MENON ECONOMICS

SUMMARY

THE CARBON FOOTPRINT OF PUBLIC PROCUREMENT

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By Elise Grieg, Maja Olderskog Albertsen, Sander Aslesen and Jonas Erraia

Preface

Commissioned by DFØ, Menon Economics has calculated the carbon footprint of public procurement. The calculations have been carried out in Menon's climate-extended input-output model ITEM, for municipalities, county municipalities and government entities.

The project has been led by Elise Grieg, with Maja Olderskog Albertsen and Sander Aslesen as team members. Jonas Erraia has been the responsible partner for the project.

Menon Economics is a research-based analysis and consultancy company at the intersection of business economics, social economics, and business policy. We offer analysis and advisory services to companies, organizations, municipalities, counties, and ministries. Our main focus is on empirical analyzes of economic policy, and our employees have economic expertise at a high scientific level.

We thank DFØ for an interesting project. The authors are responsible for all content in the report.

This is the English summary from the published report *"Klimafotavtrykk av offentlige anskaffelser"*. The entire report in is available in Norwegian on our website www.menon.no

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Elise Grieg
Project leader
Menon Economics

Jonas Erraia
Project manager
Menon Economics

Summary

As Norway's largest purchaser of goods and services, the public sector has a significant carbon footprint. At the same time, this purchasing power provides a unique opportunity to influence greenhouse gas emissions through its procurement power. To seize this opportunity, it is important to have a solid data foundation that identifies where the greatest potential for reductions lies. In this report, we calculate the climate footprint of the public sector's procurements, and show how they are distributed across administrative levels, industries, and geography.

Background

The Norwegian Agency for Public and Financial Management (DFØ) has commissioned Menon Economics to analyse the total carbon footprint of Norwegian public procurements. A similar analysis was conducted in 2019 by Asplan Viak and Oslo Economics on behalf of The Agency for Public Management and eGovernment (Difi). The present analysis is an update of Asplan Viak's analysis but is based on Menon's climate model ITEM. Both Asplan Viak and Menon's models are based on a similar methodology: an environmentally extended input-output analysis (EEIOA) which explicitly models both national and international value chains. The two analyses yield results that appear comparable, but assumptions vary between the two models, and one should therefore be cautious when comparing the two estimates directly.

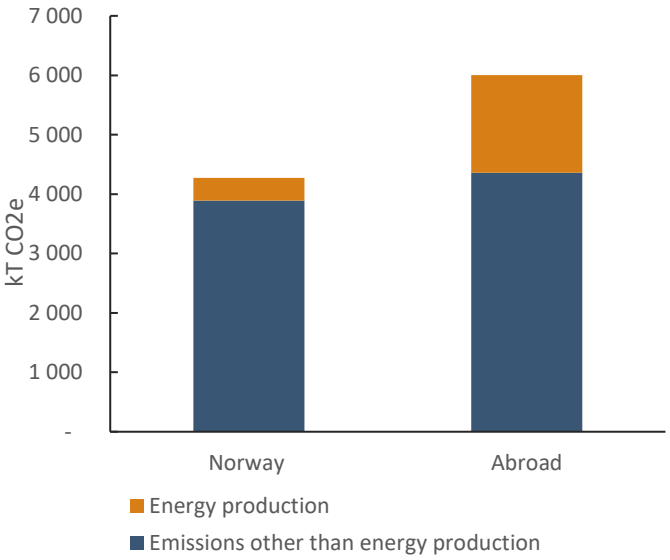
Method

This analysis uses an environmentally extended input-output analysis (EEIOA). The model is based on the Norwegian input-output framework and uses the EU's input-output to model imports. Thus, we assume the EU is representative of all imports, which will lead to an underestimation of total emissions abroad. This is because emission intensities in Europe are lower than those of most of its trading partners. The advantage of using the EU input-output is that it has high data quality and is regularly updated. The environmental extension to the purely economic input-output model consists of linking sector-specific emission intensities for Norway and the EU to the respective input-outputs, thereby calculating total emissions in the entire value chain for public procurement. The analysis does not include emissions from public administration and operations (scope 1). The input data is publicly available, mainly from SSB and Eurostat. Additionally, we use *Kommunal Rapport*'s database of all suppliers to the public sectors and Menon's database of all Norwegian companies' financial data.

