



Informal document GRPE-73-06
73rd GRPE, 6-10 June 2016,
agenda item 6(a)

A new EU Regulation for engines in non-road mobile machinery (NRMM)

GRPE session, June 2016

European Commission

Unit C.4 - Automotive and Mobility Industries

DG for Internal Market, Industry, Entrepreneurship and SMEs



DIRECTIVE 97/68/EC OF THE EP AND OF THE COUNCIL of 16 December 1997

on the approximation of the laws of the Member States relating to

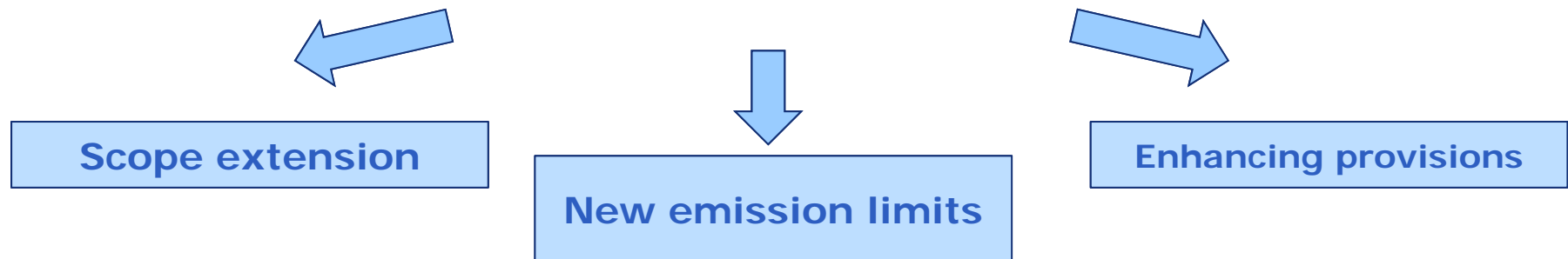
measures against the emission of gaseous and particulate pollutants from internal combustion engines to be installed in non-road mobile machinery (NRMM)

- *It's about*
 - **Engines** – *not vehicles or machinery!*
 - **Pollutant emissions** – *gaseous (CO, NO_x, HC) & particulate (PM)!*
 - **Emission limits & type-approval procedures**

Guiding principles for revising EU legislation



Pathways for revision of Directive 97/68/EC



- Strive alignment with (higher) US EPA standards, where appropriate
- Address health-damaging evidence of ultrafine particulate matter
- Catch up with on-road technology trends
- Harmonise requirements across EU
- Simplification & closing loopholes in legislation

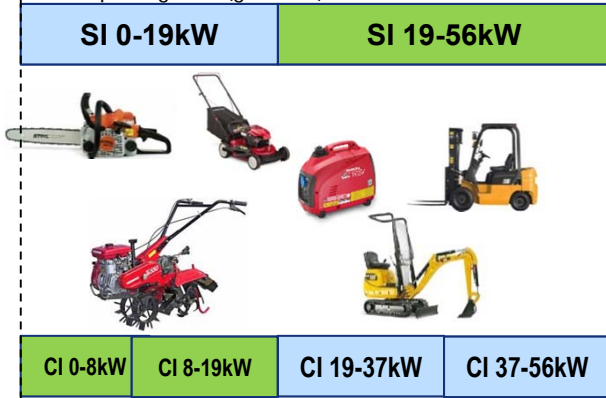
New NRMM Regulation



New scope of application

Land-based NRMM

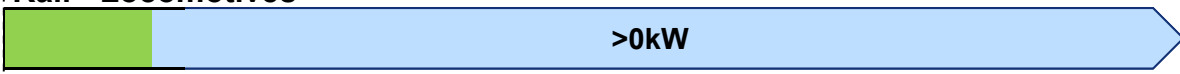
SI – Spark-ignited (gasoline)



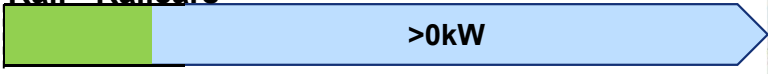
CI – Compression-ignited (diesel)



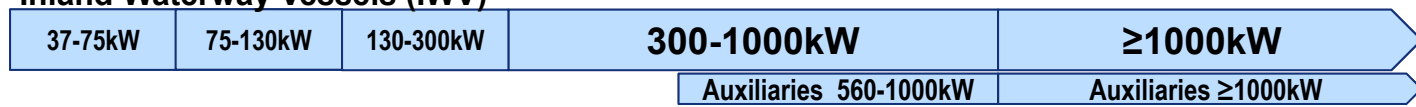
Rail - Locomotives



Rail - Railcars



Inland Waterway Vessels (IWV)



