13th UIC Sustainability Conference

VIENNA 2016

Regulation evolutions concerning pollutant emission limits and type approval for engines for NRMM

SNCF view

Workshop "Emissions and Air Quality"

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12, 13, 14 October 2016

Regulation evolutions for locomotives and railcars

- **Regulation 2016/1628/CE** replace Directive 97/68/CE and shall apply from **1st January 2017** (except article 61 which is applicable from 6 October 2016)
- Date of application of **stage V** emission limitations for engines of railcars and locomotives placed on the market: **1st January 2021**
- **<u>Evolution of exhaust emissions limits</u>**

Stage III.B

| Locomotives | | |

Regulation evolutions for locomotives and railcars

- **Exemptions stage V emission limitations**
  - ➔Concerning replacement engines under specific conditions : renovation involving significant technical difficulties
  - ➔Concerning original engines under specific conditions : advanced stage of development and involve disproportionate costs

  These exemptions are evaluated and delivered by Members States

- **Monitoring of emissions of in-service engines**
  - ➔Applicable for engines belonging to engines type or families stage V
  - ➔Tests done over the normal operating duty cycle of non road mobile machinery
  - ➔Such tests shall be conducted under the responsibility of the manufacturer

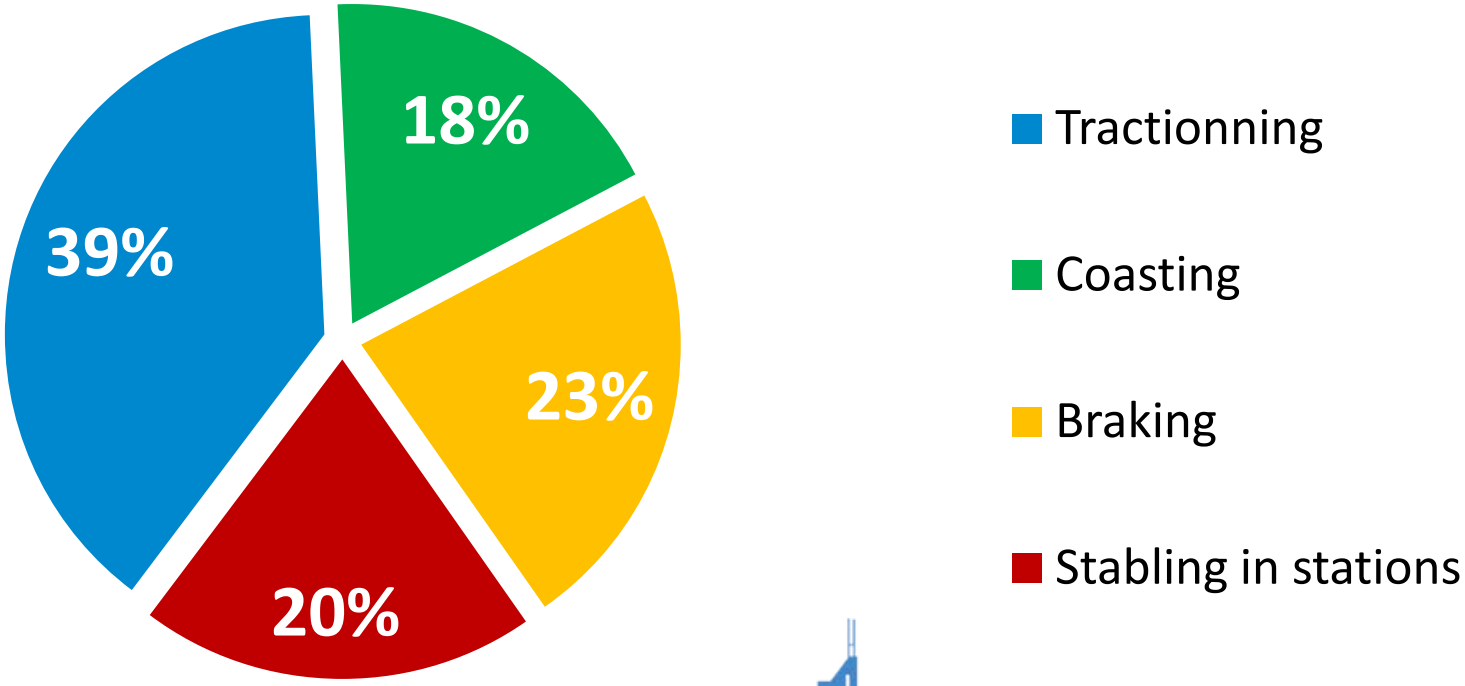
✓ Detail of the whole procedure to be released in delegated acts (adopted by 31/12/16)

