FACTSHEET

Wintershall combines economic, environmental and social responsibility. As one of the financial investors in the Nord Stream 2 Project, Wintershall therefore initiated an eco-efficiency analysis that was conducted by BASF/TÜV. Its major key results are presented in this spreadsheet.

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Nord Stream 2: Eco-Efficiency Analysis

Eco-Efficiency Analysis (EEA) created by BASF SE + TÜV Rheinland LGA Products GmbH (Link → on EEA)

EEA evaluates:
Nord Stream 2 (basic route) from Bovanenkovo, Russia via Baltic Sea
Onshore Alternative 1 (virtual) from Bovanenkovo, Russia via Belarus and Poland and
Onshore Alternative 2 (virtual) from Bovanenkovo, Russia via Ukraine to Western Europe

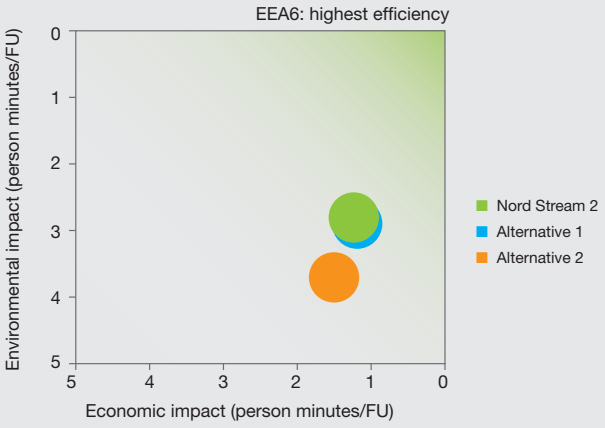
EEA compares (selection): Construction, operation and maintenance of evaluated pipelines for the transport of one normalized m³ of natural gas to western European hubs; assuming **state-of-the art design** and equipment at a maximum operating pressure of **100 bar** for all onshore pipeline sections

ECO-EFFICIENCY PORTFOLIO

Aggregated environmental and economic result at a glance:

- Nord Stream 2 and Alternative 1 imply similar Eco-Efficiency results.
- Nord Stream 2 and Alternative 1 are significantly more eco-efficient than Alternative 2.
- Alternative 2 is most expensive and has the highest environmental impact.

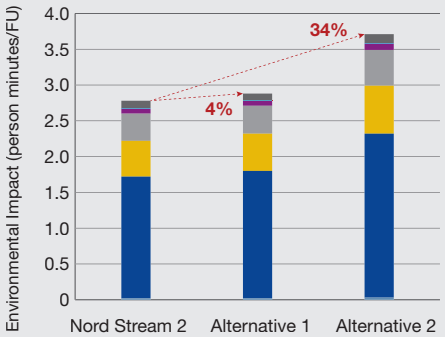
A **person minute** describes the environmental or economic impact caused by one EU-28 inhabitant in one minute.
FU – Functional Unit refers to the transport of one Nm³ of natural gas via evaluated pipelines from Bovanenkovo, Russia to Western Europe.



ENVIRONMENTAL IMPACTS

Aggregated environmental results
Global warming potential, photochemical ozone formation and acidification contribute most to the environmental impact results. Alternative 2 performs visibly worse in all categories.

- Resource depletion (mineral, fossil)
- Eutrophication (fresh water)
- Eutrophication (marine)
- Acidification
- Photochemical ozone formation
- Climate Change (Global Warming Potential)
- Human toxicity



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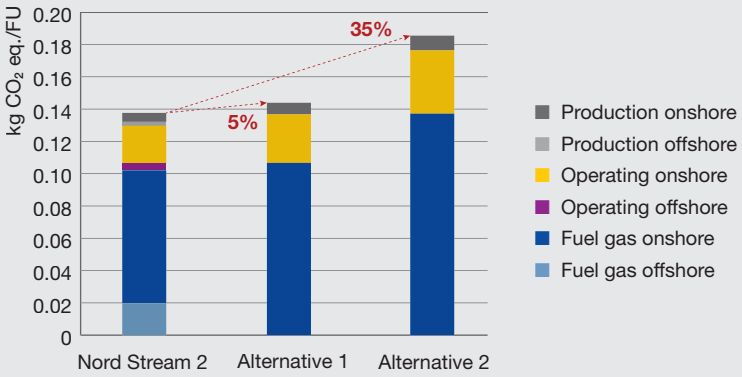
GREENHOUSE GAS EMISSIONS

