HEV TCP Task 27: List of relevant projects

<table>
<thead>
<tr>
<th>ID</th>
<th>country</th>
<th>name of the project</th>
<th>project profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Germany</td>
<td>E-City-Logistics</td>
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<td>2</td>
<td>Germany</td>
<td>E-Lieferung-Allgäu</td>
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<td>3</td>
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<td>4</td>
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<td>Elmo</td>
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<td>5</td>
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<td>NaNu!</td>
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<td>6</td>
<td>Germany</td>
<td>Urban logistischer Wirtschaftsverkehr</td>
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<td>7</td>
<td>Germany</td>
<td>B-AGV</td>
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<td>8</td>
<td>Germany</td>
<td>efleet</td>
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<td>9</td>
<td>Germany</td>
<td>ElektroAES</td>
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<td>10</td>
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<td>Elektrische Schwerlastlogistik im urbanen Raum</td>
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<td>E-mobility POST</td>
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<td>24</td>
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<td>EMILIA-Electric Mobility for Innovative Freight Logistics in Austria</td>
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<td>25</td>
<td>Austria</td>
<td>LEEFF-Low Emission Electric Freight Fleets</td>
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<td>26</td>
<td>Turkey</td>
<td>Aras Kargo 100% Electric</td>
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<td>27</td>
<td>Turkey</td>
<td>E-courier in Istanbul by TNT Express</td>
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<td>28</td>
<td>Turkey</td>
<td>Electric delivery in Istanbul by Sürat Kargo</td>
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<td>29</td>
<td>Turkey</td>
<td>Migros electric grocery delivery</td>
<td>X</td>
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<td>30</td>
<td>The Netherlands</td>
<td>Electric garbage trucks by Van Gansewinkel</td>
<td>X</td>
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<tr>
<td>31</td>
<td>The Netherlands</td>
<td>Electric urban delivery by Com bipakt</td>
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<tr>
<td>32</td>
<td>The Netherlands</td>
<td>Electric urban delivery with Hy trucks</td>
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<td>33</td>
<td>The Netherlands</td>
<td>Meshed urban distribution by UPS</td>
<td>X</td>
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<td>34</td>
<td>The Netherlands</td>
<td>Rotterdam test electric driving</td>
<td>X</td>
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</tbody>
</table>
**Taskforce 27** “Electrification of transport logistic vehicles”

### Demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>E-City-Logistic</th>
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</thead>
<tbody>
<tr>
<td>Duration:</td>
<td>01.07.2010 – 01.06.2011</td>
</tr>
<tr>
<td>Country:</td>
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</tr>
</tbody>
</table>

### Short description

The project aims to demonstrate the potential of battery electric vehicles for inner city delivery. In total 5 all electric vehicles are used within the fleets of parcel delivery and textile logistics service providers.

### Focus areas

<table>
<thead>
<tr>
<th>Vehicle category:</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powertrain type:</td>
<td>HEV</td>
<td>BEV</td>
<td>FCEV</td>
</tr>
<tr>
<td>Transport task:</td>
<td>urban delivery</td>
<td>regional delivery</td>
<td>others:_____________</td>
</tr>
<tr>
<td></td>
<td>bulk goods</td>
<td>goods of high volume</td>
<td>others: clothes, parcel</td>
</tr>
</tbody>
</table>

### Vehicles

- 3 x Iveco Daily Electric 35s,
- 2 x e-convertion TGL 8.180 (All Green Vehicles B.V.)

### Notes:

- Investigation of new concepts for courier, express and parcel delivery
- Investigation of the feasibility and potential for medium duty delivery of clothes
• **Inner-city parcel delivery (N1):** Battery electric vehicles fulfilled the requirements in terms of driving range, user acceptance, usability (vehicle & infrastructure), reliability.

