# Article information:

Large-scale decomposition of green ammonia for pure hydrogen production - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0360319921029177>

# Article summary:

1. The increasing share of renewable electricity in the energy mix has led to lower auction prices, but there is a need for higher and reliable storage capacities to ensure grid stability and flexibility.

2. Green hydrogen produced by water electrolysis offers a solution for long-distance transport of renewable energy. Ammonia stands out as a carbon-free and dispatchable hydrogen carrier that can store large quantities of renewable electricity.

3. Large-scale ammonia decomposition remains a technical challenge, with no publicly known units at the scale of hundreds of tons per day. The design of large-scale ammonia decomposition units should be similar to centralized steam methane reformers, with fire-heated crackers as the most appropriate solution.

# 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:

这篇文章介绍了大规模分解绿色氨制备纯氢的潜力和优势。然而，文章存在一些问题和偏见。

首先，文章过于强调了可再生能源的低成本和高效性，但没有提及可能的环境影响和风险。例如，大规模生产氨需要大量的电力供应，这可能导致对环境的负面影响，如碳排放和土地使用。

其次，文章没有充分探讨氨分解技术的可行性和经济性。虽然文章提到了目前商业化的氨分解装置通常只能产生混合气体（H2和N2），但没有提供关于如何实现高纯度氢气产出以满足移动应用需求的详细信息。

此外，文章未提及可能存在的安全问题。尽管氨在工业上有长期使用记录，并且有成熟的存储和分配基础设施，但它仍然是一种具有挥发性、腐蚀性和毒性的化学物质。因此，在大规模使用氨作为氢载体时需要考虑安全措施。

最后，文章没有平衡地呈现其他替代方案或技术。尽管作者声称氨是一种优越的氢载体，但没有提供与其他氢储存和运输技术进行比较的数据或证据。

综上所述，这篇文章存在一些偏见和不完整的报道。它过于强调氨作为氢载体的优势，而忽视了潜在的环境影响、经济性、安全性和与其他替代方案的比较。读者应该对文章中提出的主张保持怀疑，并寻找更全面和客观的信息来评估大规模分解绿色氨制备纯氢的可行性和可持续性。

# Topics for further research:

* 绿色氨生产的环境影响和风险
* 氨分解技术的可行性和经济性
* 高纯度氢气产出的实现方法
* 氨作为氢载体的安全问题
* 其他氢储存和运输技术的比较
* 大规模分解绿色氨制备纯氢的可行性和可持续性

# Report location:

<https://www.fullpicture.app/item/2533719dce0bf474b56776fec60ce2db>