

Trends in Air emissions from EU oil petroleum refineries

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Concaawe Symposium

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- 1) Data sources used
- 2) Petroleum Refining Emission Trends 1990 – 2012 & Sectorial contribution to total emissions:
 - 1) Sulphur dioxide (SO₂)
 - 2) Nitrogen oxides (NO_x)
 - 3) Non-Methane Volatile Organic Compounds (NMVOC)
 - 4) Particle Matter <10 micrometer (PM₁₀)
- 3) Conclusions



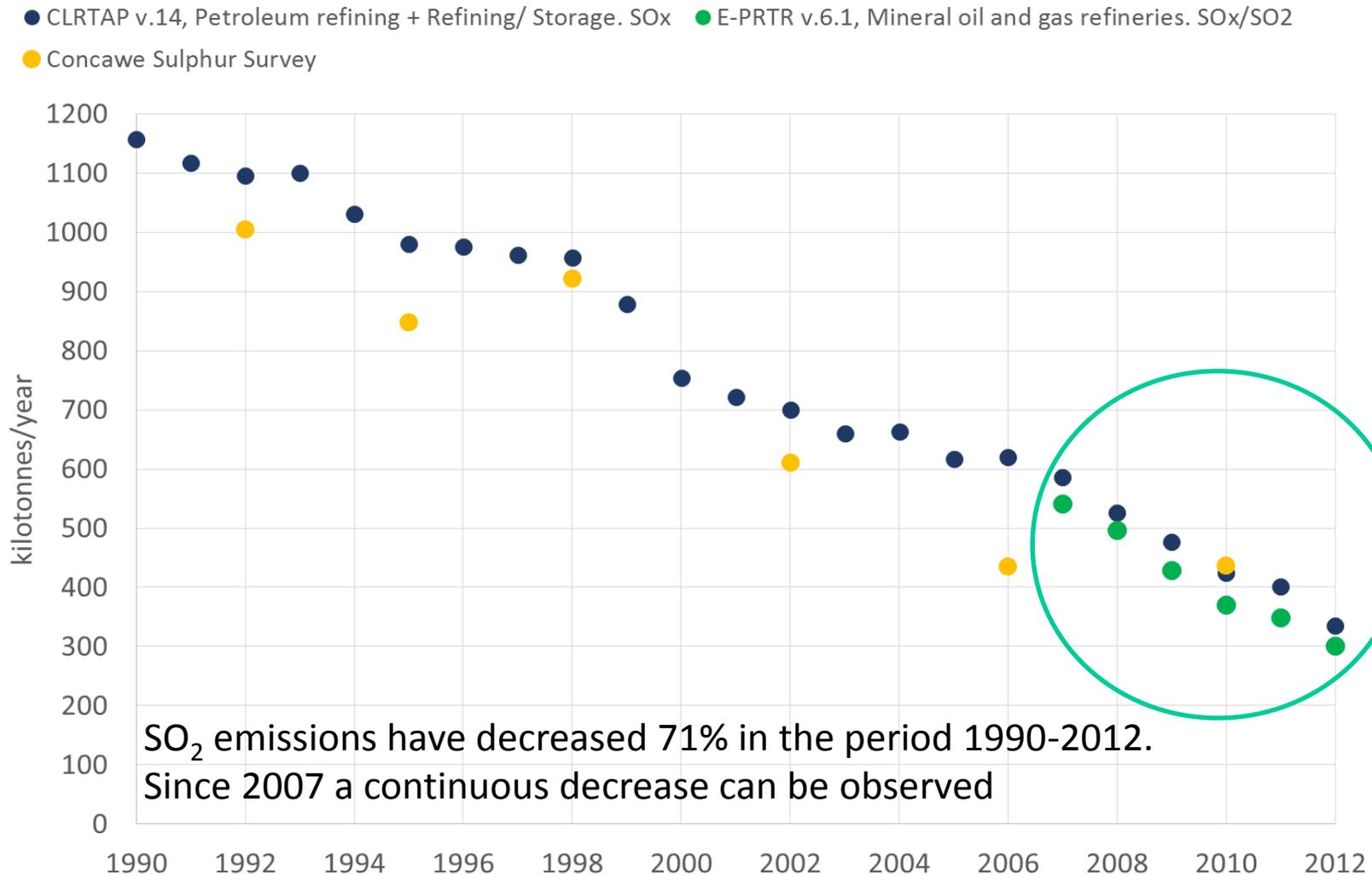
- ▶ **Convention Long Range Transboundary Air Pollution (CLRTAP) Database v.14 (2014)**
 - ▶ Analysis of the data for installations classified as:
 - ▶ Petroleum refining and Refining/storage
 - ▶ EU-28
 - ▶ CLRTAP only provides data at national level
 - ▶ Timeframe: 1990-2012

- ▶ **European-Pollutant Release and Transfer Register (E-PRTR) database v6.1 (2014)**
 - ▶ Analysis of the data for installations classified as :
 - ▶ Mineral oil and gas refineries (IA Activity)
 - ▶ EU-28+ Switzerland + Norway+ Serbia
 - ▶ Timeframe: 2007-2012
 - ▶ Concaawe has not verified that the emissions reported are correct.

- ▶ **Concaawe Sulphur Survey data – SO₂ emissions**
 - ▶ Data gathered from Concaawe member companies every 4 years (latest year available is 2010).
 - ▶ Extrapolation done using the total crude oil transformed in refineries (Eurostat database).
 - ▶ Time frame: 1992-2010