• **Inner-city delivery of clothes (N2):** Battery electric vehicles are reliable. Restrictions in terms of driving range still exist as well as technical charging problems occurred. Extended charging duration limits operation. The tested BEV is able to fully replace a conventional diesel driven one without changes to the logistic concept.
**Taskforce 27 “Electrification of transport logistic vehicles”**

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>E-Lieferung-Allgäu (e-delivery at Allgäu region)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration:</td>
<td>01.10.2012 – 30.09.2015</td>
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<tr>
<td>Country:</td>
<td><img src="https://www.ieahev.org" alt="Germany" /></td>
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</tbody>
</table>

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**short description**

The project aims to prove the qualification of electric vehicles for rural delivery.

**focus areas**

- **Vehicle category:**  
  - N1  
  - N2  
  - N3  

- **Powertrain type:**  
  - HEV  
  - BEV  
  - FCEV  
  - others: __________________

- **Transport task:**  
  - regional delivery  
  - urban delivery  
  - others: ____________  
  - bulk goods  
  - goods of high volume  
  - others: ____________

- **Vehicles:**  
  - 22 x ABT eCaddy Maxi,  
  - 7 x ABT eT5,  
  - 10 x ABT eBox

- **Notes:**  
  - Small production series of battery electric delivery vehicles  
  - Vehicle field tests  
  - User acceptance analysis

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**stakeholders involved**

- **Policy:**  
  - local  
  - national  

- **Industry:**  
  - OEM  
  - supplier

- **Research:**  
  -

- **Fleet operator:**  
  -

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**actors involved**

![Stakeholder Logos]
Electric delivery vehicles are still in an early development stage

- There are not enough electric vehicles available on the market
- Energy consumption varies significantly and is up to twice as high, depending on driving style and season
- Long down times due to the lack of after sales experiences
- Due to driving range, reliability and flexibility restrictions during winter times, electric vehicles are not cost-effective yet
- Electric vehicles are particularly suited for periodic or up front scheduled routes
- New technology is well accepted by the users
- Emotional attraction of electric mobility is essential in order to support market ramp-up
- Potential users have to be involved in the development and implementation process in order to increase technology acceptance

Source: www.elektromobilitaet-verbindet.de
**Taskforce 27** “Electrification of transport logistic vehicles”

**demonstration project profiles form partner countries**

**Name of project:** KV-E-CHAIN (holistic concept for intermodal transport with electric vehicles)

**Duration:** 01.08.2013 – 30.06.2016

**Country:**

---

**short description**

The project aims the demonstration of a fully electrified supply chain regarding long-distance haulage. In addition, full electric intermodal transport will be demonstrated.

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**focus areas**

**Vehicle category:**
- □ N1
- □ N2
- ■ N3

**Powertrain type:**
- □ HEV
- ■ BEV
- □ FCEV
- □ others:_____________

**Transport task:**
- ■ urban delivery
- □ regional delivery
- ■ others: port terminal
- □ bulk goods
- □ goods of high volume
- □ others:_____________

**Vehicles:** 1 x Terberg YT electric

**Notes:**
- Implementation and integration of a full electric heavy duty vehicle within an existing vehicle fleet
- New business models for city logistic application of electric vehicles
- Testing charging station using solar power

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**stakeholders involved**

Policy: ■ local □ national

Industry: ■ OEM □ supplier

Research:

Fleet operator:

---

**actors involved**
contact

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Email: philip.michalk@th-wildau.de

results

- feasibility of heavy (40t+ GVW) battery electric vehicles was successfully proven
- compared to a conventional diesel driven tractor:
  - specific energy consumption is about 30% to 40% lower
  - three times higher purchasing costs
  - reduction of energy costs by 40%
  - reduction of maintenance costs by 25%
- effective operational range of about 50 to 60km is sufficient for urban transport operations

links


source: TH Wildau  
source: www.kvechain.de
# Taskforce 27 “Electrification of transport logistic vehicles”

## demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>Elmo (electric urban logistics)</th>
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<tbody>
<tr>
<td>Duration:</td>
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<tr>
<td>Country:</td>
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</tbody>
</table>

### short description

The project aims to proof practical feasibility of electric vehicles for urban delivery.