Snowmobiles



All Terrain & Side-by-Side Vehicles



Internal market, Industry, Entrepreneurship and SMEs



Scope of Directive 97/68/EC

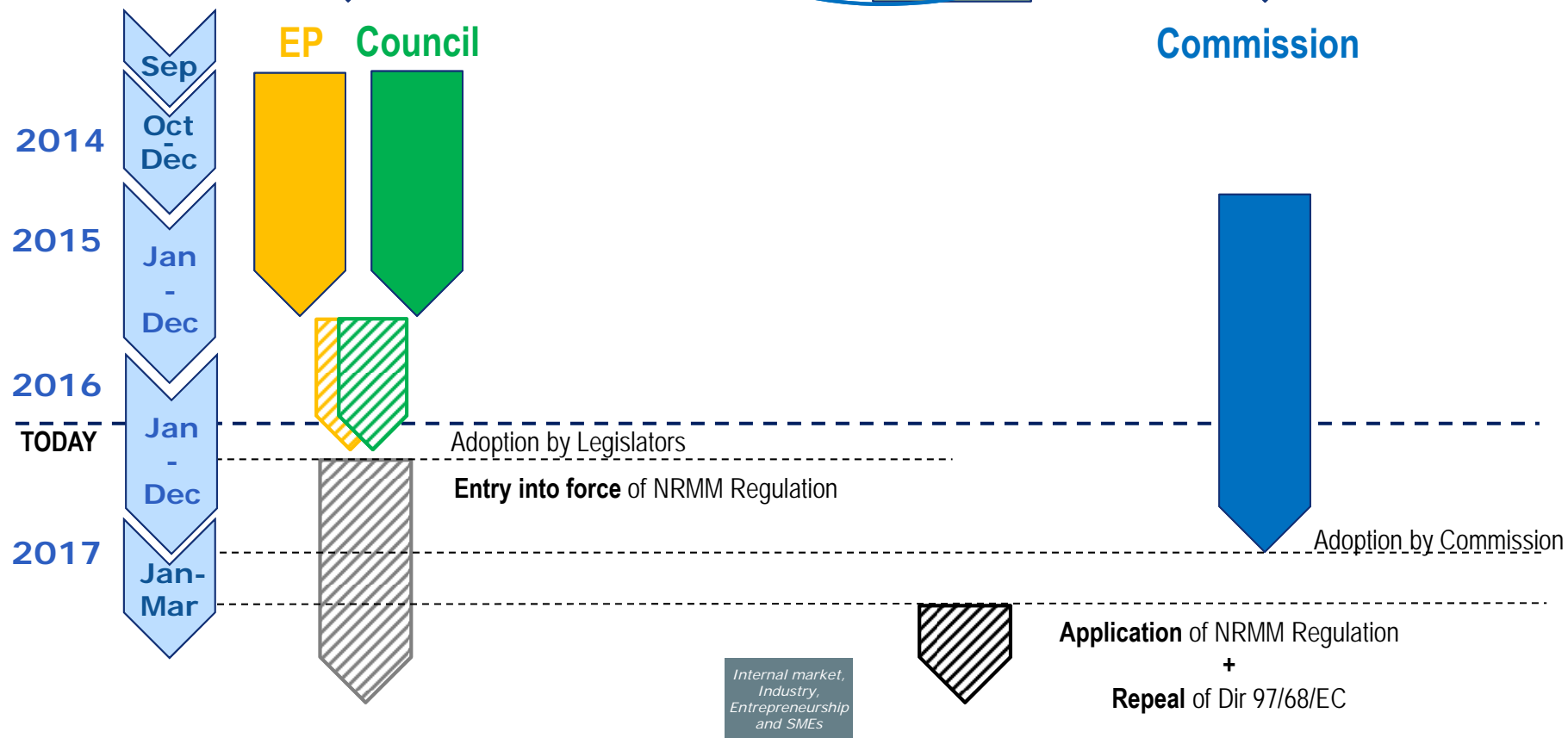
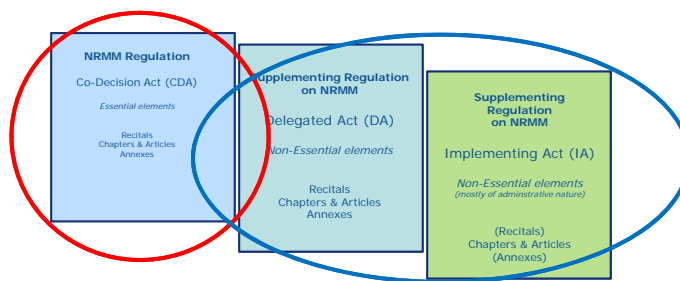
Scope extensions new NRMM Regulation