Results

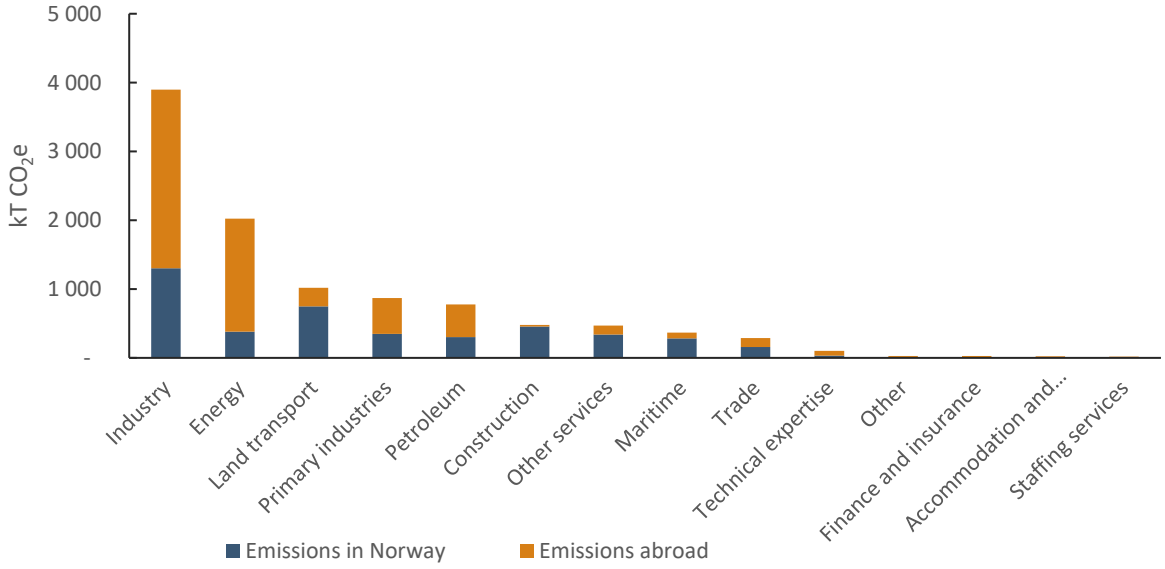
Based on the model above, we estimate that public procurements have a total carbon footprint of around 10.3 million tonnes of CO_2e. In comparison, Asplan Viak estimates Norway's total (consumption-based) climate footprint in 2017 at around 70 million tonnes of CO_2e. As shown in the figure to the right, the combined emissions from public procurements are just over 4 million tonnes of CO_2e in Norway (42 percent) and just over 6 million tonnes of CO2e abroad (58 percent). The difference between Norwegian foreign emissions is mainly driven by the energy sector, which has a higher emission intensity in Europe than in Norway. Non-energy emissions (a total of 2 million tonnes of CO2e), are spread almost evenly between Norwegian emissions at 3.9 million tonnes (47 percent), while foreign emissions account for 4.3 million tonnes (53 percent).

Figure 1 Emissions from public procurement based on source and geography. Source: Menon Economics



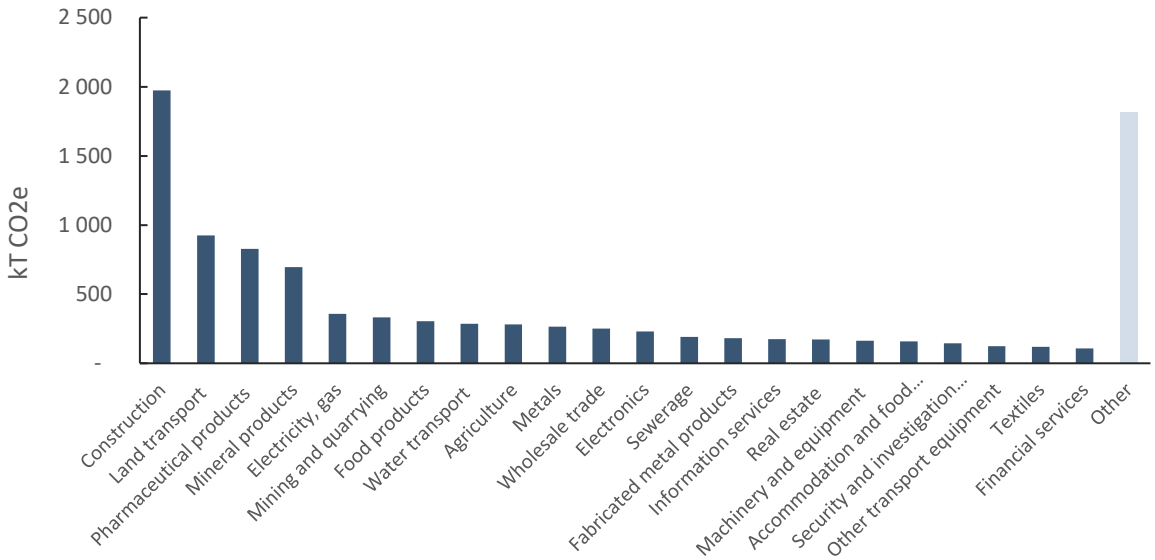
In the analysis, we find that the carbon footprint from public procurement come from the manufacturing and energy sectors, and most emissions in both sectors occur abroad. The largest emissions in Norway come from manufacturing, land transport, as well as the construction and civil engineering sector, as shown in the figure below.