SO₂ emissions from oil refineries

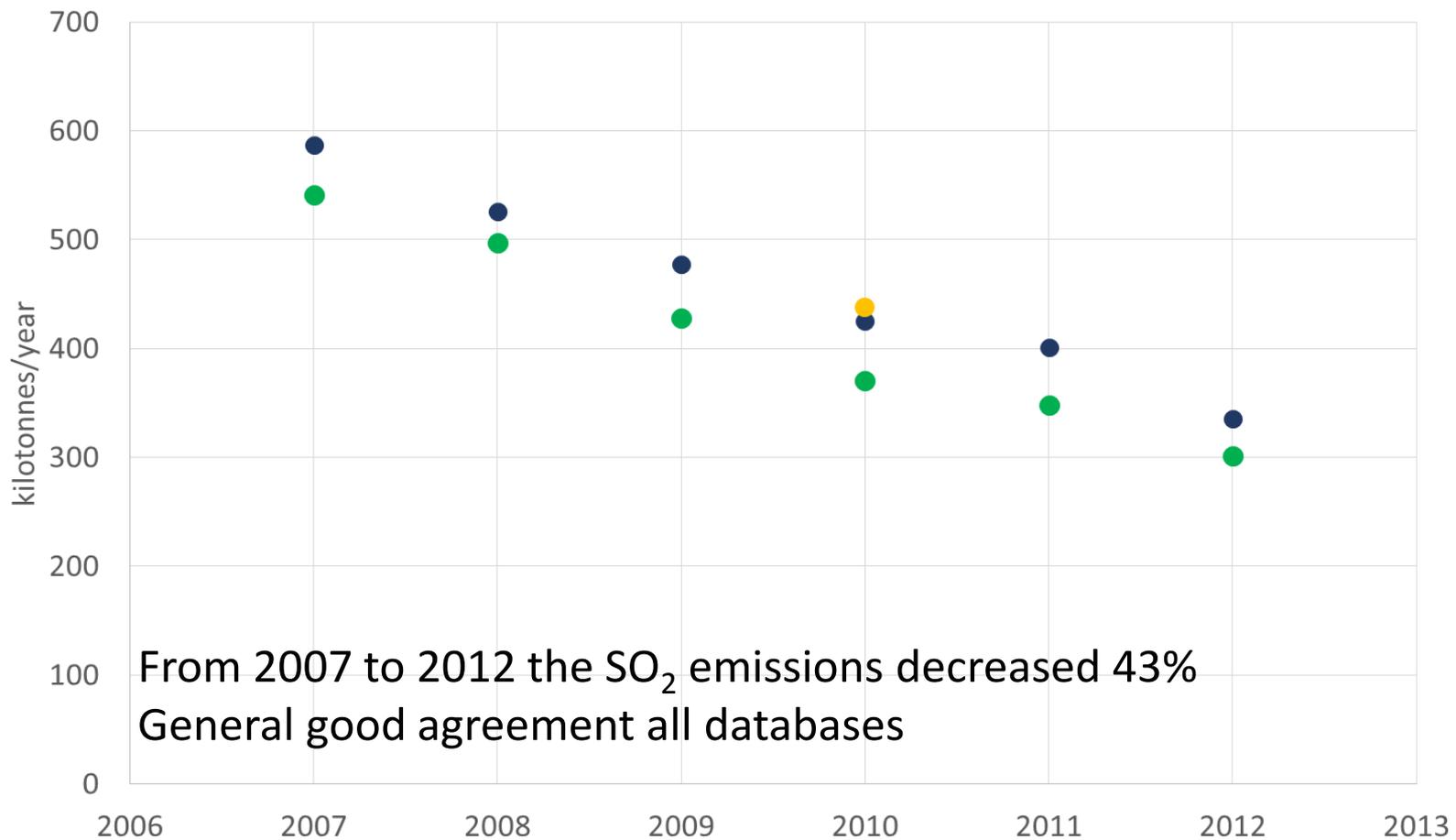


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SO₂ emissions from oil refineries 2007-2012

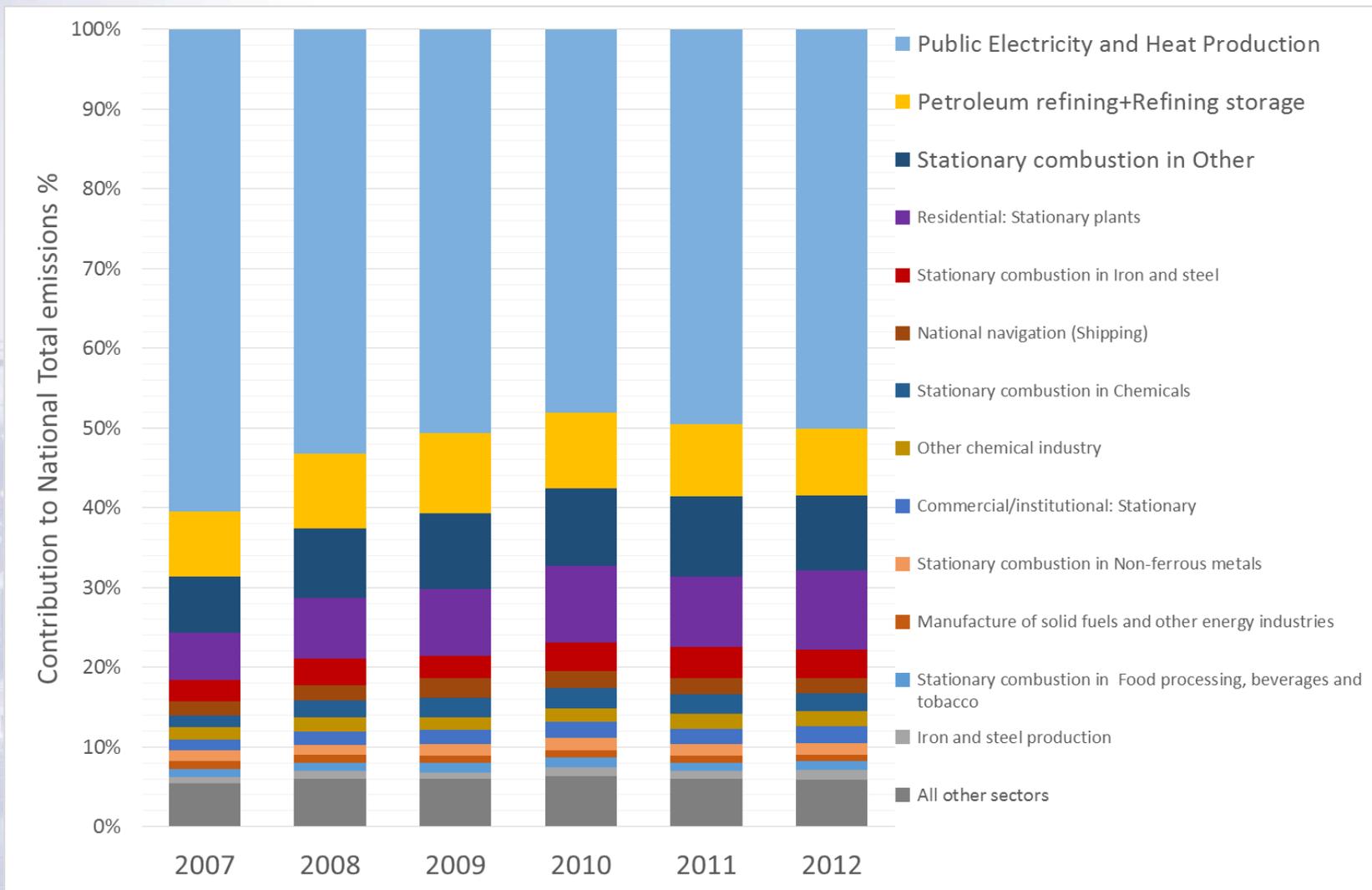
- CLRTAP v.14, Petroleum refining + Refining/ Storage. SO_x
- E-PRTR v.6.1, Mineral oil and gas refineries. SO_x/SO₂
- Concaawe Sulphur Survey



