

NÆRINGSGLIVETS
NOx-fond

Norwegian NOx Fund as an instrument to reduce emissions from ships

**Geir Høibye, Manager
The Business Sector's NOx Fund**

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NOx tax in Norway from 2007

Fiscal NOx tax

- Fiscal NOx tax 1st of January 2011 of 2 € per kg NOx
- Engines exceeding 750 kW, boilers over 10 MW and flaring are subject for taxation

Environmental Agreement 2008 - 2017

- Agreement between 15 business organizations and the Ministry of the Environment
- Affiliated enterprises are entitled to exemption from fiscal NOx tax
- All enterprises subject to NOx tax may be affiliated
- 528 affiliated enterprises so far in 2011
- The NOx Fund has to fulfill the obligations in the Agreement, sanctions if yearly targets is missed by more than 10 %

The Business Sector's NOx Fund

- Affiliated enterprises pay to the NOx Fund per kg NOx emitted
 - Oil and gas producers pay 1,4 € per kg
 - All other sectors pay 0,5 € per kg (e.g. fishing, offshore supply vessels, ferries, airlines, cargo, railways, land based industry)
- The Fund has about 70 mill. € available for support of NOx reducing measures each year
- 530 applications has been granted support or are verified, so far giving NOx reductions of about **23 000** tons from 2008 until 2011 (12 % of total Norwegian NOx-emissions)

How to get NOx effect:

