# Article information:

Frontiers | Optimizing the Design of Supply Chains for Carbon Capture, Utilization, and Sequestration in Europe: A Preliminary Assessment  
<https://www.frontiersin.org/articles/10.3389/fenrg.2020.00190/full>

# Article summary:

1. The EU has proposed reducing GHG emissions by 43% by 2030 with respect to 2005 values, and carbon capture and storage (CCS) technologies are seen as a promising solution for achieving sustainable development.

2. CCS typically involves three stages: capture, transport, and sequestration. However, CO2 can also be diverted for use in processes traditionally fed by fossil fuels, such as producing commodities while pursuing a negative carbon footprint.

3. Several studies have analyzed the design and optimization of CCS systems using mixed integer linear programming techniques, taking into account factors such as uncertainty in market prices and storage physics. Some models have also included enhanced oil recovery as a possible utilization option.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article provides a comprehensive overview of the current state of research on carbon capture, utilization, and sequestration (CCUS) technologies in Europe. It highlights the potential benefits of CCUS for achieving sustainable development goals and reducing greenhouse gas emissions. However, there are several potential biases and limitations in the article that need to be addressed.

Firstly, the article focuses primarily on the technical feasibility and economic viability of CCUS technologies, without adequately considering their environmental impacts or potential risks. While it acknowledges some studies that have questioned the effectiveness of CCUS in reducing carbon emissions, it does not provide a balanced assessment of the pros and cons of these technologies.

Secondly, the article relies heavily on mathematical modeling techniques such as mixed integer linear programming (MILP) to optimize supply chain design for CCUS. While these models can provide valuable insights into cost-effective solutions for implementing CCUS technologies, they may oversimplify complex social, political, and environmental factors that can affect their implementation.

Thirdly, the article does not adequately address issues related to public acceptance and stakeholder engagement in implementing CCUS projects. Given that many communities may be affected by these projects, it is essential to consider their concerns and perspectives in designing supply chains for CCUS.

Finally, while the article provides a useful overview of existing research on CCUS technologies in Europe, it does not offer any new insights or original contributions to this field. As such, it may be seen as promotional content rather than an objective analysis of the current state of research on CCUS.

In conclusion, while this article provides a useful summary of existing research on CCUS technologies in Europe, it has several limitations that need to be addressed. To provide a more balanced assessment of these technologies' potential benefits and risks requires more comprehensive analyses that take into account social, political, environmental factors alongside technical feasibility and economic viability.

# Topics for further research:

* Environmental impacts of carbon capture
* utilization
* and sequestration technologies
* Risks associated with CCUS implementation
* Social and political factors affecting CCUS projects
* Stakeholder engagement in CCUS supply chain design
* Public acceptance of CCUS technologies
* Innovative approaches to CCUS research and development

# Report location:

<https://www.fullpicture.app/item/591712abf4e5e2f20c64fe95c5019ae2>