# Article information:

Analyzing flue gas properties emitted from power and industrial sectors toward heat-integrated carbon capture - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0360544222006788>

# Article summary:

1. This study explores the availability of unutilized heat from flue gas emitted by power and industrial sectors for carbon capture, utilization, and storage (CCUS).

2. The flue gas composition and availability of unutilized heat are important factors for capturing CO2.

3. This study categorizes the power and industrial sectors based on combustion technologies and fuel inputs, calculates the flue gas composition, estimates fuel consumption and thermal properties of the flue gas in Japan's CO2 sources, and evaluates the availability of unutilized heat from the flue gas for CCUS with a sensitivity analysis.

# 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 “Analyzing Flue Gas Properties Emitted from Power and Industrial Sectors Toward Heat-Integrated Carbon Capture” is an informative piece that provides insight into how to reduce CO2 emissions in power and industrial sectors through carbon capture, utilization, and storage (CCUS). The article is well-written with clear explanations of concepts such as combustion technologies, fuel inputs, excess air, energy equipment, geographical conditions, amine-based chemical absorption processes, etc., which makes it easy to understand for readers who may not have prior knowledge on these topics.

The authors provide a comprehensive overview of their research methodology by categorizing power and industrial sectors based on combustion technologies and fuel inputs; calculating the flue gas composition; estimating fuel consumption and thermal properties of the flue gas in Japan's CO2 sources; evaluating the availability of unutilized heat from the flue gas for CCUS with a sensitivity analysis; etc. The authors also provide references to support their claims throughout the article which adds credibility to their work.

However, there are some potential biases in this article that should be noted. For example, while Japanese climate data was reflected in quantifying the availability of unutilized heat from flue gases emitted by power and industrial sectors for CCUS purposes, other countries' climate data was not taken into consideration which could lead to different results if applied elsewhere. Additionally, while renewable resources were mentioned as an option to reduce CO2 emissions in power and industrial sectors over time due to fossil-based CO2 emissions eventually not being accepted under a carbon-neutral society, no further discussion or exploration was done on this topic which could have provided more insight into how renewable resources can be used effectively in reducing CO2 emissions.

In conclusion, this article provides an informative overview on how to reduce

# Topics for further research:

* Renewable energy resources for CO2 emissions reduction
* Carbon capture utilization and storage (CCUS) technologies
* Combustion technologies for power and industrial sectors
* Fuel inputs for power and industrial sectors
* Excess air and energy equipment for flue gas composition
* Climate data for unutilized heat from flue gases

# Report location:

<https://www.fullpicture.app/item/bb995fe0aaac0c9ec1445c14ad91b424>