Figure 2 Emissions distributed by emitting industry. Source: Menon Economics



As it is easiest for the public sector to impose requirements on their own suppliers, we have also allocated the total carbon footprint to procurement industries (the industry where the acquisition took place). The result is shown below.

Figure 3 Emissions distributed by procurement industries. Source: Menon Economics



From the figure, we see that it is procurement from the construction industry that result in the largest global emissions. The emissions are driven both by the scale of the procurements, as well as the production and transport of materials and energy used as input factors in the sector. Construction is followed by land transport, medicine, fuel and chemicals, and mineral products, which all lead to global emissions of over 700,000 tonnes of CO2e. The carbon footprint is relatively evenly distributed across the remaining industries.

Uncertainty and Further Work

In the development of this model, we find that there is generally high sensitivity to assumptions. This is particularly the case where little data is available. This applies, among other things, to emission intensities, which can vary enormously from year to year. We demonstrate, for instance, that certain changes in the methodology related to emission intensities, where no Norwegian or European data exist, can alter the result by 10-20 percent. This is an unusually high sensitivity in economic analyses.

In addition to discussing the uncertainty associated with such models, we have identified a number of potential improvements that can be made to the modelling framework. These include, among others:

- Deeper analyses of **emission intensities**. As mentioned, there is significant uncertainty associated with emission intensities. The uncertainty is particularly problematic since the emission intensities have such a major impact on the overall results. A more systematic assessment of the effect of the choice of emission intensities is an important part of the further work. This includes, for example, assessing the difference in using emissions as a proportion of production and as a proportion of gross product.

- **Certain industries have a particularly large impact on the total emissions** associated with public procurement. This applies, for instance, to energy production, transport, and construction. For these, more detailed analyses should be conducted. Such analyses could include an assessment where more detailed data on public procurement are included in the model.

- **Systematic sensitivity analyses** that examine which assumptions and data generate the largest fluctuations in the aggregate results.

- **Scope 1 emissions from public operations** are strictly speaking not included in an analysis of emissions related to public procurement. Public operations are nonetheless a moderately important source of emissions, which the public purchasers can influence. Operations and procurements also have a mutual impact (for example, procurement of electric vehicles will affect the emissions from transport in scope 1). In this report, we have only included a simple calculation of emissions related to the public sector's vehicle fleet, and data from the SSB on emissions from (county) municipal property management. There is a need for standardisation of the model and framework underlying calculations of scope 1 emissions, and we recommend a deeper analysis of the emissions and potential data sources.

- There are **significantly higher emission intensities** in several of the countries from which both Norway and Europe import goods, compared to those we have used. This leads to the likely underestimation of emissions. With data that has recently been published, for example from FIGARO, it is possible to include these in the analysis of emissions linked to public procurement.

- An interesting analysis would be to compare whether the development in emissions related to public procurement is different from emissions in the rest of society and possibly in comparable countries. **This will tell us to what extent the municipalities, county municipalities, the state, and DFØ are successful in driving transformation through public procurement.**

Menon Economics analyses economic issues and provides advice to businesses, organisations and public authorities. We are a consulting firm operating at the interface between economics, politics and markets. Menon combines social and business economics expertise in fields such as social profitability, value creation, business and competition economics, strategy, finance and organisational design. We use research-based methods in our analyses and work closely with leading academic environments in most fields. All Menon public reports are available on our website www.menon.no

+47 909 90 102 | post@menon.no | Sørkedalsveien 10 B, 0369 Oslo | menon.no