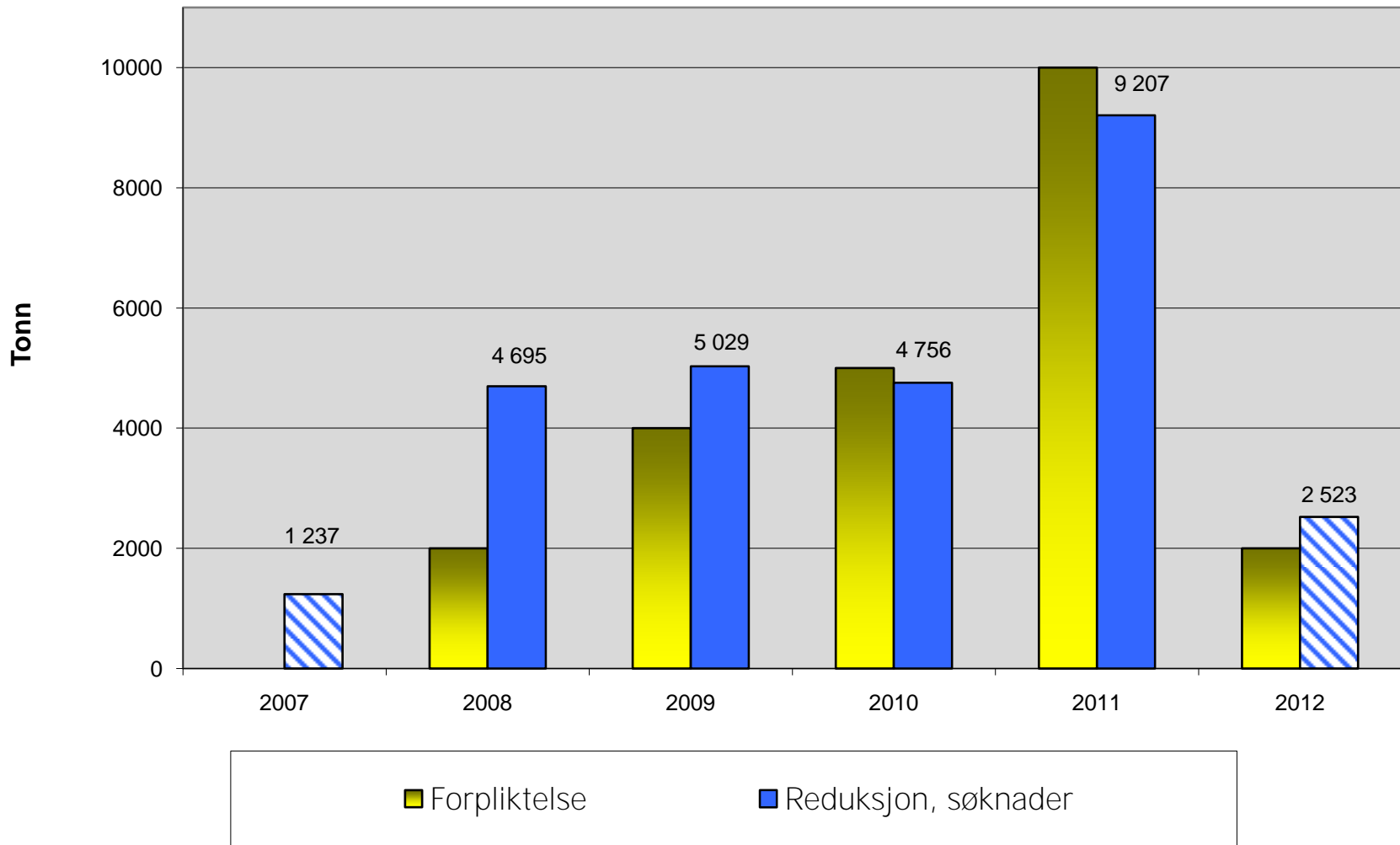
Fuel consumption x emission factor

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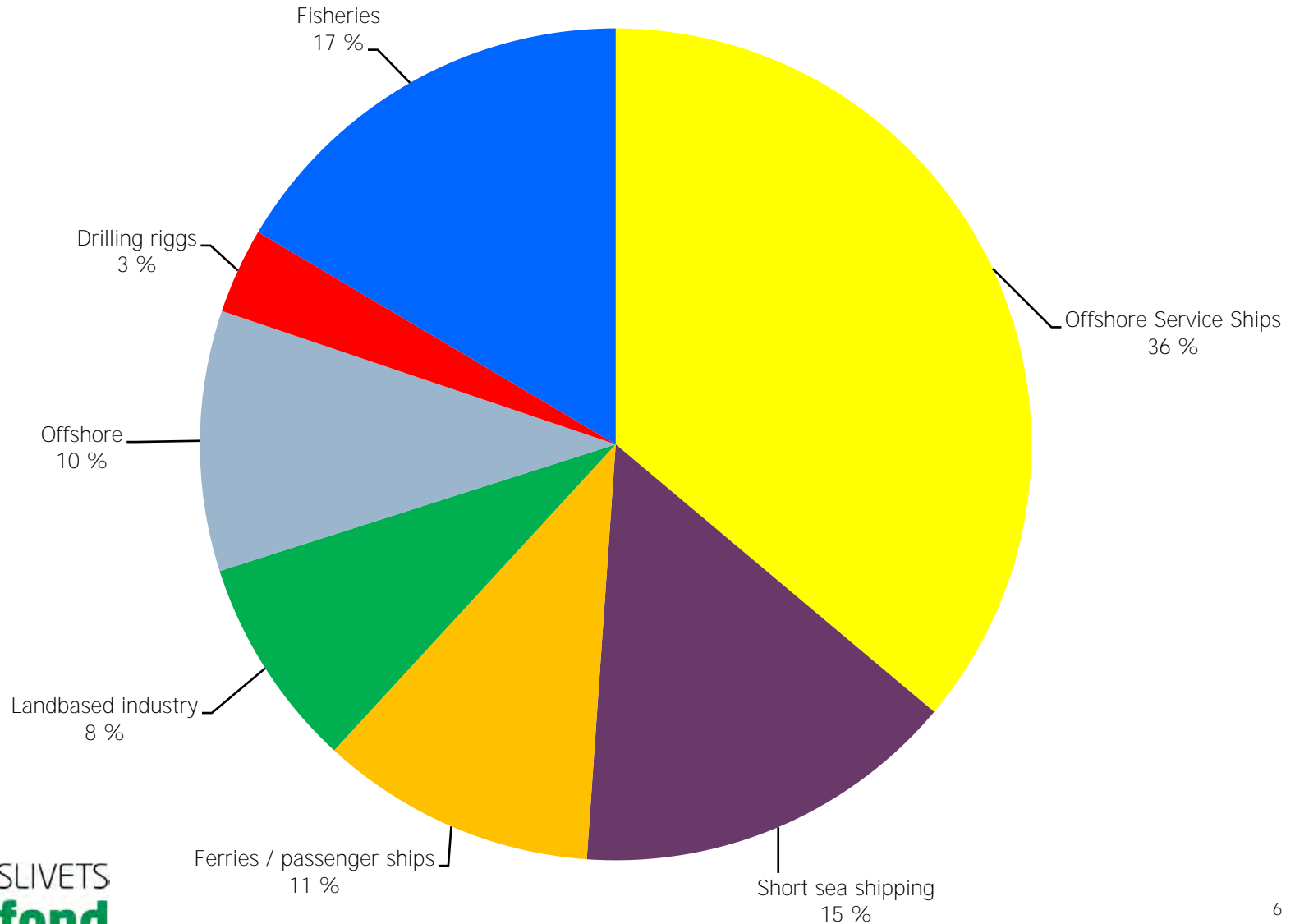
NOx emission in kilos