Some key features of the new Regulation

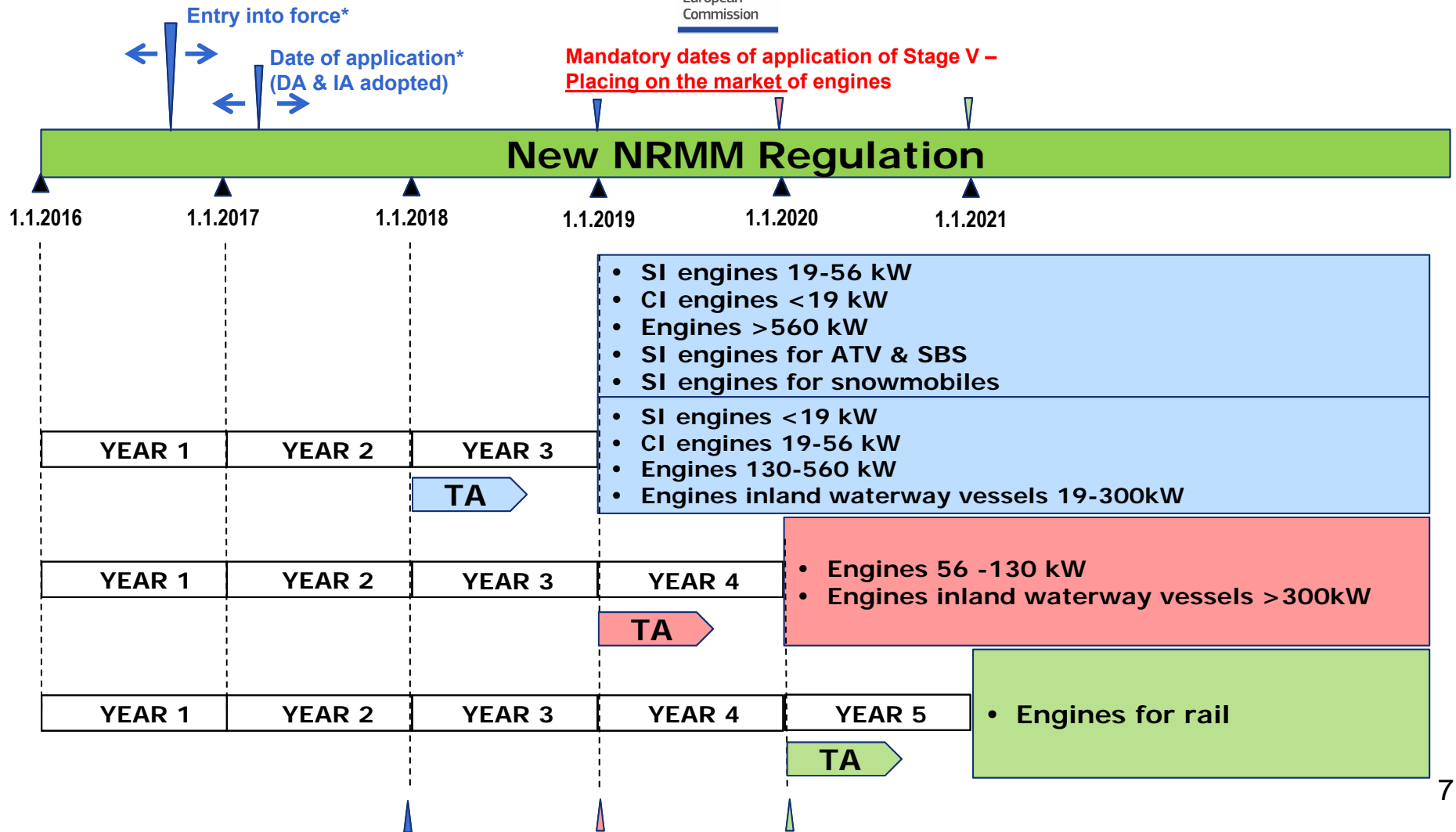


- **Regulation**
- **Enhanced market-surveillance provisions**
- **Simplification of administrative procedures**
- **New transition scheme, with staggered introduction dates**
- **Monitoring of emissions from in-service engines**
- **Type-approval also for gas-fuelled engines (partial/mono)**
- **Eliminating "greyzones"** (field testing, sep. shipment, ATEX,...)
- **Early type-approval for Stage V**

Adoption process



Timetable - Application of New NRMM Regulation

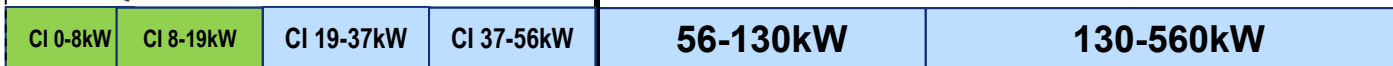


* Floating date!

