



Optimizing travel routes

In order to increase the energy efficiency of a logistics company within the framework of an energy management system (EMS), a special navigation program is implemented, which was developed especially for refrigerated transport.

In contrast to conventional navigation systems, not only the time and costs caused by transportation and e.g. tolls are taken into account, but also the energy and costs caused by the cooling system. This concerns, for example, the duration of the route related to the cooling load. In addition, the option of detours to transport more goods is also taken into account and the system reports whether or not it is energetically and economically feasible to take a detour. In this way, the routes can be optimized in such a way that, on the one hand, as little energy as possible has to be provided by the vehicle and the cooling system and, on the other, the vehicle can be loaded as fully as possible. Accordingly, one performance indicator (KPI) of the EMS is the energy consumption per kilogram of goods.

Description

In addition to the usual input data of a navigation system, which concerns the geographic data of the various route options, the data of the cooling system also are integrated in the program. From this, the energy consumption resulting from different route options is calculated.

The energy consumption results from the duration of the drive and the cooling load as well as from the route length and the fuel consumption for driving. On the other hand, the load of the transporter must be maximized, which sometimes requires detours of the route to pick up goods at locations that are not on the route. Whether a certain detour is reasonable from an energy point of

‘Saving fuel and time’

Austria

Logistics company

TRL 8

Implementability: 99%

Main NEBs (other benefits)

Time and cost saving

Reducing vehicle abrasion

Reducing pollutants

Energy management

view can be easily determined using the program. Truck drivers can access the data using an app and thus react to route changes even at short notice.

The app suggests the most energy-efficient, the fastest and the most cost-effective way. Toll costs and the costs of travel expenses due to personnel costs etc. are also taken

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into account. The KPI is calculated for each route. This KPI is not set in relation to the route, as potential detours for maximum load or minimum travel time can also contribute to energy efficiency. The kilometers driven must therefore be considered separately.

What is the improvement focus?

The main advantage of this efficiency measure is that it saves fuel by taking the cooling load into account when choosing the route. For example, toll roads that appear to be an uneconomical route option using a conventional navigation system

may indeed be financially feasible if the costs of cooling over the duration of the journey are taken into account.

Benefits

The main advantages of this navigation program are the energy and cost savings that can be achieved compared to conventional navigation systems by an improved analysis of energy flows and costs.

In addition, this program contributes significantly to the monitoring of the EMS and thus to the continuous improvement process, as it helps to identify further efficiency measures.

Opportunities and barriers to implementation

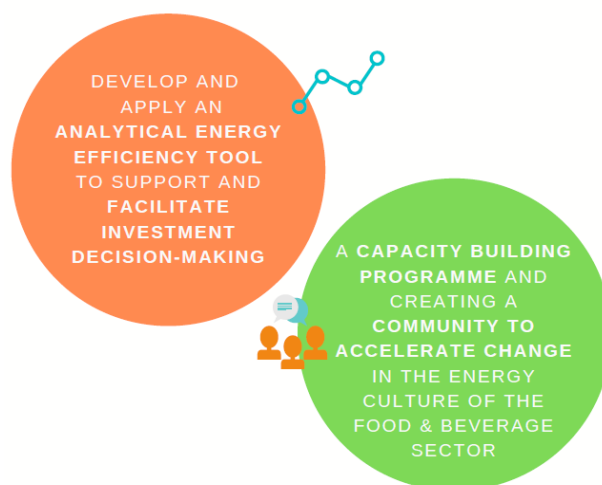
<i>Opportunities</i>	<i>Barriers</i>
Lower fuel consumption and related cost	Additional cost for software
Negligible maintenance	Additional cost for new vehicles
Available worldwide	Staff training required
Simple handling	
Improved food quality	

About ICCEE

The project ICCEE, www.iccee.eu, funded by the EU programme Horizon 2020, aims at improving energy efficiency in the cold chain of the food & beverage sector and making it easier for the sector to:

- undertake energy efficiency measures across the entire supply chain and
- accelerate the implementation of energy audit results.

ICCEE follows a holistic approach that moves from a single company perspective to the assessment of the entire cold supply chain. Existing financing schemes for SMEs will be assessed: the optimal ones will support the implementation of energy efficiency measures. ICCEE objectives build on 2 pillars:



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