# Article information:

LNG动力船舶LNG冷能与主机余热利用一体化设计与优化研究  
<https://wvpn.upc.edu.cn/https/77726476706e69737468656265737421e3f44990357e6b5e7501c7a29d41/en/Detail/index/GARJ2021_3/SJESF0D2511BCD1D96856C36FE82C97C362A>

# Article summary:

1. This article focuses on the design and optimization of an integrated system for efficient utilization of LNG cold energy and main engine waste heat in a 9200TEU LNG powered container ship.

2. The two-stage parallel Rankine cycle system is used to replace the existing waste heat boiler utilization system, and a three-stage nested Rankine cycle is added to realize the efficient comprehensive utilization of LNG vaporization cold energy and main engine waste heat.

3. Simulation results show that the system has an energy efficiency of 58.20% under summer conditions, 58.73% under spring, autumn and winter conditions, with an initial equipment cost of 34.41 million US dollars and a power production cost of 0.129 US/kWh, with a PBP investment recovery period of 7.37 years.

# 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:

This article provides a detailed analysis on the design and optimization of an integrated system for efficient utilization of LNG cold energy and main engine waste heat in a 9200TEU LNG powered container ship. The article presents its findings in a clear manner, providing evidence for its claims through simulation results from Aspen HYSYS software as well as economic analysis on the savings achieved by the optimized system compared to the initial one.

The article does not appear to be biased or partial towards any particular point of view or opinion, presenting both sides equally without any promotional content or unsupported claims. All possible risks associated with such systems are noted throughout the article, providing readers with enough information to make informed decisions about their own projects based on this research paper's findings.

The only potential issue with this article is that it does not explore any counterarguments or alternative solutions that could be used instead of this proposed one; however, given that this paper focuses solely on this particular solution, it is understandable why such points were not discussed in detail here.

# Topics for further research:

* Alternative solutions for LNG cold energy utilization
* Economic analysis of LNG powered container ships
* Risk assessment of integrated systems for LNG cold energy utilization
* Simulation software for LNG cold energy utilization
* Optimization of main engine waste heat in container ships
* Benefits of LNG powered container ships

# Report location:

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