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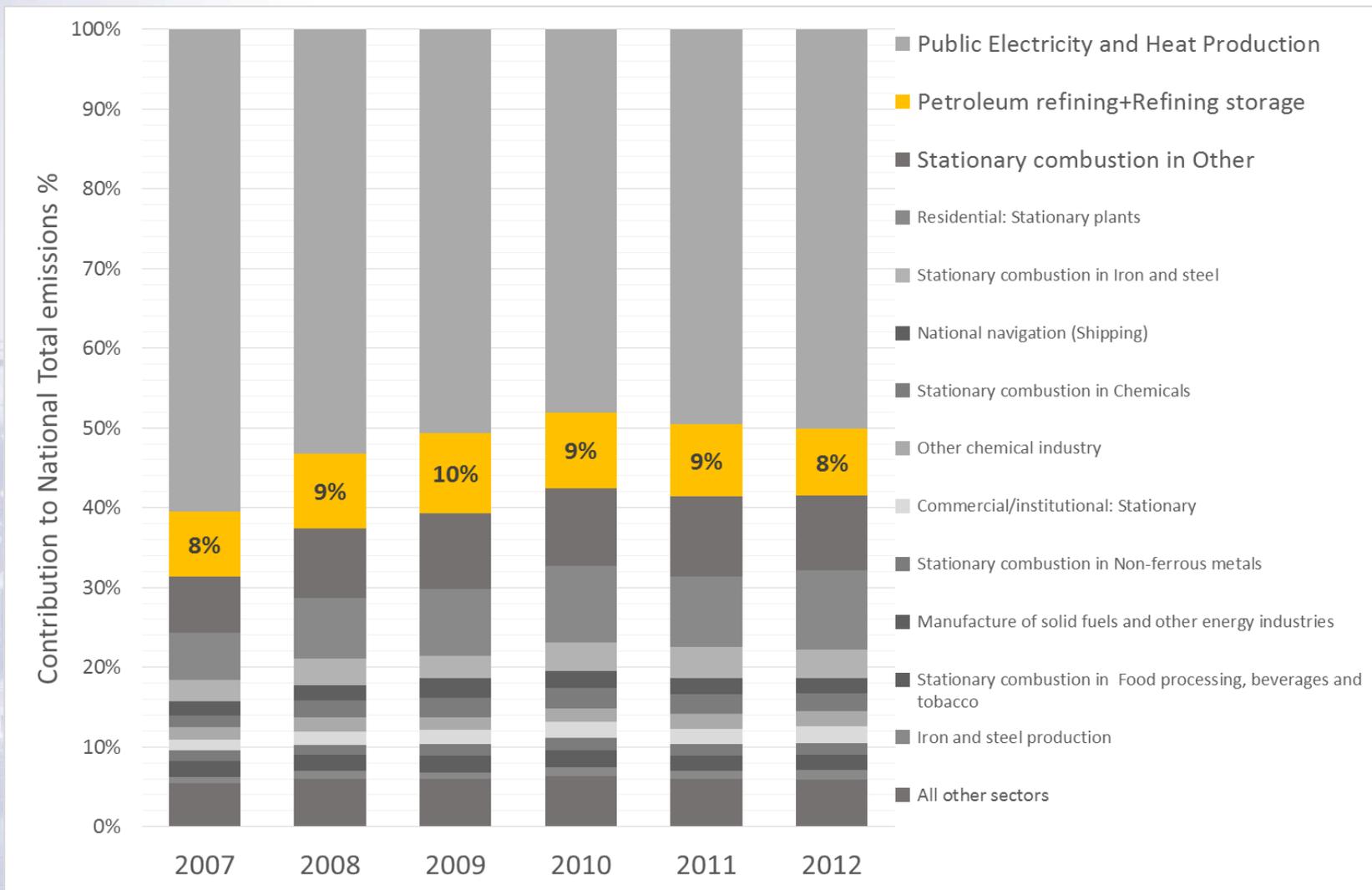
SO₂ emissions from refineries vs total emissions CLRTAP database



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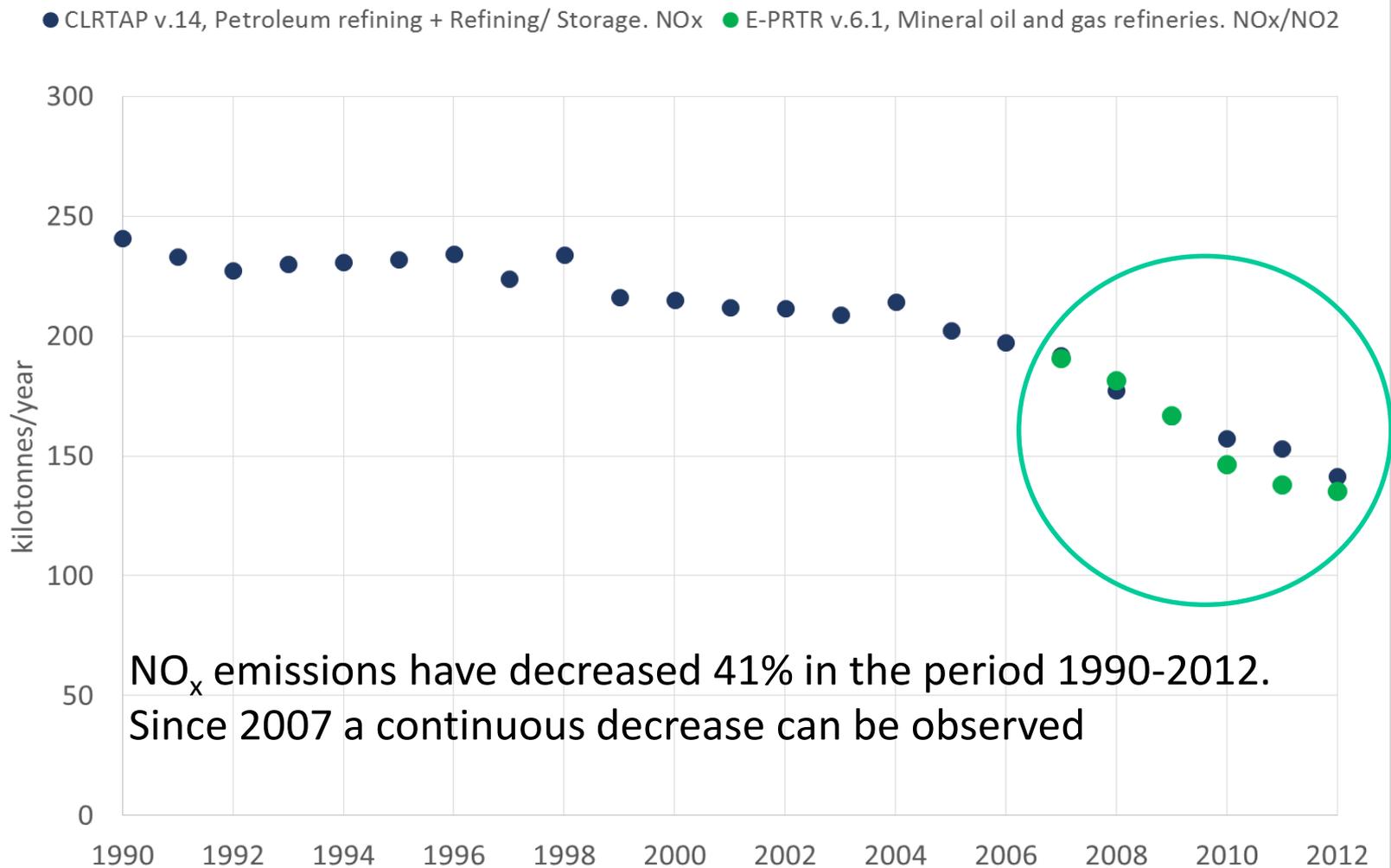
SO₂ emissions from refineries vs total emissions CLRTAP database