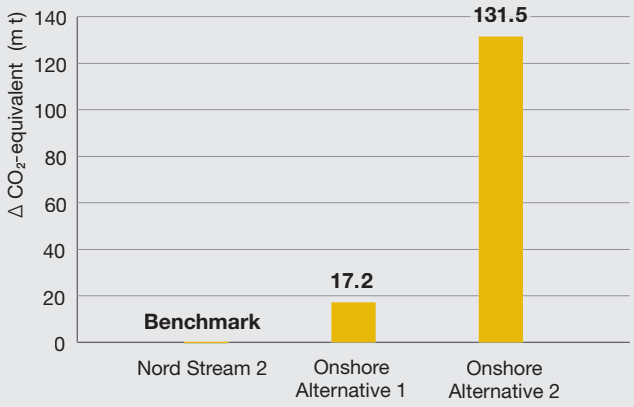
Greenhouse gas emissions mainly refer to CO_2 and methane emissions. These can be produced when natural gas is combusted for gas transportation and during operation.

The greenhouse emissions for Nord Stream 2 are the lowest due to a reduction in the demand for fuel gas.



FOCUS: CO_2 EMISSIONS

Additional CO_2 emissions in a 50 year-period

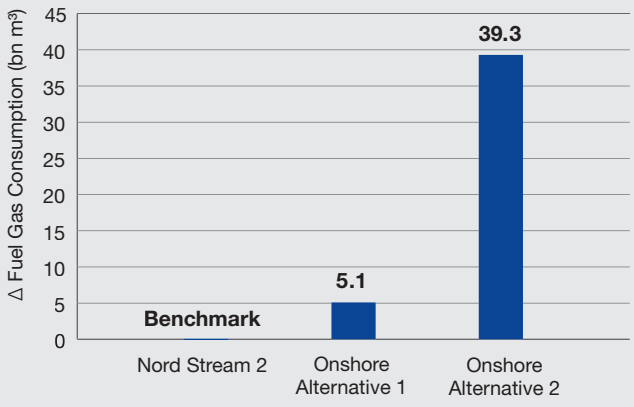


Nord Stream 2 saves up to 131.5 million tons of CO_2 emissions compared to the two alternatives over a period of 50 years. This equals roughly 1/7 of Germany's annual emissions.

Comment: Results would be even more clear-cut if detailed real basic data on the (older) existing pipeline transport systems had been used. As these systems operate with a pressure level significantly less than 100 bar, the real additional CO_2 emissions are several times higher (a DBI publication indicates a value that is 3.8 times higher).

FOCUS: FUEL GAS DEMAND + COST SAVINGS

Additional fuel gas demand in a 50 year-period (lifetime cycle)



Operating with higher pressure, Nord Stream 2 saves up to 39 billion cubic meters of fuel gas during its 50-year lifespan. The lower use of fuel gas could result in savings up to 11 billion Euro. The assumed price is 164€/1,000 Nm³, adjusted to 50 years with an average yearly inflation rate of 2%.

The annual fuel savings by Nord Stream 2 are equivalent to the annual energy consumption of about 70,000 average households when compared to Alternative 1 and even nearly 530,000 households when compared to Alternative 2.

Energy savings for Nord Stream 2 originate from the far lower specific fuel gas demand for the offshore section. The onshore fuel gas consumption requires higher average transport pressure as more compressor stations are essential to transit gas onshore to Europe.

Nord Stream 2 can reduce CO_2 emissions by up to 131.5 million tons in a 50-year period – in comparison to the two alternatives.

By reducing fuel gas by 39 billion cubic meters, up to 11 billion Euro can be saved in the life span of the pipeline.

These figures reflect a baseline scenario based on the more conservative estimates, Link → cf. DBI publication.

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