



ENERGY TRANSFORMER DEVICE

November 2017.

SUMMARY:

The ETD is a power machine which generates electricity. Our Energy Transformer Device (ETD) extracts the motion energy of the air molecules and transforms it to electricity. On this way the Naturally Stored Solar Energy supplies the electric car or powers networks. This energy source is unlimited and available at any time and any location on the Earth. Average air molecules move and hit/collide each other and their environment with 500 m/s average velocity on 20 °C temperature. This effect is called as static pressure. Some part of this molecular motion energy is extractable by the ETD where the special turbine system extracts mechanical work and generates electric energy while produces 10 – 50 °C temperature reduction and volumetric flow rate reduction of the used air. The theory and calculation are based on the law of conservation of energy. (There are energy source, extracted work and dropped/rejected energy by the air transport.)

TARGET APPLICATIONS:

First we focus on the supply-need of the **electric car**. (It has been defined well in public papers: Article on www.portfolio.hu, VDA, DOE and Automotive Hungary Conference papers 18 th October 2017.) Most of the electric cars are supplied by rechargeable batteries. For the comparison the max. power need: $P = 90 \text{ kW}$, The projected production cost of the ETD is 2550 EUR which is 60-80 % of the otto- and diesel engines in this power category. The production cost of the ETD is equal to the cost of the battery pack for 300 km driving range of an electric car. **The driving range of the ETD is unlimited. No electricity cost is charged.** The demand for electric car is a key of the innovation worldwide. The ETD offers unique solution for existing request. The driver of the electric car is afraid of discharged battery and long charging time. The ETD is really environmentally friendly. It is safe: no exploded or flamed battery.

In the second place we focus on the **domestic electric energy generation**. The design power range is the 50 kW. The regulations and laws enforce the market to replace the fossil energy sources. The ETD is really environmentally friendly. It is a great marketing advantage for the ETD. The Smart-grid and Intelligent Power Systems can integrate the ETD easily.

In the third place we focus on the Air conditioning and cooling applications. The „natural” product of the ETD is the cooled air. There isn't any electric cost. On the other hand the cooling machine produces electric energy for other unit. The suggested power range is 5 kW – 5 MW.

PRESENT STATUS of the ETD:

The theory and calculation of the energy transforming process is enclosed in the ETD_12.PDF file and presented on the www.magai.eu website.

INVESTMENT NEED FOR INITIAL PHASE:

1. **Validation** of the theory and calculation: 3D modeling and CFD modeling for 5 kW nominal power range.
Budget: 30 000 EUR, duration of time: 3 months.
2. **Labor model** for 5 kW power, Budget: 17 000 EUR, duration of time: 3 months.
3. **Pilot project** for 90 kW nominal power. It will be prepared with a professional investor for their conditions and requirements.

Own part: 13 400 EUR has been invested by my side in the las 1.5 years.

COMPETITORS:

Electric accumulator producers, Wind or Solar Energy and Biofuel investors, but the ETD has outstanding parameters and strong public pressure to build more sustainable economy. The forecasts say the regular petrol-based car will be replaced with electric car in some decades. The petrol industry calculates with 10–15 year market reduction for automotive fuel. The ETD wouldn't make additional trouble for them. The possible connected parties are: electric car factories, electricity production, electricity store, renewable energy industry, cooling and air conditioning.

IP PROTECTION:

PCT process and 2 utility model protection processes are opened. Inventor and right owner: Istvan Magai
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