

Title (en)
ENERGY TRANSFORMATION SYSTEM

Title (de)
ENERGIETRANSFORMATIONS-SYSTEM

Title (fr)
SYSTÈME DE TRANSFORMATION D'ÉNERGIE

Publication
EP 2859196 B1 20180516 (DE)

Application
EP 12737198 A 20120611

Priority
EP 2012002463 W 20120611

Abstract (en)
[origin: WO2013185783A1] It was therefore the problem to modify, and combine, already-known technical methods such that the previously unutilized energy forms available independently at the location of a consumer and locally can be selectively gathered, converted, produced and utilized, with the aim of lowering the energy demand from central networks and relieving the networks of load at peak times, realizing the greatest possible utilization of all exergies arising from production processes and utilizing the reconversion thereof into electricity with considerably greater efficiency, minimizing exergy losses and thus attaining a considerable saving of production costs, and protecting the environment. The method for the decentralized and individual gathering, generation, conversion and continuous provision of electrical energy is characterized by a decentralized adiabatic energy transformation system by means of which mechanical energy from the liquefaction and decomposition of air, motion energy from kinetic and thermal energy sources, and electrical energy from external electricity and, independently thereof, from process waste heat from separate plants, from mechanical energy, from regenerative thermal energies, and from energy from wind turbines and solar plants, can be stored separately according to demand and in individually required amounts at the location of a consumer, in that, by means of the decentralized adiabatic energy transformation system, process heat and process refrigeration, environmental heat, heat of compression, heat of decompression and fuel heat from regenerative sources can be reconverted into electricity or converted directly into mechanical energy and motion energy, and in that the processes of energy storage, energy conversion and reconversion into electricity are combined such that the basic method steps of electricity generation, storage and reconversion into electricity can be carried out in accordance with the respectively present energy resources and the energy requirements of a local consumer in the form of a refrigeration-operated, heat-operated or electrically operated system, and in that the refrigeration-operated, heat-operated and electrically operated systems operate individually or in combination and permanently in a steady state and, when required, can be adjusted immediately to required on-demand power by means of a load management system.

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