### focus areas

- **Vehicle category:** □ N1  □ N2  □ N3
- **Powertrain type:** □ HEV □ BEV □ FCEV
  - □ others:_________________
- **Transport task:** □ urban delivery
  - □ regional delivery
  - □ others:_________________
  - □ bulk goods
  - □ goods of high volume
  - □ others:_________________

- **Vehicles:** 6 x P80-E, 2 x Smith Newton, 1 x C-Zero, 1 x TGL 12.250

### stakeholders involved

- **Policy:** □ local  □ national
- **Industry:** □ OEM  □ supplier
- **Research:** □
- **Fleet operator:** □

### actors involved

- [Busch-Jaeger](https://www.busch-jaeger.de)
- [CWS](https://www.cws-holding.com)
- [boco](https://www.boco.de)
- [UPS](https://www.ups.com)
- [TCD](https://www.tcd.de)
- [City of Berlin](https://www.berlin.de)
- [Fraunhofer](https://www.fraunhofer.de)

### Notes:

- Investigation of the usability of electric vehicles for urban delivery
• supply of battery electric vehicles is very rare, especially for medium and heavy duty vehicles.
• available vehicles does not meet customer requirements
• a lack of comprehensive service infrastructure for battery electric vehicles exist and leads to longer downtimes compared to ICE vehicles
• lack of experience along with technical issues generate “organizational range anxiety”: overcautious route planning and dispatching
• significant differences between real driving distances and manufacturer information (energy consumption measured was considerably above the manufacturer information)
• general reliability highly volatile, yet single vehicles reach well over 90%
• technical difficulties with the drive train itself cause about half the outages
• technical problems with charging have not been recorded

source: Busch-Jaeger
source: Fraunhofer IML
source: UPS

http://www.iml.fraunhofer.de/de/themengebiete/verkehrslogistik/themen_transportverkehrlogistik/Elmo.html
**Taskforce 27 “Electrification of transport logistic vehicles”**

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>NaNu! (multi-shift operation and night delivery)</th>
</tr>
</thead>
<tbody>
<tr>
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#### short description

The project proves electric medium duty delivery for multi-shift operation using battery swapping.

#### focus areas

<table>
<thead>
<tr>
<th>Vehicle category:</th>
<th>☐ N1</th>
<th>☐ N2</th>
<th>☐ N3</th>
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<tbody>
<tr>
<td>Powertrain type:</td>
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<td>☐ BEV</td>
<td>☐ FCEV</td>
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<tr>
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<td></td>
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<tr>
<td>☐ regional delivery</td>
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<tr>
<td>☐ others:_________</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>☐ bulk goods</td>
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<tr>
<td>☐ goods of high volume</td>
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<tr>
<td>☐ others:_________</td>
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</tr>
</tbody>
</table>

| Vehicles:         | 1 x 12t GVW E-Truck, 1 x 7.5t GVW E-Truck |

#### stakeholders involved

<table>
<thead>
<tr>
<th>Policy:</th>
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<th>☐ national</th>
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<tbody>
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<tr>
<td>Fleet operator:</td>
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#### actors involved

- LNC
- Castellan AG
- MAYER & MEYER
- HÜFFERMANN
- Fraunhofer
- DAI-Labor
- DLR

#### Notes:

- Organisation of 24 hour delivery from a logistic, customer and regulatory perspective
- Implementation of a battery swapping system for commercial vehicle application
- Analysis of the cost reduction potential of electric commercial vehicles in multi-shift operation
potential early adopters of BEV are distribution companies stick to a sustainability strategy (user survey result)

potential sectors based on user survey for BEV fleet implementation are: pharmaceutical wholesaler, online sales, electrical goods trades, (bio-) food industry (user survey result)

