The mission of the ENUBA project is to determine whether the existing electrification technologies can be used for different applications in heavy freight transport on highways. In addition, the study examined the potential economic and environmental benefits of converting to an electrified freight traffic system.

Compared to their conventional counterparts, the vehicles used in the practice demonstrate:

- Independence of fossil fuel
- Higher efficiency of diesel-hybrid drive, especially of the electric drive
- Longer lifetime of electric motors

It is predicted that the volume of trucks on highways will continue to increase in the future. Tonne-kilometers in freight transport in Germany alone will increase by 116% by 2050 as compared to 2005 levels. According to Germany’s Ministry of Transport, the transport volume increased from 2010 to 2011 by 8%. The expected increase in transport volume will be accompanied by a rise in annual CO₂ emissions, which are expected to climb from approximately 40 million tonnes today to 100 million tons in 2050 unless major technological changes are implemented. Without such changes, the EU Commission target of an 80% decrease in CO₂ emissions by 2050 (as compared to 1990 levels) will not be achieved.

Today’s solutions, which call for building new rail lines, increasing drive system efficiency, and optimising logistics systems, aren’t enough to meet Germany’s ambitious carbon dioxide reduction targets. An expansion of the rail network, for example, would mean that rail lines would not only have to absorb the projected increase in truck traffic but also existing highway freight traffic. This would require a fourfold increase in rail network capacity. Moreover, the additional tracks would take up space that’s not available in the densely populated areas where goods are ultimately consumed. According to a study conducted by Progtrans, the BMU, and the German Ministry of Transport, such measures would reduce annual CO₂ emissions to only about 60 million tonnes by 2050. At the same time, the EU goal is to limit emissions to approximately ten million tons — a target that can be achieved only by electrifying road freight transport.
Apart from the economic and environmental benefits, ENUBA provided highly promising results in terms of technology. In the field trial, the eHighway prototypes demonstrated full performance and suitability for everyday use—regardless of the weather, light conditions, and load. Thanks to innovative active pantographs, the electrified trucks demonstrated problem-free operation at speeds of up to 90 km/h. Furthermore, the reliable connection and disconnection of the pantographs and automatic adjustments to movements within the lane, allowed the eHighway trucks to easily manoeuvre as conventional trucks.

A scanner constantly monitors whether the lane is equipped with an overhead contact line and an adaptive pantograph establishes contact with the overhead contact line. This ensures that eHighway trucks can be used just as flexibly and universally as conventional trucks—because on roads that are not equipped with overhead contact lines, they are powered by their hybrid motor.