

Liquid air energy storage (LAES) is one of the most promising technologies for power generation and storage, enabling power generation during peak hours. This article presents the results of a study of a new type of LAES, taking into account thermal and electrical loads. The following three variants of the scheme are being considered: with single-stage air compression ...

The liquid air energy storage process is generally referred to as an air liquefaction process that uses electrical power from renewable energy resources and dispatchable (off-peak) grid electricity. In the meantime, the integration of waste cold resources (e.g., LNG cold energy from the LNG regasification terminal) can significantly reduce the ...

One of the world's greatest challenges is to develop renewable energies, moving away from a high reliance on fossil fuels. This future shift in the energy mix will require large-scale electrical energy storage solutions. The energy transition is at the heart of ...

Fig. 10.2 shows the exergy density of liquid air as a function of pressure. For comparison, the results for compressed air are also included. In the calculation, the ambient pressure and temperature are assumed to be 100 kPa (1.0 bar) and 25°C, respectively. The exergy density of liquid air is independent of the storage pressure because the compressibility ...

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The increasing penetration of renewable energy has led electrical energy storage systems to have a key role in balancing and increasing the efficiency of the grid. Liquid air energy storage (LAES) is a promising technology, mainly proposed for large scale applications, which uses cryogen (liquid air) as energy vector. Compared to other similar large-scale technologies such as ...

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