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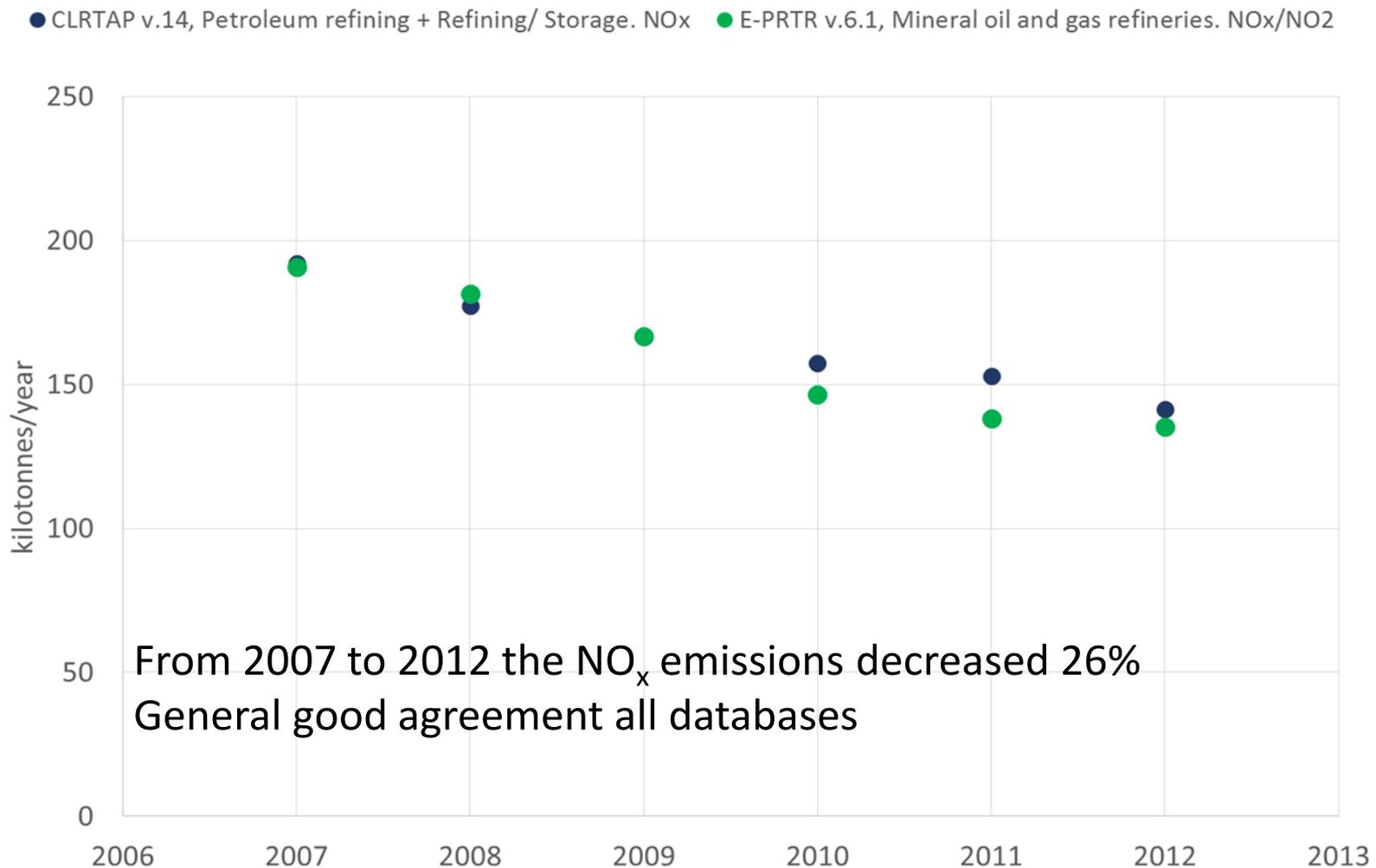


NO_x emissions from Oil refineries



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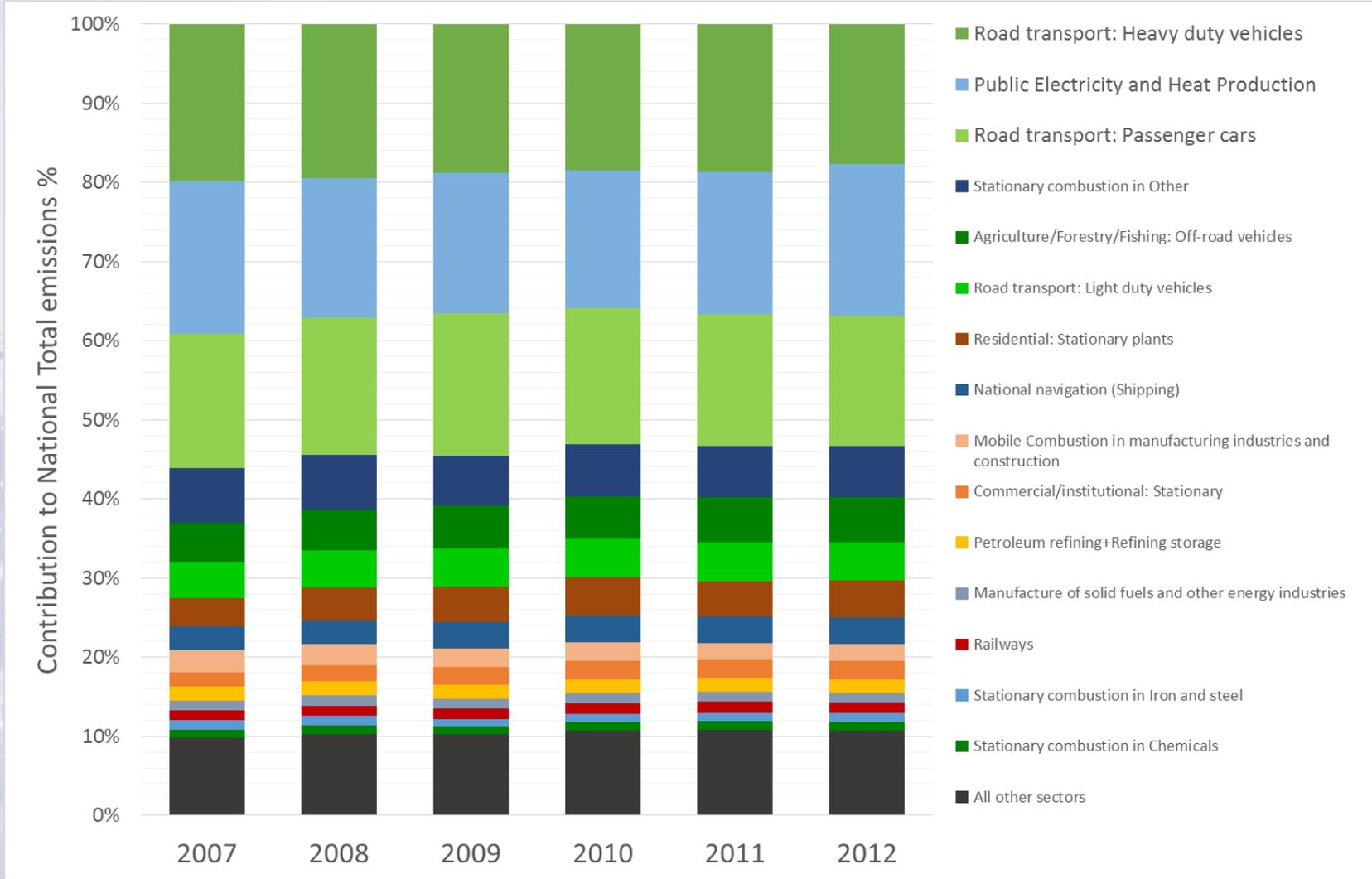




