# Article information:

光烃分离、有机朗肯循环、直冷一体化LNG冷能梯级利用系统设计与分析  
<https://wvpn.upc.edu.cn/https/77726476706e69737468656265737421e3f44990357e6b5e7501c7a29d41/en/Detail/index/GARJ2021_3/SJES7DEA29A5601A520C6737892BFFD0D33C>

# Article summary:

1. A new LNG cold energy hierarchical utilization system combining light hydrocarbon separation, organic Rankine cycle and direct cooling is proposed.

2. The system is analyzed thermodynamically and economically, and a multi-objective optimization based on NSGA-II is implemented to study the optimal performance.

3. Results show that the net output power of the system is 4259.72 kW, which is much higher than the reference LHS single utilization system, and the cold energy of data center and cold warehouse is equivalent to saving 12685.87 kW of electricity.

# 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 presents a comprehensive analysis of a new LNG cold energy hierarchical utilization system combining light hydrocarbon separation, organic Rankine cycle and direct cooling. The authors provide detailed thermodynamic and economic analyses as well as multi-objective optimization based on NSGA-II to study the optimal performance of the system. The results show that this system has a net output power of 4259.72 kW, which is much higher than the reference LHS single utilization system, and can save 12685.87 kW of electricity in data centers and cold warehouses.

The article appears to be reliable overall; however, there are some potential biases that should be noted when evaluating its trustworthiness and reliability. For example, while the authors provide an extensive analysis of their proposed system, they do not explore any counterarguments or alternative solutions that could potentially be more effective or efficient than their own proposal. Additionally, while they discuss potential risks associated with their proposed solution (e.g., cost), they do not provide any evidence for these claims or explore any possible mitigation strategies for these risks. Furthermore, while they present their findings in an objective manner without any promotional content or partiality towards their own proposal, it would have been beneficial if they had presented both sides equally by exploring other potential solutions as well as discussing potential drawbacks associated with their own proposal in greater detail.

# Topics for further research:

* Alternative energy utilization systems
* Multi-objective optimization algorithms
* Risk mitigation strategies for energy utilization systems
* Cost-benefit analysis of energy utilization systems
* Light hydrocarbon separation techniques
* Direct cooling technologies for data centers and cold warehouses

# Report location:

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