delivery shift potential into night times are expected to be limited (maximum of 10%) (user survey result)
economical application for e-truck (12t GVW) is possible at yearly mileage of >65,000 km (strongly depended on investment costs, yearly mileage and energy prices)

approx. 14% cost reduction potential for three-shift operation instead of two-shift

limited scheduling of battery electric trucks due to none existing series technology and lack of after sales experiences

payload restrictions

delivery at nighttime: lack of access and attendance of staff handling the delivery

battery swapping systems: security and handling concerns

support of electromobility should be more user-specific

potential regulatory measures are: import restrictions in cities for conventional driven vehicles, city toll

bonus regime for battery electric vehicles

source: BMVBS
**Taskforce 27 “Electrification of transport logistic vehicles”**

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>Urban logistischer Wirtschaftsverkehr (urban logistics)</th>
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</table>

### short description

The project investigates the deployment of electromobility in the context of inner city delivery logistics.

### focus areas

<table>
<thead>
<tr>
<th>Vehicle category:</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
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<td>Powertrain type:</td>
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<td>regional delivery</td>
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<td>Notes:</td>
<td>Conception and implementation of business cases for electric transporter in terms of different vehicle concepts</td>
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<td>Investigation and construction of flexible charging infrastructure for vehicle operation in changing depots</td>
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<td>Analysis and evaluation of best practice incentive measures</td>
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<td></td>
<td>Determination of future vehicle requirements for inner city deliver (vehicle concept, driving range, payload, etc.)</td>
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### stakeholders involved

<table>
<thead>
<tr>
<th>Policy:</th>
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<th>national</th>
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<tr>
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<tr>
<td>Fleet operator:</td>
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<td></td>
</tr>
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</table>

### actors involved

[Logos of various stakeholders]
### contact

Steffen Raiber  
Fraunhofer IAO  
70569 Stuttgart  

Phone: +49 711 970-2333  
Email: Steffen.Raiber@iao.fraunhofer.de

### results

- in case of quantity discounts for conventional diesel driven vehicles are not considered, N1 class battery electric transporter are profitable  
- battery electric transporter are an adequate alternative compared to conventional diesel driven ones  
- reliability and service intervals are comparable to conventional transporter  
- charging infrastructure is partly not reliable with only poor service available  
- if battery electric fleet growth, required power supply and possible mains fluctuations has to be taken into account (regarding the charging infrastructure)  
- incentives forced by regulatory framework e.g. driving license regulation improves the economical operation of battery electric transporter (especially when considering costs and composition the whole vehicle fleet)

### links

http://schaufenster-elektromobilitaet.org/de/content/projekte_im_ueberblick/projektsteckbriefe/projekt_4036.html

source: www.schaufenster-elektromobilitaet.org
## Taskforce 27 “Electrification of transport logistic vehicles”

### Demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>B-AGV (battery electric automated guided vehicles)</th>
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<tr>
<td>Country:</td>
<td>[Germand flag]</td>
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</tbody>
</table>

### Short description

The project aims to reduce automated guided vehicle (AGV) related tank to wheel emissions and noise at port terminal.

### Focus areas

- **Vehicle category:** [N1](#) [N2](#) [N3](#)
- **Powertrain type:** [HEV](#) [BEV](#) [FCEV](#)
- **Others:** ___________
- **Transport task:** [urban delivery](#) [regional delivery](#)
  - **Others:** port terminal
- **Others:** bulk goods
- **Others:** goods of high volume
- **Others:** ___________

**Vehicles:** 2 x automated guided vehicles

**Notes:**
- Development of an all electric powered AGV in combination with battery swapping station
- Investigation of flexible charging strategies by using renewable energy
- Ecological assessment (energy footprint)
- Investigation of all electric vehicle deployment practicability
### contact
Gottwald Port Technology GmbH  
40597 Düsseldorf  
Phone: +49 211 7102-0  
Email: info@gottwald.com