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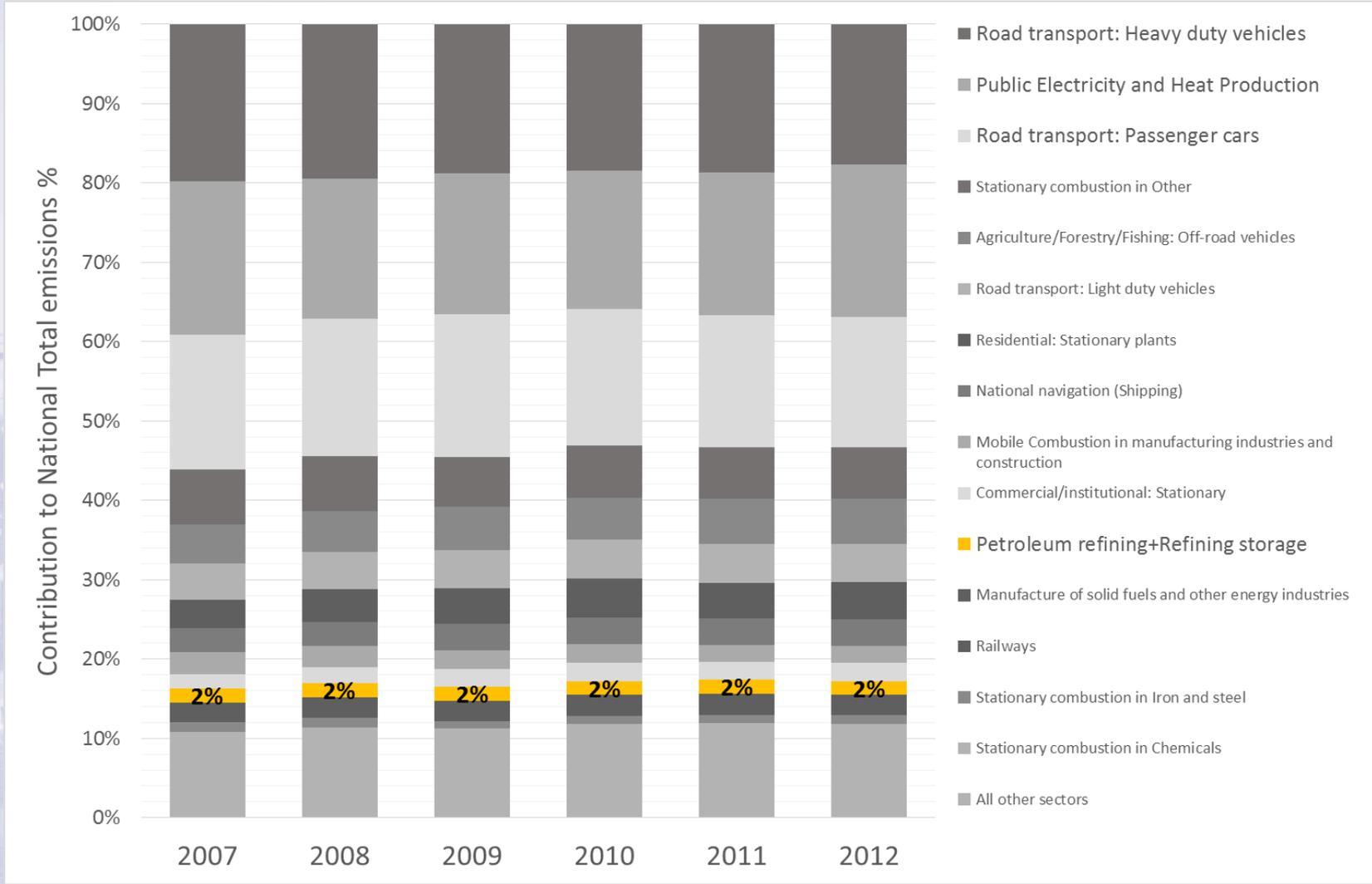
NOx emissions from refineries vs total emissions CLRTAP database



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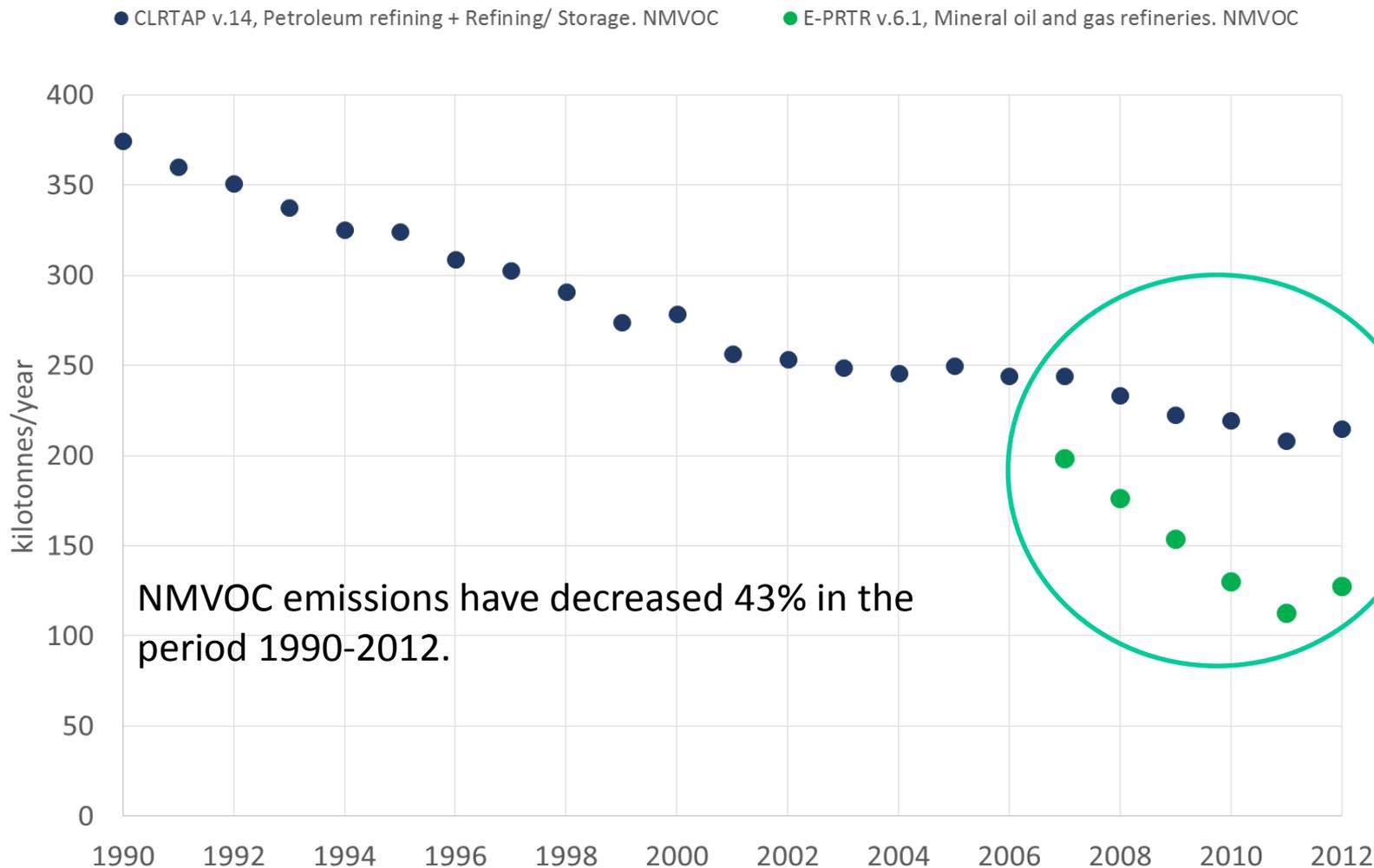
NOx emissions from refineries vs total emissions CLRTAP database



