

SUMMARY

INNOVATION-DRIVEN GREEN TRANSITION

The Langskip project as a catalyst for ripple effects and business development in Vestfold and Telemark



MENON PUBLICATION NO. 98/2021

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Preface

On behalf of Vestfold and Telemark County Municipality, Menon Economics has prepared an analysis of the economic impacts associated with the realisation of Norcem's carbon capture facility in Brevik. The analysis further looks at the regional economic benefits that may follow in the wake of the government's Longship project.

The project was led by Even Winje with Øyvind Vennerød, Sigrid Hernes, and Jonas Erraia as project associates. Gjermund Grimsby was the quality assurer.

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, economic impact, 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.

We thank the Vestfold and Telemark County Municipality for an exciting assignment. We also thank all interview subjects for their valuable input during the process.

This is the English summary from the published report "*Innovasjonsdrevet grønn omstilling - Langskipprosjektet som katalysator for ringvirkninger og næringsutvikling*". The entire report is available in Norwegian on our website www.menon.no

October 2021

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Summary

On behalf of Vestfold and Telemark County Municipality, Menon Economics has prepared an analysis of the economic impacts associated with the realisation of Norcem's carbon capture facility in Brevik. The analysis further looks at the regional economic benefits that may follow in the wake of the government's Longship project. The analysis is based on the County Municipality's objective of «*increased activity and competitiveness in the regional industry resulting in green value creation in industry and in academia in Vestfold and Telemark*». The report is built up around four sub-analyses:

- 1) Estimation of economic impacts related to the construction and operation of Norcem's carbon capture facility.
- 2) Assessment of potential catalytic effects with focus on the development of a specialised supply industry related to carbon capture facilities, regionally in Vestfold and Telemark.
- 3) The importance of an accelerated green transition for the region's process industry.
- 4) Barriers, enabling factors and recommendations related to green industrial development in the region.

Economic impact. Our analyses show that the economic impact associated with the construction of the carbon capture facility will be significant. Menon's economic impact model indicates that the direct and indirect employment effects will be 760 FTEs in the period up to completion. It is estimated that around 180 FTEs will be employed in Vestfold and Telemark, mainly in construction services. In addition to employment, the construction also induces increased gross product in the region. We have estimated the direct and indirect gross product of the project at NOK 900 million. Economic impact related to operations are expected to be more limited, with an estimated employment effect of 15-25 jobs. This does not include transport and storage, but only the activity that takes place at Norcem's facility in Brevik.

Catalytic effects. Our analysis points to a relatively limited potential for employment associated with the potential development of a specialised carbon capture supply industry in Vestfold and Telemark, as few of the leading technology suppliers are currently located in the county. There are also relatively few regional suppliers that, as of today, are actively focused on specialised input into the production of carbon capture technology. Our survey shows that the market potential is mainly outside Norway's borders. It is therefore necessary to succeed in European markets in order to ensure sustained economic activity in a specialised supply industry. Although we consider the regional employment potential to be relatively limited, it is not unlikely that *individual* companies can manage to establish themselves in the value chain. We further argue that the Longship project may be an important catalyst for green transition in the region, which can facilitate catalytic effects across the technology space and industrial sectors. Several actors we have spoken to point out that the Norcem project, by virtue of the project's scope and focus, will help drive new green industrial initiatives. This can facilitate the development of a green energy industrial cluster. Moreover, our analysis points to the fact that a technological-neutral approach to green industrial development will provide the highest expected economic benefits.

The importance of an early transition for Vestfold and Telemark's industry. If Vestfold and Telemark succeeds in developing a leading climate-neutral industrial region, this has potential large effects on employment and value creation. In the report, we have developed three scenarios for the regional process industry different in the pace of the green transition. The difference between the low-growth scenario (with slow green transition among local companies) and the high-growth scenario (with extensive use of CCS and other green technologies) is NOK 8.5 billion in annual value creation by 2035. This equals over 4,000 jobs in the industrial sector. The scenario analysis thus shows that regardless of the size of the effects associated with a regional supplier industry, the derived effects can be important. An early realization of CCS and other green energy technologies can make

a significant economic contribution by strengthening the competitiveness of the region's existing companies and by facilitating new industrial establishments.

Barriers, enabling factors and recommendations. The most important barriers for an innovation based green transition in the Norwegian process industry is related to a lack of political support, the design of the current support schemes, and the regulatory framework. There is a broad consensus among industrial players that Norway needs to develop a more long-term and goal oriented industrial strategy when it comes to lowering the industry's emissions. The current support schemes are viewed as too fragmented with a focus on specific innovation stages, rather than the potential impact commercialized low-emission solutions could have on international competitiveness. Furthermore, as the market is changing rapidly, regulations and policy instruments must be coordinated in line with the development in the EU.

To achieve the goal of *"increased activity and competitiveness in the regional industry resulting in green value creation in industry and in academia in Vestfold and Telemark"*, we propose five recommendations for the county authority's further work. Our recommendations are based on three key success criteria for research and innovation-driven business development that are pointed out in the academic literature:

- Work with **demanding customers** who drive development towards application under commercial competitive conditions
- Connection to **global players** that can verify the technology and increase the market range
- Access to a **domestic market** that facilitates the development of more immature technologies/ solutions without weakening international competitiveness

At the regional level, we recommend that the county municipality focuses on strengthening the cooperation between industrial actors and equipment and service suppliers as well as the academic and other educational institutions. This will help to strengthen the industrial cluster by further developing the regional expertise related to the development of green solutions for industrial processes, based on the specific restructuring needs that exist among global and demanding industrial players in the regional domestic market. Ongoing dialogue between industrial actors, potential equipment suppliers, R&D environments, and the county municipality can further ensure that existing and future barriers that may arise on the road to a low-emission society are dealt with in a good manner.

At the same time, it is important to point out that the industrial sector's international competitiveness is a prerequisite for a long-term and sustainable transition based on innovation-driven green business development. Based on previous studies conducted by Menon Economics, as well as the findings from Process 21, we therefore point out two measures aimed at national authorities. These are related to the design of the policy framework aimed at ensuring international competitiveness as well as the development of national policy instruments that support a more long-term and targeted industrial commitment to low-emission solutions and green energy technology. Below are all the recommendations we present in the report:

Regional measures

- We recommend the creation of a forum for discussion to strengthen the link between the region's leading industrial players, existing and potential equipment suppliers, R&D environments, and the county municipality itself. If one succeeds in establishing such an arena, this will strengthen the industrial cluster, as well as further develop the regional expertise related to the development of green energy technology for industrial processes based on the industry's commercial application.

- The county municipality should facilitate the establishment of educational pathways that are linked to the industrial transition in the region. This is to ensure the supply of employees with relevant competencies and skills as well as to further develop the academic research activity related to low-emission solutions and green energy technology in the region.
- To increase the region's attractiveness vis-à-vis new companies, a comprehensive plan for the location of new industrial establishments should be developed. If the region can offer locations that are more or less “turnkey”, the time for administrative processing will be reduced and the probability of industrial players choosing Vestfold and Telemark as their location will increase.

National measures

- The county municipality should work with national authorities in designing the framework conditions and regulations that can strengthen the competitiveness of the Norwegian process industry. For Norwegian and regional players to maintain their competitiveness, national policy instruments and regulations must be coordinated with developments in the EU. Furthermore, we would like to emphasize the importance of Norway's renewable power system being further developed and maintained as a lasting competitive advantage.
- The county municipality should actively work to strengthen the policy instruments related to the commercialization of new green energy technology in the process industry. We find that the industry especially demands instruments that help to lift green solutions from a demonstration stage all the way to commercial use.



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