### links
http://erneuerbar-mobil.de/projekte/b-agv

### results
- successful development and bringing into service of battery electric AGVs
- additional integration of SuperCaps in order to preserve the battery system is not economic viable
- successful development and bringing into service of a fully automated battery swapping station
- operating experience per AGV of around 1,000 hours
- depending on energy prices, energy cost savings of about 50% are achievable
- climatic effects of the conventional diesel electric AGVs compared to battery electric AGVs per container handling depending substantially from the energy mix considered and has the potential to reduce it up to 85%
- cumulated energy demand per container handling can be reduced by 25%

source: www.erneuerbar-mobil.de  

source: www.erneuerbar-mobil.de
**Taskforce 27** “Electrification of transport logistic vehicles”

**demonstration project profiles form partner countries**

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>efleet (electromobility at Stuttgart airport)</th>
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<tbody>
<tr>
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</tr>
</tbody>
</table>

**short description**

The project tests the deployment of electric driven vehicles at air terminals.

**focus areas**

- **Vehicle category:** N1 N2 N3
- **Powertrain type:** HEV BEV FCEV
- **Transport task:**
  - urban delivery
  - regional delivery
  - others: air terminal
- **Vehicles:** 1 x Schopf F110 electric, 1 x Volk EFZ 30 NT, 1 x Volk EFZ 80 N, 1 x Mulag Comet 3E, 1xMulag Orbiter 9E, 1 x Cobus Industries e.cobus 3000

**stakeholders involved**

- **Policy:** local national
- **Industry:** OEM supplier
- **Research:**
- **Fleet operator:**

**actors involved**

- Rühhafen Stuttgart
- Cobus Industries
- Schopf
- Volk
- DLR
- Mulag

**Notes:**

- Determination of individual vehicle category requirements at air terminals
- Definition of ideal spots for charging
- Benchmark of life cycle costs: electric vs. conventional
- To prepare a set of criteria in terms of the implementation of electric vehicles at air terminals
• App. 100,000 km distance covered on batteries
• Up to 65 % energy saving per job possible compared to diesel reference
• Batteries perform nearly in all areas as good or better than conventional diesel technology trucks especially the battery electric busses and battery electric tow trucks
• Up to 18 % brake energy recovery possibly for luggage tractors
• All electric vehicles operate reliably
• New technology is well accepted by the drivers
• 95% availability of the eBuses has been achieved
• The 1:1 fleet replacement regarding the Buses can be done without risk
• The transition from diesel to electric buses can be realized without additional costs by using subsidies/grants
• Stuttgart Airport plans to electrify complete luggage and passenger transport fleet until 2017
• Transferability of results to other airports is given
**Taskforce 27** “Electrification of transport logistic vehicles”

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>ElektroAES (operation of garbage collection trucks)</th>
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<tbody>
<tr>
<td>Duration:</td>
<td>01.01.2013 – 31.06.2016</td>
</tr>
<tr>
<td>Country:</td>
<td>![Germany flag]</td>
</tr>
</tbody>
</table>

### short description

Development of a hybrid electric waste collection vehicle with electric collection body and intelligent charging stations.

### focus areas

- **Vehicle category:**
  - N1
  - N2
  - N3

- **Powertrain type:**
  - HEV
  - BEV
  - FCEV
  - others: __________

- **Transport task:**
  - urban delivery
  - regional delivery
  - others: waste collection
  - bulk goods
  - goods of high volume
  - others: __________

- **Vehicles:** 3 x Volvo FES 6x2 Hybrid

### stakeholders involved

- **Policy:**
  - local
  - national

- **Industry:**
  - OEM
  - supplier

- **Research:**

- **Fleet operator:**

### actors involved

- Fraunhofer
- NTM
- BSR
- HÜFFERMAN
- AWU
- STEP

### notes

- Determination of technical vehicle parameter
- Analysis of the vehicle techno-economics
- Installation and operation of charging stations
- Optimization of electric waste collection
contact

