

**TRIBRID CONCEPT  
FOR  
ENERGY REDISTRIBUTION  
WITHIN  
TRANSPORTATION SYSTEMS**

By

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# **1. The Energy Unification for Mobility Concept (EU M Concept)**

## **2. Transportation Systems with Heat Storage**

2.1. Heat Storage as a Secondary Energy Source

2.2. Heat Storage as Primary Energy Source

2.3. Heat Storage in Combination with a Porous Burner

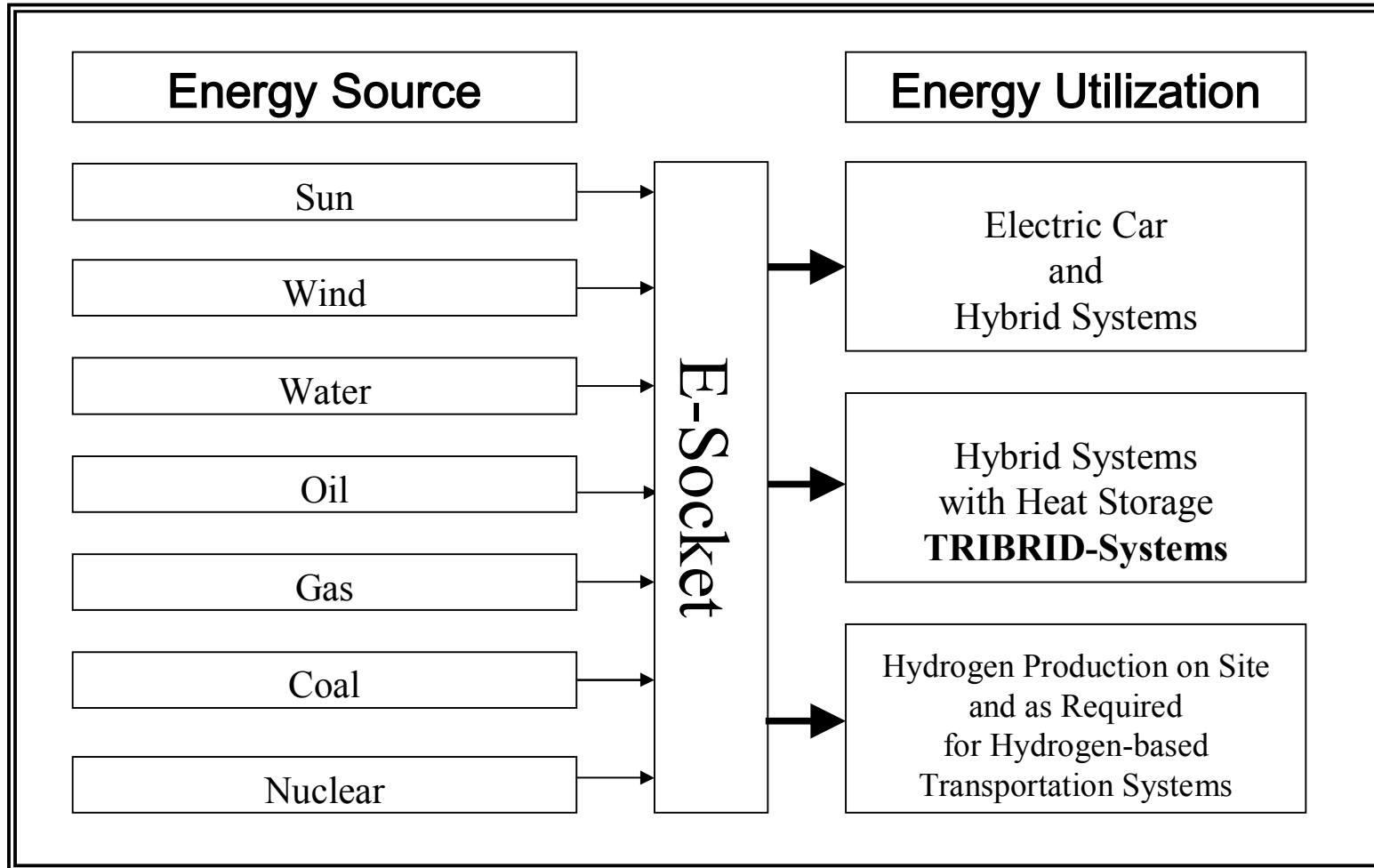
## **3. Conclusion**

Comparison of transportation technologies

1. The **E**nergy **U**nification  
for **M**obility Concept:

***EU M Concept***

## Proposed Energy Flows for the **EU M Concept**



# Advantages:

- The **energy efficiency** of fossil fuels will increase by **10 – 15%**.

- The **cleaning of waste** gases, as well as heat and resource reclamation, will be significantly **more efficient** **AND cost effective** in an industrial production plant.

- **Transportation costs for fuel delivery will be reduced.**

- **The infrastructure for energy distribution is already in place everywhere.**

- **Future changes** in the energy production sector can be implemented **without** resulting in **undesirable costs** for required technical changes in the energy utilization sector.

- **The energy production and energy utilization sectors are decoupled, resulting in greater utility for consumers and the economy as a whole.**

## **2. Transportation Systems with Heat Storage**

### **2.1. Heat Storage as a Secondary Energy Source**

Load increases such as acceleration or driving up hill should be assumed by an ancillary steam engine. The steam engine would be powered by steam from the heat storage facility.

Interesting only for heavy vehicles.

Steam with its water exhaust is not the only medium that could be employed.

Other heat storage and transfer media such as freons, saline solutions, etc., could be used in closed systems.

**Reclamation of exhaust heat** with an exit temperature i.e. of 600 °C for maintaining optimal operating conditions in the heat storage facility **could raise** the effective exploitation **efficiency** of the chemical energy stored in the diesel fuel **up to 80%**.

Exhaust pollutants would be reduced correspondingly.

