# Article information:

Improving carbon efficiency and profitability of the biomass to liquid process with hydrogen from renewable power - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0016236118313632>

# Article summary:

1. The aviation industry is committed to reducing carbon emissions and sustainable alternative fuels, such as advanced biofuels based on Fischer-Tropsch synthesis and renewable power, are a realistic option.

2. Adding external energy in the form of hydrogen from renewable power to the biomass to liquid (BtL) process can improve carbon efficiency and reduce the price of advanced biofuel for the aviation industry.

3. The proposed PBtL concept utilizes high temperature steam electrolysis in a solid oxide electrolysis cell (SOEC) to produce hydrogen, which is added at different process locations to increase the H2/CO ratio and reduce CO2 release, resulting in improved carbon efficiency.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article discusses the potential for reducing carbon emissions in the aviation industry through the use of advanced biofuels based on Fischer-Tropsch synthesis and renewable power. The focus is on a process concept that adds hydrogen produced from renewable power to a biomass to liquid (BtL) process, resulting in what is called PBtL. The article provides a detailed model of the process and compares it to other proposed concepts.

Overall, the article appears to be well-researched and informative. However, there are some potential biases and missing points of consideration that should be noted.

One potential bias is that the article focuses solely on the benefits of using advanced biofuels for reducing carbon emissions in the aviation industry, without exploring any potential drawbacks or limitations. For example, while advanced biofuels may have lower carbon emissions than traditional fossil fuels, they may also have other environmental impacts such as land use change or water usage.

Another potential bias is that the article assumes that adding hydrogen from renewable power to a BtL process is an effective way to reduce carbon emissions and increase profitability. While there are studies cited in support of this concept, there may be other factors or limitations that were not considered.

Additionally, the article does not explore any counterarguments or alternative solutions to reducing carbon emissions in the aviation industry. For example, some experts argue that improving aircraft efficiency or investing in electric planes may be more effective than relying on biofuels.

In terms of missing evidence for claims made, the article cites several studies but does not provide specific data or results from those studies. This makes it difficult for readers to evaluate the validity of those claims.

Overall, while the article provides valuable information about a potentially promising solution for reducing carbon emissions in the aviation industry, it would benefit from exploring alternative viewpoints and addressing potential biases and limitations more thoroughly.

# Topics for further research:

* Limitations of advanced biofuels in aviation industry
* Environmental impacts of advanced biofuels
* Alternative solutions to reducing carbon emissions in aviation industry
* Efficiency improvements in aircraft design
* Electric planes for reducing carbon emissions in aviation industry
* Life cycle analysis of advanced biofuels in aviation industry

# Report location:

<https://www.fullpicture.app/item/58c6fbe1ec1404c3e3ce04b0adbbc079>