

Title (en)
METHOD AND DEVICE FOR GENERATING ELECTRICAL ENERGY

Title (de)
VERFAHREN UND VORRICHTUNG ZUR ERZEUGUNG ELEKTRISCHER ENERGIE

Title (fr)
PROCÉDÉ ET DISPOSITIF SERVANT À PRODUIRE DE L'ÉNERGIE ÉLECTRIQUE

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Abstract (en)

[origin: WO2014026738A2] The invention relates to a method and to a device for generating electrical energy in a combined system consisting of a power plant and an air handling system. The power plant comprises a first gas expansion unit (300) which is connected to a generator for generating electrical energy. The air handling system comprises an air compression unit (2), a heat exchange system (21), and a fluid tank (200). In a first operating mode, feed air is compressed in the air compression unit (2) in the air handling system and is cooled in the heat exchange system (21) against a first and a second coolant. A storage fluid is generated from the compressed and cooled feed air and is stored as cryogenic fluid (101) in the fluid tank (200). In a second operating mode, cryogenic fluid (103) is removed from the fluid tank (200) and is vaporized, or pseudo-vaporized, at superatmospheric pressure, and is heated in the heat exchange system (21) against a second coolant (164) and a first coolant (162). The gaseous high pressure storage fluid (104) thus generated is expanded in the gas expansion unit (300). In the first operating mode, the feed air compressed in the air compression unit (2) in the heat exchange system (21) enters, at the same pressure, into indirect heat exchange with the first liquid coolant and with the second liquid coolant.

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