NOx reductions compared with commitments



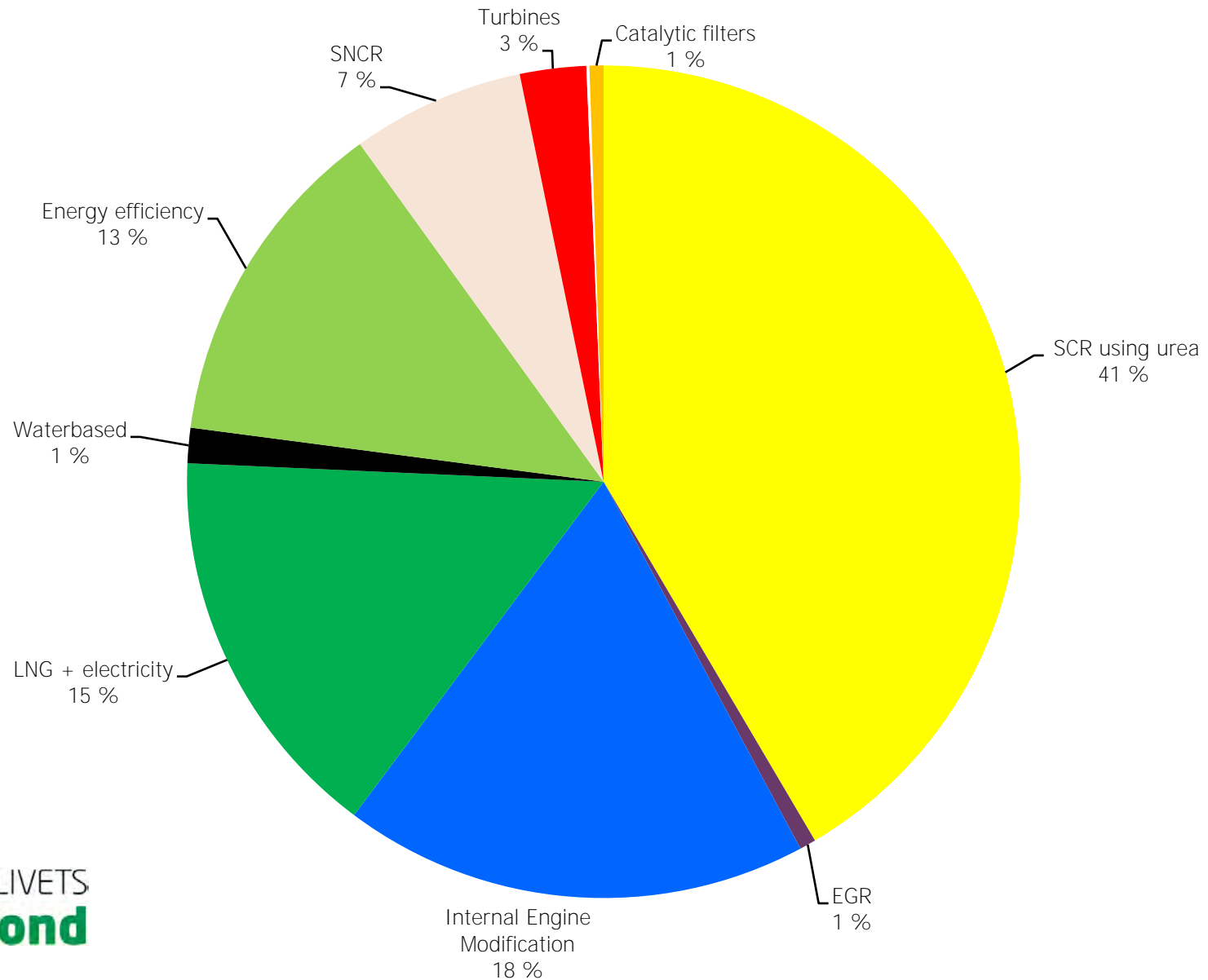
NOx-reduction by sectors



Support rates 2011-2017

- Support to cover additional costs of investing in gas/LNG propulsion in shipping (up to 80 % of investment cost and up to € 44 per kilo NOx reduced) in 2011 – 2015
- Other measures could receive up to 80 % of investment cost and up to 28 € per kilo NOx reduced
- Improved rates has resulted in more LNG applications in 2011

NOx-reduction - various measures



Gas propulsion

Sea-Cargo revised contract from diesel to gas in May 2008



- 2 ships on stream in 2011 granted support for the additional cost of gas propulsion
- Granted € 6,5 mill for reductions of 200 and 146 tons NO_x
- - 92 % NO_x, -23 % CO₂, zero NÆRINGSLEVERINGSemisissions of SO_x & Particulate

NO_x-fond



LNG conversion (Dual Fuel)

Tarbit Shipping AB – MT BIT Viking

- NOx reduction in 2011
479 tons (- 85%)
- Support € 5,5 mill.
(75% of cost)
- € 12,5 per kilo NOx reduced
- Supplier:
Wärtsilä, Sweden



2 new ferries from Fjord Line

- Daily sailings between **Bergen-Stavanger**-Hirtshals
- Comes into service in 2013
- Reductions of 2 x 321 tons of NOx
- Granted 2 x € 10 mill (80 %)
- € 41 per kg NOx reduced
- Suppliers: MAN and Cryo



37 ships planned converted or built using LNG propulsion

- In 2008 only 3 ships except ferries were based on LNG
- The NOx Fund has granted support to 29 ships, converted to gas or new buildings. 17 will be sailing in 2011. 8 new applications will be presented to the Board on June 9th
- In 2008 only 3 % of maritime fuel sold in Norway was LNG. In 2016 it can be 16 %
- By 2020 DNV and MARINTEK expect at least 1/3 of maritime fuel in Norway to be LNG

Thank you!

For more information, please go to:

www.nho.no/nox or

www.nho.no/nox/english