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Hüffermann Transportsysteme GmbH
16845 Neustadt/Dose

Phone: +49 33970 996 10
Email: joerg.vogler@hueffermann.de

results

- Unfortunately, results are not available.

links

http://schaufenster-elektromobilitaet.org/de/content/projekte_im_ueberblick/projektsteckbriefe/projekt_1600.html

source: www.emo-berlin.de
**Taskforce 27** “Electrification of transport logistic vehicles”

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>ELENA II (Plug-In Hybrid electric vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration:</td>
<td>31.08.2013 – 01.03.2015</td>
</tr>
<tr>
<td>Country:</td>
<td>![Germany flag]</td>
</tr>
</tbody>
</table>

#### short description

The project aims to commercialize an electric powertrain kit for e-conversion.

#### focus areas

**Vehicle category:**  
- □ N1  
- □ N2  
- □ N3

**Powertrain type:**  
- □ HEV  
- □ BEV  
- □ FCEV  
- □ others: ____________

**Transport task:**  
- □ urban delivery  
- □ regional delivery  
- □ others: ____________  
- □ bulk goods  
- □ goods of high volume  
- □ others: ____________

**Vehicles:** Mercedes-Benz Sprinter

**Notes:**  
- Commercialization of a Mercedes-Benz Sprinter electric powertrain kit for e-conversion

#### stakeholders involved

**Policy:**  
- □ local  
- □ national

**Industry:**  
- □ OEM  
- □ supplier

**Research:**  
- □

**Fleet operator:**  
- □

#### actors involved

![Image of various logos]
contact

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ELANA PHEV
73347 Mülhausen im Täle

Phone: +49 7335 9206 160
Email: info@elena-phev.com

results

• Unfortunately, results are not available.

links

http://www.elena-phev.com/
Taskforce 27 “Electrification of transport logistic vehicles”

demonstration project profiles form partner countries

Name of project: SMART-E-USER (concepts for electric urban logistics)
Duration: 01.06.2013 – 31.05.2016
Country: 

short description
The Smart e-User concept focuses on the interface of commercially used electric vehicles, logistic processes, a dynamic routing planning, energy-management and economically sustainable approaches to identify new ways of urban distribution (passenger and freight).

focus areas
Vehicle category: N1
Powertrain type: BEV
Transport task: urban delivery
Vehicles: 3 x Iveco Daily, 6 x Renault Kangoo Z.E., 4 x Streetscooter Serie 100, 2 x Streetscooter Serie 50, 5 x MB Vito E-Cell, 2 x Smart electric drive, 1 x Citroen C-Zero

stakeholders involved
Policy: local
Industry: OEM
Research: 
Fleet operator: 

actors involved
- Demonstration of economic feasible applications for inner city delivery
- Identification of electric vehicle user categories and derivation of specific operation profiles
- Investigation of the usability of a city-hub
- Investigation of the potential as to energy, logistic and economic perspective
Profiles for potential user-groups of e-vehicles for urban logistics could be identified.

These groups show, for Berlin, where the sample of the research was taken, a link to typical activities carried out by the user groups during their tours.

A comparison with KiD 2010 data confirmed these links.

Furthermore, the study revealed that it is possible to divide between hygiene factors and motivators for users of electric vehicles for commercial transport:

**hygiene factors:** availability of suitable vehicles with needed loading capacity; TCO for e-vehicle must not be higher than TCO for combustion engine vehicle; ease-of-use of vehicle and charging process; reliability of charging process; comfort of working place „vehicle“ must not be lower than at combustion engine vehicle; range of vehicle must be reliable, sufficient and transparent;

**motivators:** Well-to-Wheel emissions are lower than for combustion engine vehicle; understanding and knowledge of ideal use of acceleration and recuperation; automated gear; low emissions (noise and fumes); environmentally friendly image of vehicle.

