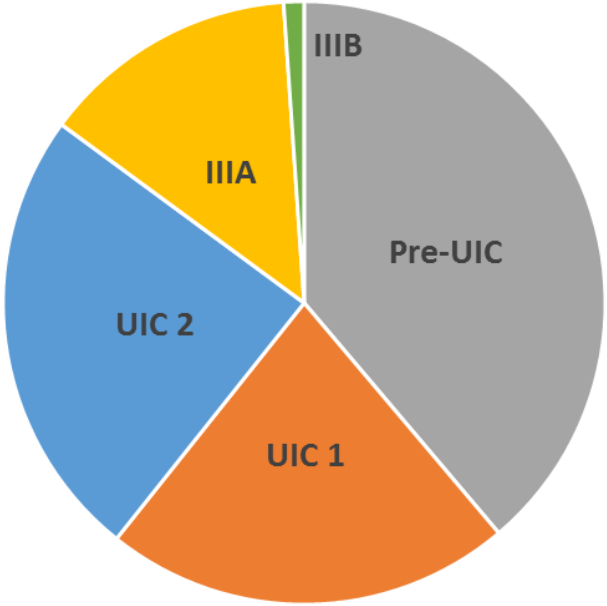
Evolution of the diesel DMUs of European UIC members from 2005 to 2015 per emission stage



