Norwegian NOx Fund as an Instrument to Reduce Emissions from Ships
Agenda

1. The NOx-fund in brief
2. What we have achieved
3. The NOx-agreement 2018-2025
4. The support scheme
5. Supported projects
The NOx Fund in brief
Ownership

15 business organizations
1 000 companies affiliated
The Fund’s income

Enterprises joining the NOx Fund pay to the Fund, instead of the fiscal NOx tax to the state.

The first and the most important incentive for joining the NOx Fund is that the payment rate to the Fund is lower than the NOx tax.

Payments are per kg NOx emitted multiplied with the payment rate.
Support for measures

Support are paid back to the Industry through the NOx Fund's support scheme.

Affiliated companies can apply for and get NOx funding to NOx reduction measures.
Reduced NOx emissions in Norway

Investment in NOx-reducing measures and environmentally friendly technology reduces NOx emissions in Norway to fulfill obligations towards the Authorities.

NOx reduction measures in many cases also provide greenhouse gas reductions.

The support scheme is large enough to provide technology improvements and critical marked volumes.
What have we achieved?
Goal achievement so far

Overholdelse av utslippforpliktelsen i Miljøavtalen per virksomhetstype, akkumulert*

*Atiltak for 2006/2007 er ikke inkludert i akkumulert reduksjon.
Emission reduction by sector 2008-2017

- Offshore
- Cargo
- Other segments
- Passasjerskip
- Ferries
- Tanker
- High Speed Vessels

- Shipping
- Fishing
- Land based industry
- Oil and Gas

NOx-fondet
Different measures by support LNG – 1.2 billion NOK – 50 projects
Stronger incentives over time

Fiscal NOx fee in 2007

NO SUPPORT

NOx Agreement = tax exemption

4 and 11

NO SUPPORT

Support for NOx reducing measures

4 and 11

Fiscal NOx Agreement 2008-2010

Fiscal NOx fee from 2026

6-10 and 12-15

NO SUPPORT

NO SUPPORT

NOx Agreement 2011-2017

NOx Agreement 2018-2025

The agreement provides a tax exemption of approx. 2 billion NOK annually.

NOK per kg NOx: ~15

~25

~15

Support for NOx reducing measures

~15

approx. 2 billion NOK annually

4 and 11

NOx Agreement 2008-2010

4 and 11

NOx Agreement 2011-2017

4 and 11

NOx Agreement 2018-2025

~25

Fiscal NOx fee from 2026

NO SUPPORT
Sources of emissions covered by the agreement

• NOx-taxed sources of emissions
  • Propulsion machinery > 750 kW
  • Boilers > 10 MW
  • Turbines
  • Flaring

• Non-NOx-taxed companies with NACE codes covered by the agreement
  • Land-based process industry

Emissions levels covered by the agreement

• Taxable NOx emissions
  - 85,000 tonnes (in 2017)

• Non-taxable NOx emissions from land-based industry
  • 14,000 tonnes (in 2016)
  • The 10 largest sources (factories) of emissions account for 80% of emissions
The NOx agreement is important for the national emissions

Nasjonale NOx-utslipp i tonn (2016)

- Oppvarming
- Andre lette kjøretøy
- Jordbruk
- Motorredskaper m.m.
- Tunge kjøretøy
- Personbil og motorsykler
- NOx-avtalen: 103200

9700
11000
15400
Emission levels and emission ceilings

• Emission ceilings can be renegotiated (lowered) by the authorities, important with a good margin

• Activity increase relative to 2017 will increase emissions
  • must be compensated by further measures that reduce NOx emissions accordingly
    o On the source
    o In the company
    o In the industry
    o Within businesses affiliated the agreement
NOx Agreement 2018 -2025, changes from previous agreements

• Obligation in the form of emission ceilings (previously ton NOx reduced)
• New criteria and equation for calculating sanctions in case of not fulfilling obligations
• Re-negotiation of the agreement may be required by both Government and the business organizations as of 01.01.2020 (previously only an option for the authorities)
• The authorities can terminate the agreement if NOx emissions are exceeded by 5% of the emission ceiling
• Payment rates to the NOx Fund are regulated so that the difference between high rate and low rate will be reduced
Sanction risk

• By exceeding the emission ceiling by more than 3% over a two-year period, there will be a payment obligation for all companies to the Tax Administration
• The paid NOx fee to the NOx Fund will not be refunded
• The sanction fee cannot be more than the fiscal fee (NOK 21.94 per kg NOx in 2018)
• NOx tax shall be paid for NOx emissions for the two-year period for emission ceiling has been exceeded. The rate is calculated according to the following formula:

\[
Sanction = 15 \cdot X \cdot Y \cdot Z
\]

- \(X\) = percentage exceedance of emission limit
- \(Y\) = tax rate in the Storting’s decision on NOx emissions tax
- \(Z\) = NOx-emissions
The Support Scheme
Investment Support

Support = Support Rate x Annual NOx Reduction

- The support is limited to max. 80% of the investment cost
- Support Statement is given based on predicted numbers
- Support Payment is provided based on actual NOx reduction after implementation of measures, limited to the maximum support granted
## Support Rates

### Action Type and Support Rate

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<thead>
<tr>
<th>250 NOK/KILOGRAM</th>
<th>500 NOK/KILOGRAM</th>
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<tbody>
<tr>
<td>• SCR and EGR or other purification technologies (mobile sources)</td>
<td>• Energy conversion: LNG, electrification and hydrogen</td>
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<td>• Cold ironing (onboard mobile sources)</td>
<td>• Battery</td>
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<tr>
<td>• Energy Efficiency Measures (EE measures)</td>
<td>• Variable RPM / DC grid on motors</td>
</tr>
<tr>
<td>• Engine Conversions</td>
<td>• SNCR / SCR on fixed installations</td>
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<td></td>
<td>• Reduction of NOx factor from offshore gas turbines</td>
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<td>• Reduction of NOx emissions from flares</td>
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<td></td>
<td>• Optimization of processes in land-based industry</td>
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<tr>
<td></td>
<td>• EE measures combined with Tier III measures (SCR, EGR or LNG)</td>
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<td>• Motor exchanger combined with Tier III measures</td>
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Support Terms

• Support is only provided to measures on emission sources covered by the NOx agreement
• The company/source must be affiliated to the NOx agreement
• Measures already implemented or decided implemented are not supported
• Measures where the NOx Fund's support accounts for less than 10% of the additional cost of the action is not supported
• Duration of presence in Norway must be at least 2 years. Mobile sources should refer to a contract in Norwegian waters or similar
• Reductions due to state tender requirements are not supported
• Reductions due to legal requirements (e.g. Tier III-requirements for new ship engines in ECA from 2021)
What have we supported?
LNG engine

- Fjord Line - Stavangerfjord
- 72 MNOK
- Will reduce 270 tonnes of NOx each year
Worlds first LNG driven fishing vessel

- Lie Gruppen - Libas
- 56 MNOK
- Will reduce 100 tonnes of NOx each year
Thank you for your attention!

nho.no/nox