Mandatory dates of application of Stage V – EU Type-Approval of engines

Internal market, Industry, Entrepreneurship and SMEs

Land-based NRMM (CI <56kW & Engines >56kW)



>560kW

Gen-Sets >560kW

 Scope of Directive 97/68/EC
 Additional in new NRMM proposal



CI engines < 56kW & Engines >56kW		Directive 97/68						New NRMM proposal					
emissions in g/kWh		Stage	CO	NOx	HC	PM	PN	CO	NOx	HC	PM	PN	A
CI engines 0 - 8 kW	variable & constant	-	-	-	-	-	-	8	7,5	0,4/0,6	-	-	1,1
CI engines 8 - 19 kW	variable & constant	-	-	-	-	-	-	6,6	7,5	0,4	-	-	1,1
CI engines 19 - 37 kW	variable & constant	IIIA	5,5	7,5	0,6	-	-	5,0	4,7	0,015	1x10 ⁻¹²	-	1,1
CI engines 37 - 56 kW	variable	IIIB	5,0	4,7	0,025	-	-	5,0	4,7	0,015	1x10 ⁻¹²	1,1	
	constant	IIIA	5,0	4,7	0,4	-							
Engines 56 - 130 kW	variable	IV	5,0	0,4	0,19	0,025	-	5,0	0,4	0,19	0,015	1x10 ⁻¹²	1,1
Engines 56-75 kW	constant	IIIA	5,0	4,7	0,4	-	-	5,0	0,4	0,19	0,015	1x10 ⁻¹²	1,1
Engines 75 - 130 kW			5,0	4,0	0,3	-							
Engines 130 - 560 kW	variable	IV	3,5	0,4	0,19	0,025	-	3,5	0,4	0,19	0,015	1x10 ⁻¹²	1,1
	constant	IIIA	3,5	4,0	0,2	-							
Engines P > 560 kW	variable & constant - Gen-Sets	-	-	-	-	-	-	3,5	0,67	0,19	0,035	-	6,0
	variable & constant - others	-	-	-	-	-	-	3,5	3,5	0,19	0,045	-	

Internal market, Industry, Entrepreneurship and SMEs

 Limit values in line with US legislation
 Limit values more stringent than US legislation

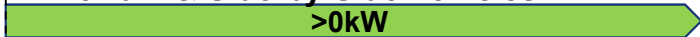
Land-based NRMM (SI engines)



Snowmobiles



All Terrain & Side-by-Side Vehicles



- Scope of Directive 97/68/EC
- Additional in new NRMM proposal

SI Engines		Directive 97/68					New NRMM proposal					
		Stage	CO	NOx	HC	PM	PN	CO	NOx	HC	PM	PN
emissions in g/kWh												
<i>SI engines 0-19 kW - handheld</i>	SH:1 (<20cc)	II	805	50	-	-	<50cc	805	50	-	-	
	SH:2 (20-50cc)	II	805	50	-	-		-	-			
	SH:3 (>50cc)	II	603	72	-	-		>50cc	603	72	-	-
<i>SI engines 0-19 kW - non-handheld</i>	SN:1 (<66cc)	II	610	50	-	-	80-225cc	610	10	-	-	
	SN:2 (66-100cc)	II	610	40	-	-				-	-	
	SN:3 (100-225cc)	II	610	16,1	-	-				-	-	
	SN:4 (>225cc)	II	610	12,1	-	-				>225cc	610	8
SI engines 19 – 30 kW	-	-	-	-	-	-	<1000cc	610	8	-	-	
SI engines 19 – 56 kW	-	-	-	-	-	-	>1000cc	4,4 - 20,6	Σ 2,7 - Σ 0,8	-	-	
Engines for snowmobiles	-	-	-	-	-	-	any	275	-	75	-	
Engines for ATV & SBS	-	-	-	-	-	-	any	400	8	-	-	

Internal market,
Industry,
Entrepreneurship
and SMEs

1) limit values depending on (NOx+HC) / CO combinations

 Limit values in line with US legislation



UNECE Regulation 96 on

Uniform provisions concerning the approval of compression ignition (C.I.) engines to be installed in agricultural and forestry tractors and in non-road mobile machinery with regard to the emissions of pollutants by the engine

- *R 96 covers part of the scope of new EU Regulation on NRMM*
- *Need to align R 96 with new EU Regulation on NRMM*



Thank you

For further information

http://ec.europa.eu/growth/sectors/automotive/index_en.htm