2005



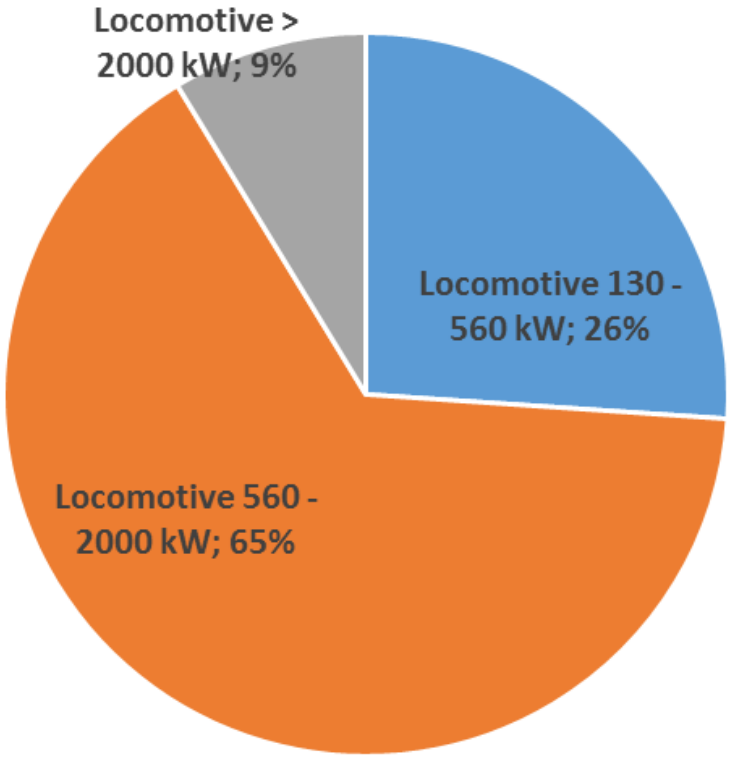
2012



2015

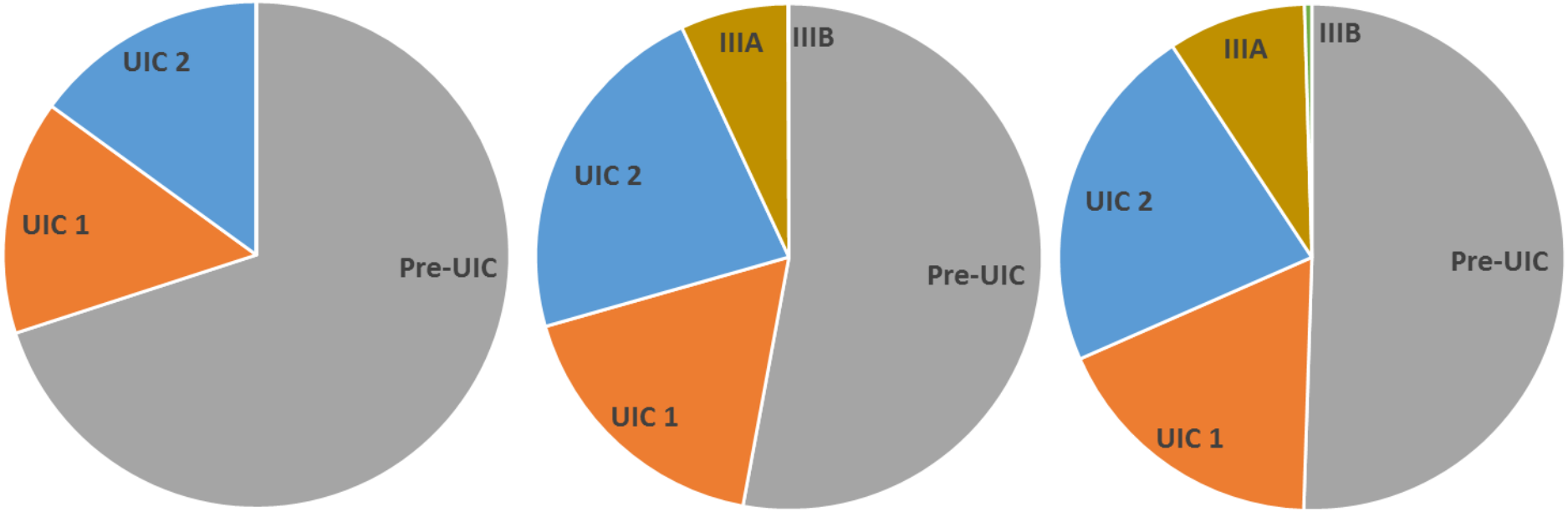
PM – NO_x Emissions: fleet data collection 2016

Locomotive fleet composition of European UIC members per vehicles class in 2015



PM – NO_x Emissions: fleet data collection 2016

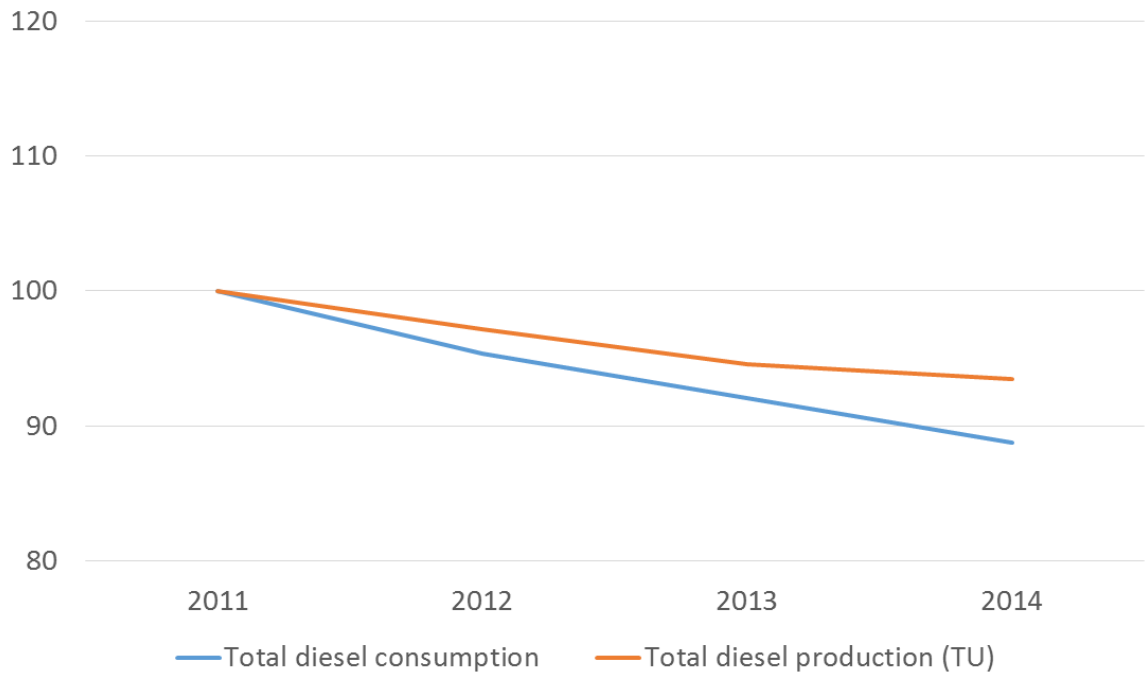
Evolution of the diesel locomotives of European UIC members from 2005 to 2015 per emission stage



2005 2012 2015

PM – NO_x Emissions: fleet data collection 2016

Evolution of total diesel consumption and total diesel production (TU) according to the ESRS Database from 2011 to 2014 (index number 2011=100)



Thank you!

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