In addition a driving and loading assistance system was successfully tested within the project and considered an important support for users of the e-vehicles.
**Taskforce 27** “Electrification of transport logistic vehicles”

**demonstration project profiles form partner countries**

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>EMIL (Testing of commercial vehicle electromobility solutions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration:</td>
<td>01.06.2010 – 30.09.2011</td>
</tr>
<tr>
<td>Country:</td>
<td>![Germany Flag]</td>
</tr>
</tbody>
</table>

**short description**

The project aims to investigate and test an all electric innovative commercial vehicle solution allowing for city logistic applications cost effective in comparison to a conventional driven one.

**focus areas**

- **Vehicle category:**  N1   N2   N3
- **Powertrain type:**   HEV   BEV   FCEV
  - Others: _____________
- **Transport task:**    urban delivery
  - Regional delivery
  - Others: _____________
  - Bulk goods
  - Goods of high volume
  - Others: _____________

**Vehicles:** 13 VW Caddy, 1 EMIL (new vehicle concept)

**Notes:**
- e-conversion of VW Caddy and field test of DHL
- Conception and development of an innovation vehicle (purpose design)

**stakeholders involved**

- **Policy:**  local   national
- **Industry:**  OEM   supplier
- **Research:**
- **Fleet operator:**

**actors involved**

- Deutsche Post DHL
- Volkswagen

www.ieahev.org
contact
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Email: vw@volkswagen.de

results
• Inner-city delivery and customer service (N1): Battery electric vehicle totally fulfill the requirements investigated (e.g. driving range, user acceptance, etc.).
• Rising overhead in terms of vehicle routing management occurs due to driving range limitations and extended charging durations. Ecologic benefit is the most important unique selling point.
• Significant potential of battery electric vehicles for inner-city operation was approved.

Source: Altenkirch et al. 2011, Konzipierung und Gestaltung elektromobiler Dienstleistungen im innerstädtischen Raum (report)

links
http://erneuerbar-mobil.de/projekte/emil
Taskforce 27 “Electrification of transport logistic vehicles”

demonstration project profiles form partner countries

Name of project: DisLog (Resource efficient urban distribution logistics)
Duration: 01.05.2013 – 30.06.2016
Country: 🇩🇪

short description
The project aims to develop a new logistic concept for inner city courier, express and parcel service delivery.

focus areas
Vehicle category: □ N1 □ N2 □ N3
Powertrain type: □ HEV □ BEV □ FCEV
□ others: ____________
Transport task: □ urban delivery
□ regional delivery
□ others: ____________
□ bulk goods
□ goods of high volume
□ others: parcel

stakeholders involved
Policy: □ local □ national
Industry: □ OEM □ supplier
Research: □
Fleet operator: □

actors involved

- Deployment of battery electric and hybrid electric commercial vehicles
- Benchmark of available battery electric and hybrid electric commercial vehicles
- Definition of a requirements toward an inner city delivery vehicle concept (lightweight, powertrain, container system, etc.)
- Requirements towad optimization of inner-city delivery processes using electric vehicles
<table>
<thead>
<tr>
<th>contact</th>
</tr>
</thead>
</table>
| Werner Schönewolf  
Fraunhofer IPK  
10587 Berlin  |
| Phone: +49 30 39006-145  
Email: schoenewolf@ipk.fraunhofer.de |