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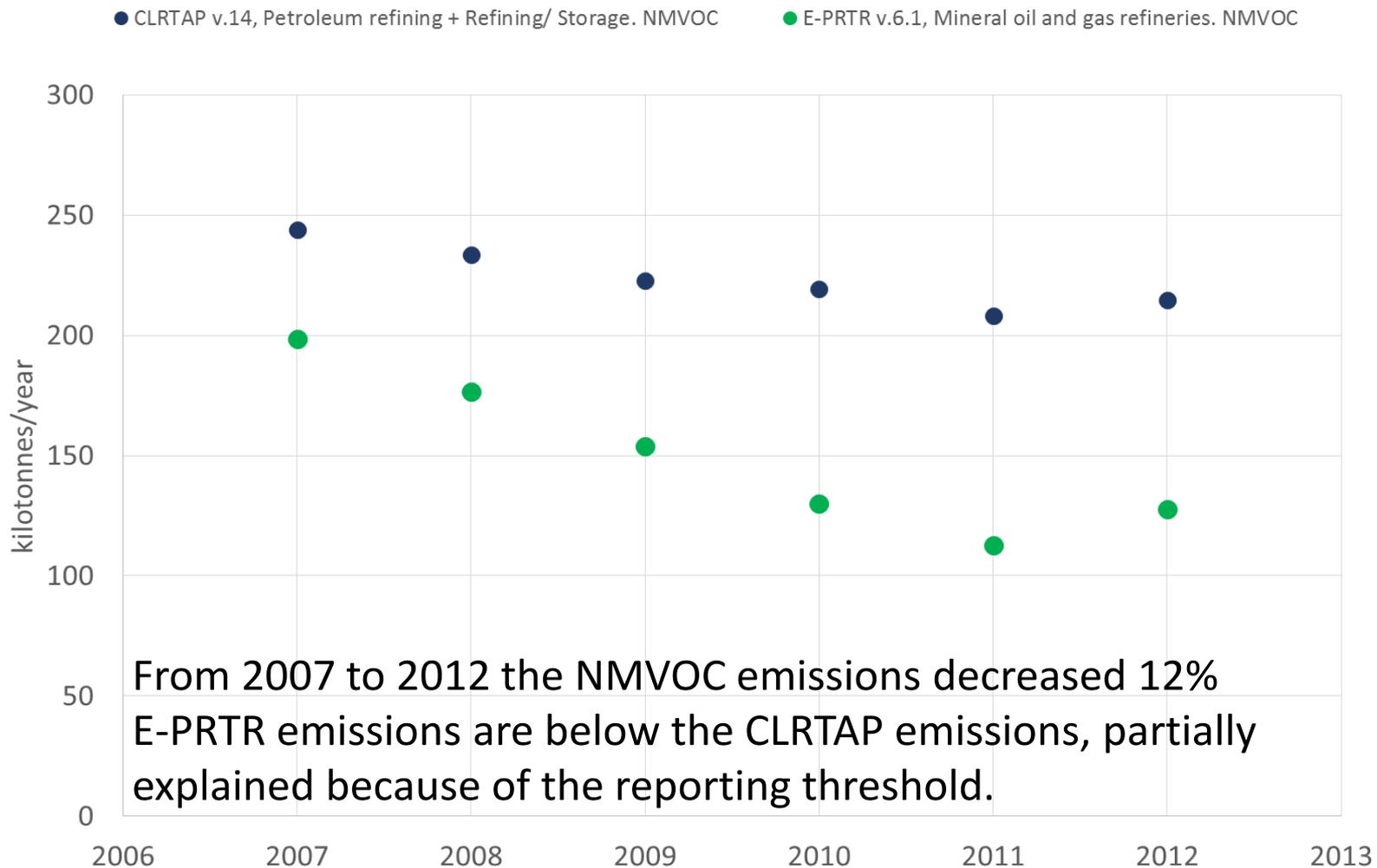


NMVOC emissions from Oil refineries



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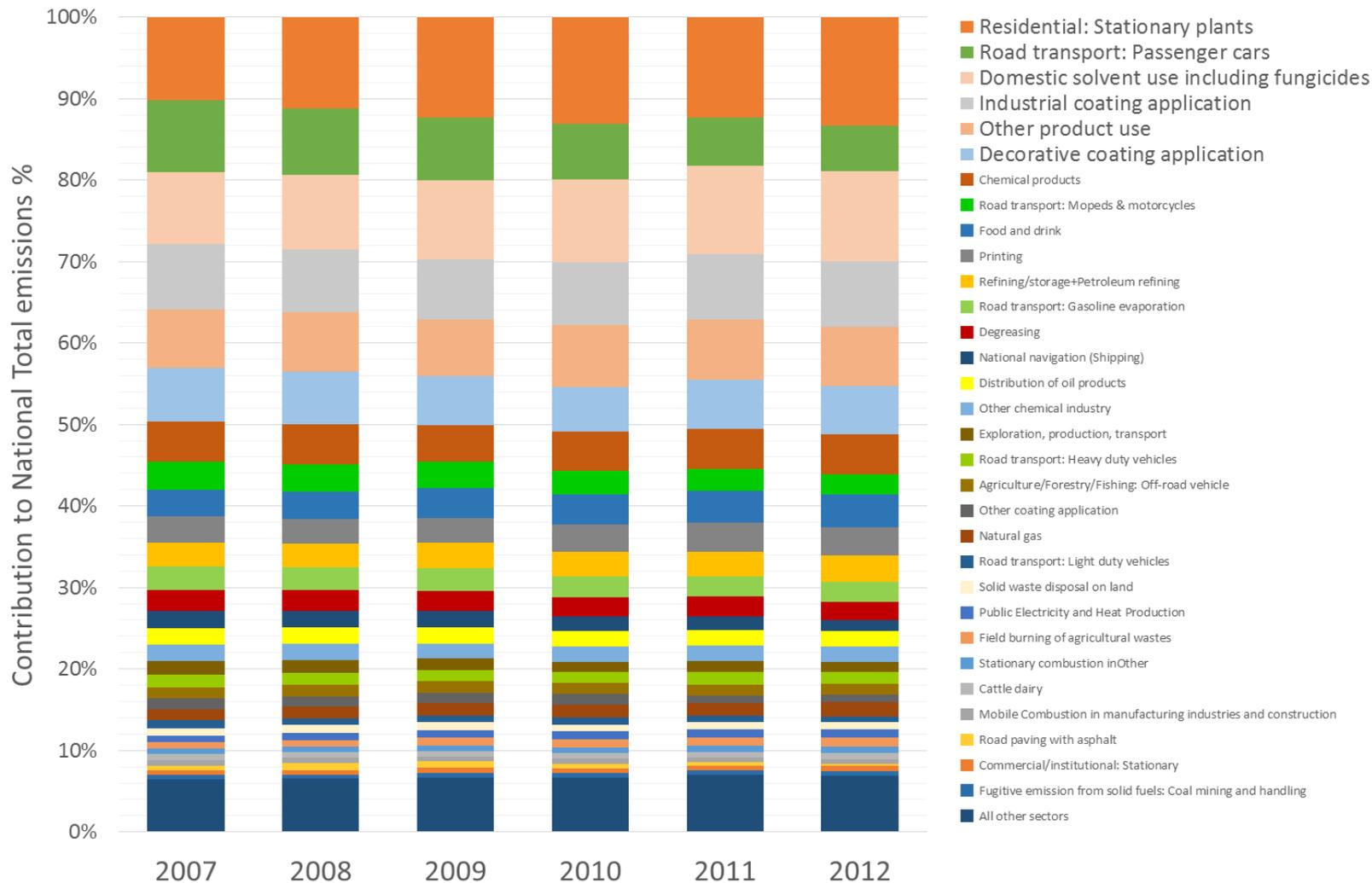




