

Expert testimony on the climate implications of development and operation of the Yggdrasil oil and gas fields

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Overview

My testimony addresses three sets of questions:

1. Is the Government's methodology for estimating the climate effect of a new oil and gas field appropriate? And if so, is it implemented in a robust and consistent manner?
2. Does the Government's estimate that Yggdrasil (gross 365 MtCO₂e) may reduce global GHG emissions by 52 MtCO₂e reflect a reasonable and robust application of net emissions analysis methodology? If not, what might be a more likely estimate?
3. What are the broader climate implications of developing the Yggdrasil oil and gas fields? Would its development be consistent on meeting global climate goals?

1. Is the Government's methodology for estimating the climate effect of a new oil and gas field appropriate? And if so, is it implemented in a robust and consistent manner?

- The Government relies on findings from a Rystad Energy report that applies an **appropriate methodology for net emissions analysis**, which seeks to capture 3 important dynamics:
 1. **Market response:** how increased oil and gas supply translates to increased consumption
 2. **Demand substitution:** which alternative (non oil-and-gas) energy sources would be displaced and to what extent
 3. **Supply substitution:** the effects of substituting for oil and gas production in rest of world.
- **Implementation is flawed** due to assumptions that are:
 - inconsistent with other literature
 - inappropriate for its own counterfactual scenario (Gradual Energy Transition, based on IEA “Announced Pledges Scenario”)
 - not well matched with the time frame of the project
 - systematically biased towards finding of a net emissions benefit
 - not in accordance with widely-accepted GHG accounting principles
- **Other important metrics and perspectives are neglected:**
 - consistency with national and global climate targets
 - lock-in, equity, and climate leadership implications

The Greenhouse Gas Protocol



The GHG Protocol for Project Accounting



4.6 Conservativeness

Use conservative assumptions, values, and procedures when uncertainty is high

GHG reductions should not be overestimated. Where data and assumptions are uncertain and where the cost of measures to reduce uncertainty is not worth the increase in accuracy, conservative values and assumptions should be used. Conservative values and assumptions are those that are more likely to underestimate than overestimate GHG reductions.

2. Does the Government's estimate that Yggdrasil (gross 365 MtCO₂e) may reduce global GHG emissions by 52 MtCO₂e reflect a reasonable and robust application of net emissions analysis methodology? If not, what might be a more likely estimate?

- The Government's estimate is neither reasonable nor robust.
- Application of the Government's methodology, but with assumptions more consistent with other literature and an "announced pledges" world, suggests that development of Yggdrasil would **increase global GHG emissions by roughly 80 MtCO₂e over its lifetime.**

Five flawed assumptions

- a) **Analysis timeframe:** The Government relied on an inappropriately early analysis year for Yggdrasil (2030), leading to underestimation emission impact, especially so given recent finds.
- b) **Oil price elasticities:** The Rystad Energy report understated the market – and thus, emissions – impacts of increased oil production, by using elasticities inconsistent with the literature.
- c) **Increase in energy demand:** Rystad failed to account for the increase in global energy consumption that would result from increased production and lower energy prices.
- d) **Source of displaced (substituted) energy.** Gas production will slow the global transition to clean energy, likely substituting for renewable energy more than coal, unlike what Rystad assumed.
- e) **Upstream emissions of other oil and gas producers.** Rystad Energy assumes that other O&G producers do little to reduce these emissions (-12% by 2030), in contrast what occurs in IEA scenarios (-33% in *Announced Policies* and -50%+ in *Net Zero* by 2030).

3. What are the broader climate implications of developing the Yggdrasil oil and gas fields? Would its development be consistent on meeting global climate goals?

- High emitting activities should not be justified on net emissions given reliance on speculative assumptions, counterfactual scenarios often proved wrong in the future, and climate imperative
- Under IEA's scenario that meets global climate goals (net zero by 2050) "no new long-lead time upstream oil and gas projects are needed".
- The Government needs to consider "carbon lock-in", equity, and climate leadership implications. Development of Yggdrasil:
 - will lead to long-lived investments in new, fossil fuel using-infrastructure that will slow the transition to clean energy
 - may be inconsistent with an equitable transition away from fossil fuels production that recognizes countries' differentiated responsibilities and capabilities
 - undermines Norway's climate leadership

Summary

- The government's analysis of Yggdrasil's climate implications was systematically biased in its net emissions analysis and seriously flawed by neglecting other important dimensions
- With assumptions more consistent with the IEA APS and other literature, the lifetime net emissions impact is closer to 80 million tCO₂e, greater than Norway's current annual emissions (49 million tCO₂e)
- Development of Yggdrasil is inconsistent with agreed climate goals and Norway's climate leadership