## **2. Transportation Systems with Heat Storage**

### **2.2. Heat Storage as Primary Energy Source**

**3.4 tons of water at 375 °C and 220 atm, plus 25 liters of diesel fuel** for maintaining optimal power output, **can power a fully loaded 40-ton truck for 10.5 hours at 100 km/h** under optimal conditions (level road and a 40% efficient steam engine) **for a total range of 1000 kilometers.**

In this scenario, **2.5 to 3 liters of diesel fuel per 100 kilometers** travelled are required to maintain optimal power output, **compared to 35 to 45 liters per 100 kilometers** required to travel **with the diesel engine alone.**

With the **EU M concept**, the **40-ton truck** would **use only 25 liters of diesel** fuel for the same stretch.

**Plus 385 liters of diesel** fuel required if the electricity used to heat up the heat storage system initially is generated industrially using diesel fuel only.

**410 instead of 425 liters of diesel** fuel.

In Germany alone there are roughly **200,000 registered 40-ton tractor-trailers driving an average of 40,000 km** each per year, adding up to 120,000,000 liters of diesel fuel per year. At current prices, that is **132 million Euros needlessly burned**, assuming that the electricity used to preheat the heat storage facility was generated using diesel only.

**A different electricity mix would result in even greater waste.**

The **greatest strength** of the EU M Energy Unification for Mobility concept is that the **energy delivered to the e-socket** for preheating heat storage facilities, charging batteries or producing hydrogen on-site **need not be generated by burning fossil fuels only but can come from a variety of other sources.**

If the **EU M concept** is implemented, changes in the current electricity mix can be completely decoupled from further technological developments in the energy utilization sector. **This could save** the world economy **many billions of Euros** in avoidable costs **without detracting from technological and ecological progress.**

## **3. Conclusion**

Comparison of transportation technologies

**Our comparison shows, that**, if diesel and natural gas-based transportation technology is rejected for the greater good, then **steam-fossil-electric tribrid technology has an absolute advantage** (74 total points, 0.822 normalized value), with electric-fossil hybrid technology coming in second (65 total points, 0.722 normalized value).

Thank you very much  
for your attention and interest!