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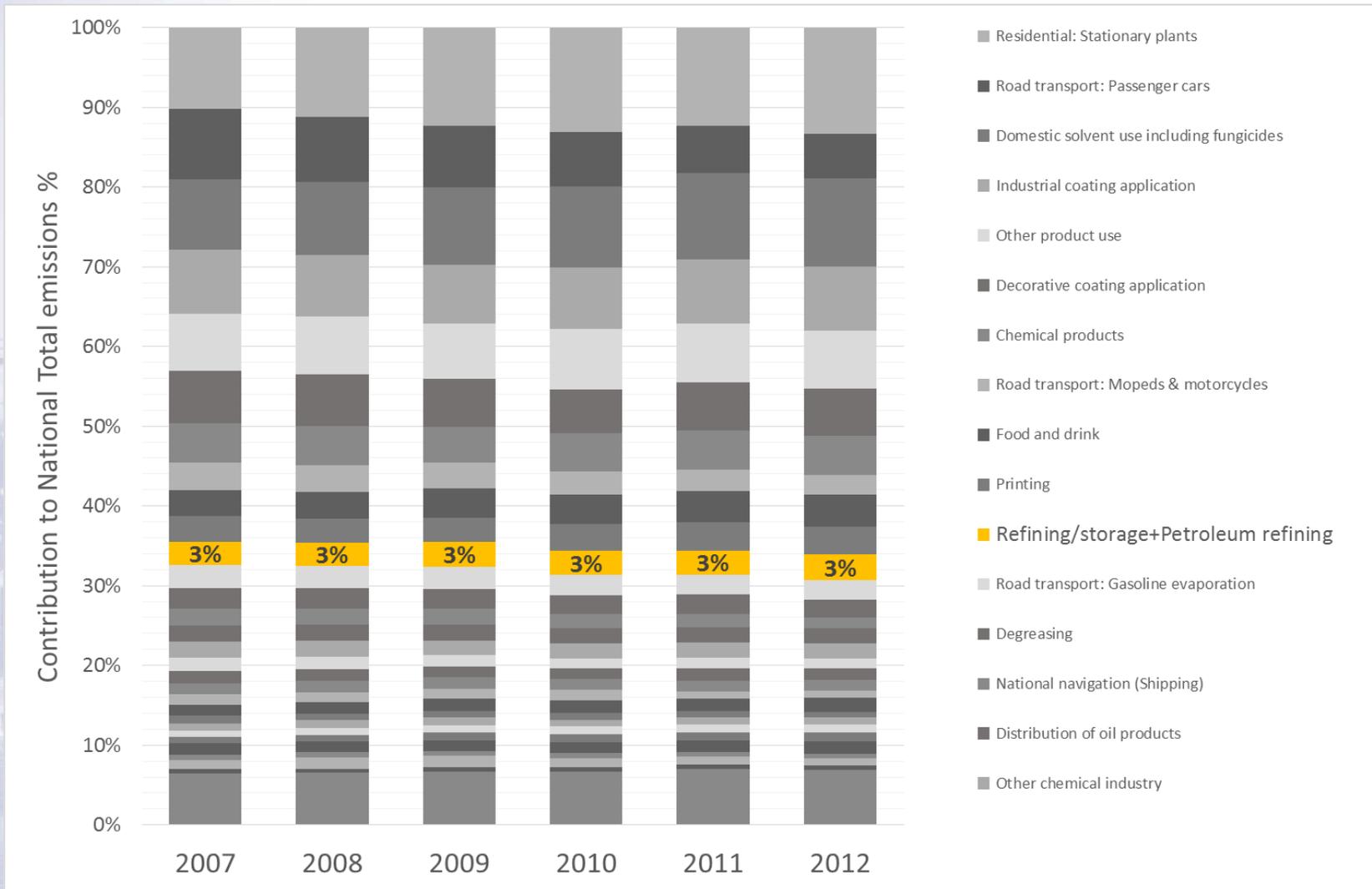
NMVOC emissions from refineries vs total emissions CLRTAP database



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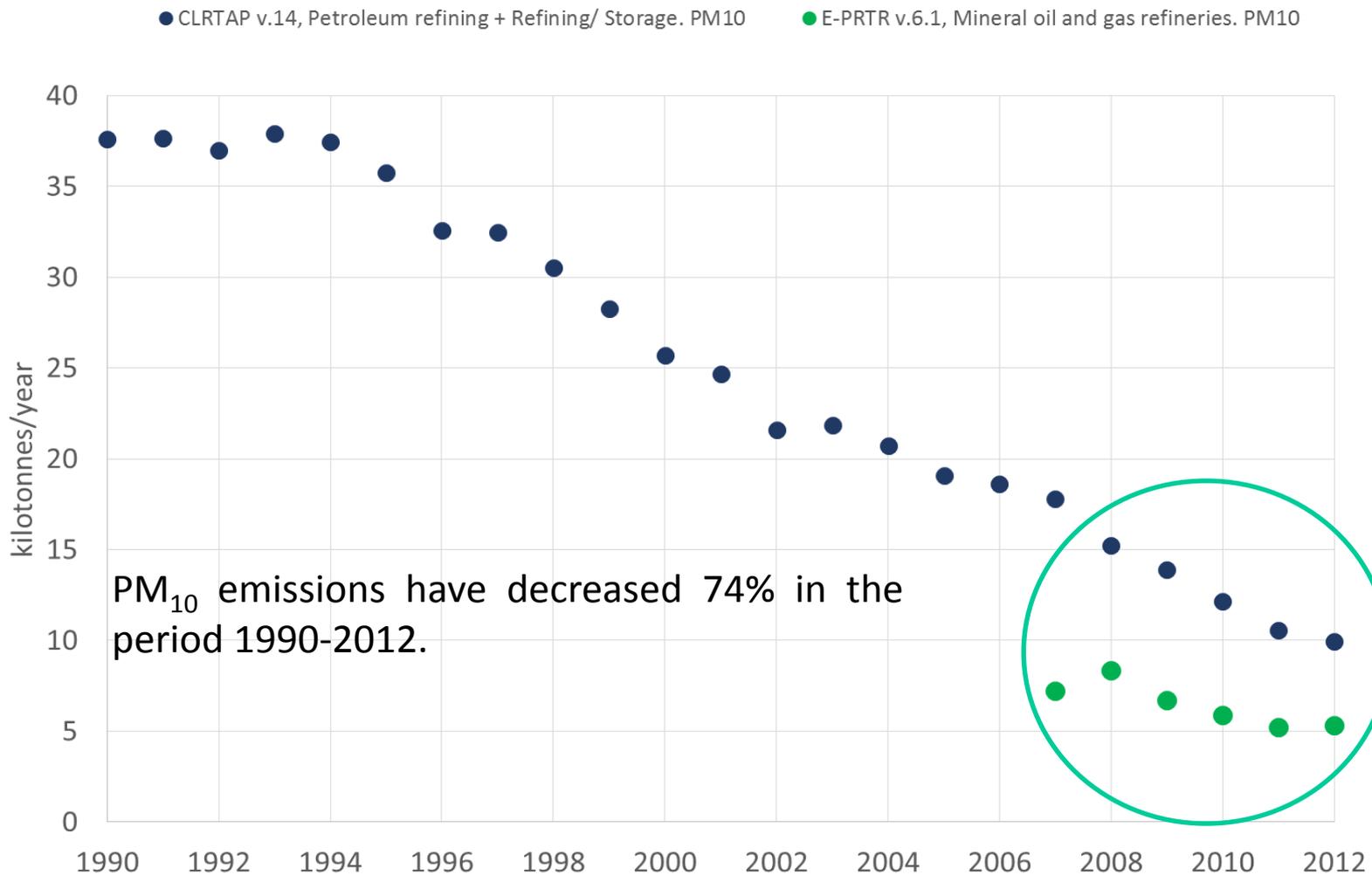
NMVOc emissions from refineries vs total emissions CLRTAP database



