



ELECTRICITY from STORED SOLAR POWER

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SUMMARY

The ETD (Energy Transformer Device) is a power machine which generates electricity. Our 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 almost 500 m/s average velocity on 20 °C temperature. 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. The Theory of ETD has been commented by Dr. Ákos Horváth Director General of Centre for Energy Research, Hungarian Academy of Sciences as it may applicable for drive generator and it is suggested to build a test machine.

TARGETS

- 1. On-board power for electric car.** Most of the electric cars are supplied by rechargeable batteries. For comparison the max. power need: $P = 90 \text{ kW}$. **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 or airplane is afraid of discharged battery and long charging time. The ETD is really environmentally friendly. It is safe: no exploded or flamed battery.
- 2. 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.
- 3. Air conditioning and cooling applications.** The „natural” product of the ETD is the cold air. There isn't any electricity cost. On the other hand the cooling machine produces electric energy for other unit.

PRESENT STATUS of the ETD

The theory and calculation of the energy transforming process is presented on the www.magai.eu website and on ResearchGate DOI: 10.13140/RG.2.2.36078.31044. We have some tested parts, but the main problem is the synchronization of the blower and turbine functions. We need a professional partner for the special turbine design.

INVESTMENT NEED

- 1. Labor model** for 5 kW power, Budget: 300 000 EUR, duration of time: 6 months.
- 2. Pilot project** for 90 kW nominal power. It will be prepared together with a professional investor for their conditions and requirements. Budget is discussable.
- 3. Industrial product cost** for 90 kW electric car application. Projected price: 2600 EUR which is 90-130% of the Diesel- and Otto engines or it is equal to the price of a battery pack for 300 km driving range.
- 4. Own investment part:** 14 000 EUR has been invested by our side in the past 2 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

2 patent processes are opened. Inventor and right owner: Istvan MAGAI PhD.
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