✓ **SNCF starts to work** on this topic in order to anticipate the future issues : definition of conformity factors, relevance of the comparison between normal operating points and homologation, emissions assessment methods, …)

Real life measurement

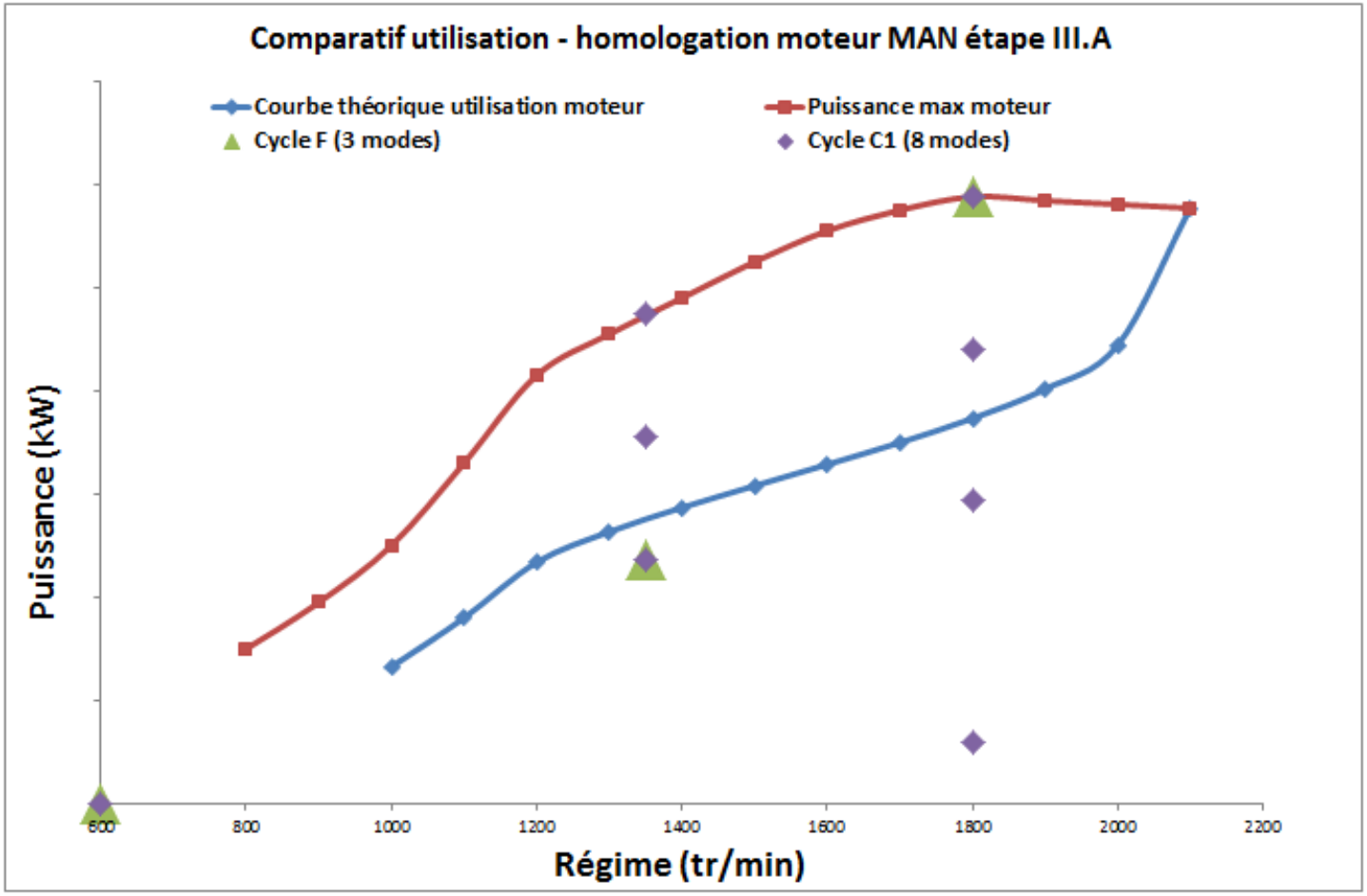
- **Analysis of 27500 km with DEMU train**

61% of the time, engines are almost idling



Theoretical operating mode

- **Comparison between theoretical curve of use and F/C1 cycle (Railcar application)**



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