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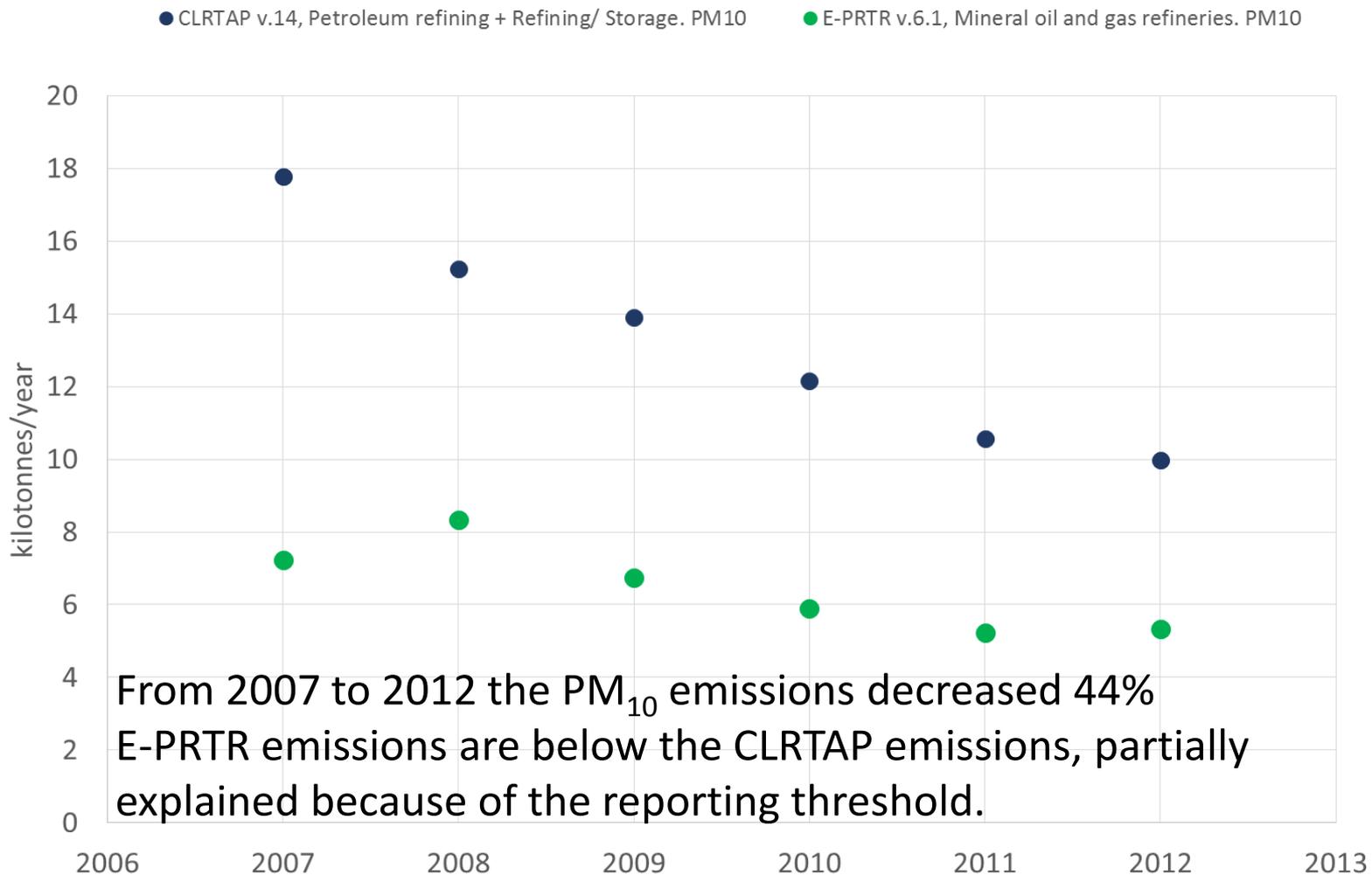


PM₁₀ emissions from Oil refineries



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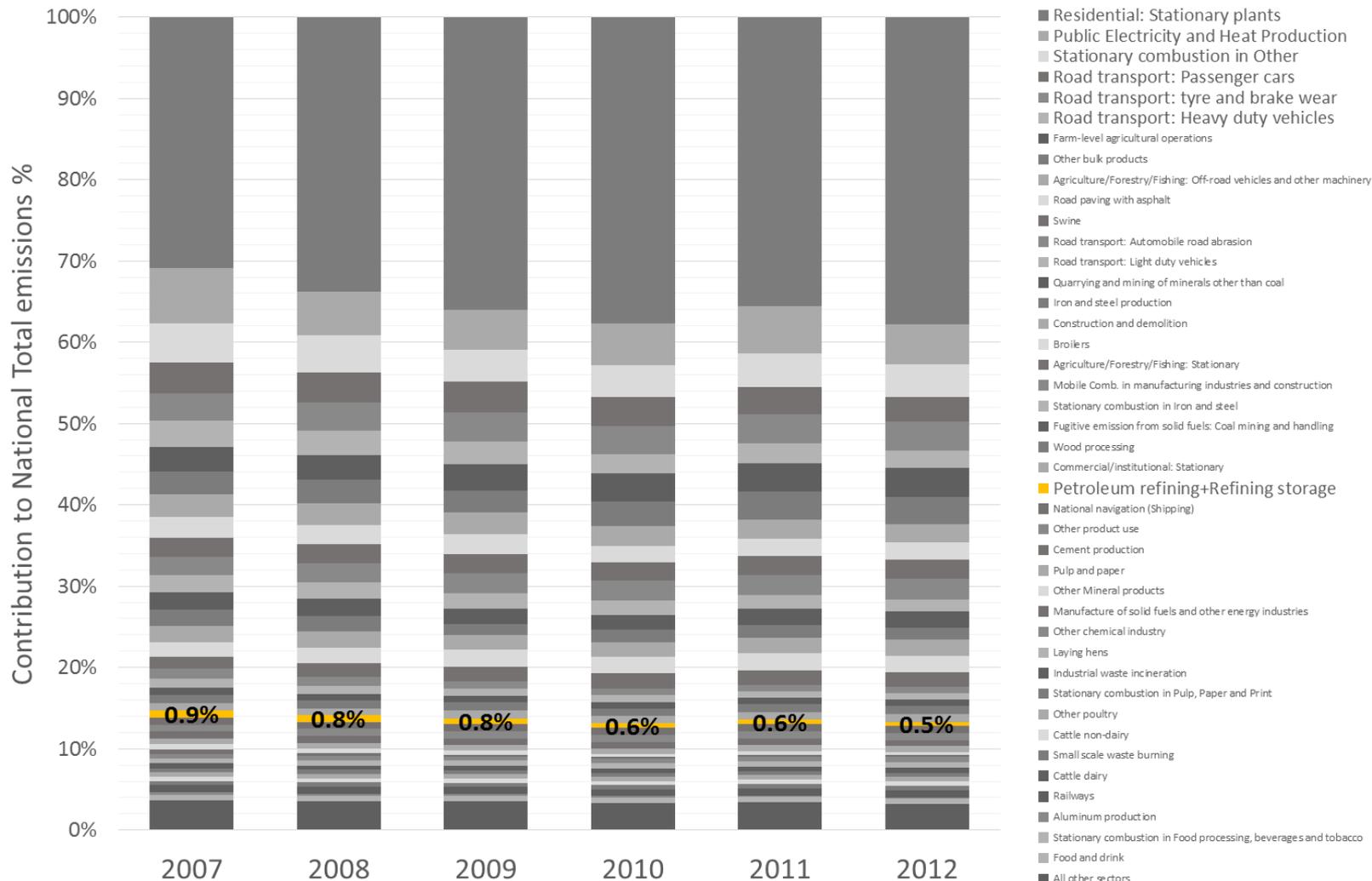




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PM₁₀ emissions from refineries vs total emissions CLRTAP database



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- ▶ The refining sector has decreased its emissions (SO_2 , NO_x , PM_{10} and NMVOC) significantly since 1990.
- ▶ Refining emissions have decreased continually or even more intensely since 2007 for SO_x , NO_x , PM_{10} (IPPCD implementation).
- ▶ Refining contribution to total emissions (2007-2012) is relatively small .
 - ▶ SO_2 : 8-10%; NO_x : 2%; PM_{10} : < 1%; NMVOC: 3%
- ▶ It is expected that the continuation of the implementation of BAT for our sector will further reduce the emissions.
- ▶ The comparison of various databases is consistent for SO_2 and NO_x .
- ▶ For PM_{10} and NMVOC some difference between the different databases, this can be partially explained by the reporting threshold set in the E-PRTR regulation.



Thank you for your attention!

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