<table>
<thead>
<tr>
<th>links</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.emo-berlin.de/schaufenster/projekte/gueterverkehr/dislog/">http://www.emo-berlin.de/schaufenster/projekte/gueterverkehr/dislog/</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>results</th>
</tr>
</thead>
<tbody>
<tr>
<td>• The choice of vehicles suitable for commercial transport is still very limited. Even more, these should be available at prices comparable to vehicles with combustion engines.</td>
</tr>
<tr>
<td>• As a consequence, a shift to e-vehicles for urban logistics is often not financially viable.</td>
</tr>
<tr>
<td>• Even more, as in some cases, due to the inadequacy of the transport capacity of the available e-vehicles, organizations had to keep additional vans for being able to transport also bigger goods ad hoc over the required distances. The combination of higher prices for e-vehicles plus the resulting need for additional vehicles inhibits a swift shift to e-mobility for urban transport.</td>
</tr>
<tr>
<td>• Request from drivers and decision makers: e-vehicles should be truly innovative, in function and design.</td>
</tr>
</tbody>
</table>

source: http://www.emo-berlin.de/schaufenster/projekte/gueterverkehr/dislog/
**Taskforce 27** “Electrification of transport logistic vehicles”

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>eCanter for Stuttgart</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration:</td>
<td>11.04.2016 – 11.04.2017</td>
</tr>
<tr>
<td>Country:</td>
<td>Germany</td>
</tr>
</tbody>
</table>

### short description
Fleet testing of battery electric trucks in different applications.

### focus areas

<table>
<thead>
<tr>
<th>Vehicle category:</th>
<th>□ N1</th>
<th>□ N2</th>
<th>□ N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powertrain type:</td>
<td>□ HEV</td>
<td>□ BEV</td>
<td>□ FCEV</td>
</tr>
<tr>
<td></td>
<td>□ others:________________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transport task:</td>
<td>□ urban delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ regional delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ others:________________</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ bulk goods</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ goods of high volume</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>□ others: bio waste, gravel, furniture, parcel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Vehicles: 5 x eCanter 7,5t GVW

### Notes:
- To proof suitability of daily use (e.g. driving range, operating cost)
Feedback City of Stuttgart
(impressions after 7,500 km)
- Reach of one battery charge (50-90 km/day) is perfect for one day of usage. Charging over night is sufficient.
- The payload of all vehicles is enough. Except the tipper body for road construction could have a little bit more payload when loading sand.
- Low loading sill is good for easy load and unloading.
- The VSP-Warning systems makes a noise which warns pedestrians, but it is till possible to switch it off when the vehicles are used at night.

Feedback Hermes
(impressions after 2,500 km)
- Driving without a sound is positively honored by the drivers
- The handling of the vehicle is easy - no need for re-orientation
- The recuperation brake is ranked advantageously and preferred in operation
- Small turning circle enables comfortable driving – especially in the city
- More flexibility desired, up to 150 km/day ideal
- Area-wide coverage of charging infrastructure is needed
- Larger portfolio needed to fit different uses
- Vehicles at economical costs
Taskforce 27 “Electrification of transport logistic vehicles”

demonstration project profiles form partner countries

Name of project: Aras Kargo-Turkey
Country: Türkiye

short description

The aim of the project is to implement a new environment friendly logistic concept for inner city express and parcel service delivery. The company currently operates 39 BEVs.

focus areas

Vehicle category: N1  N2  N3
Powertrain type: HEV  BEV  FCEV  others:_____________
Transport task: urban delivery  others:_____________
bulk goods  goods of high volume  others:_____________

Vehicles: Renault eTrafic (BDOTO)
Renault eKangoo (BDOTO)
Fiat eDucato (BDOTO)

Notes:
- Analysis of the cost reduction potential of electric commercial vehicles
- Analysis of carbon footprint deduction of electric commercial vehicles.

stakeholders involved

City:  local  national
Policy:  local  national
Industry:  OEM  supplier
Research:  national
Fleet operator:  national

actors involved

Aras Kargo
bd services
Inner-city parcel delivery (N1): Aras Kargo initiated the project with 9 BEVs. After the successful implementation, the company increased their electric vehicle fleet size to 39 BEVs in June 2014.

www.ieahev.org
**Taskforce 27** “Electrification of transport logistic vehicles”

### demonstration project profiles form partner countries

<table>
<thead>
<tr>
<th>Name of project:</th>
<th>TNT Express-Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration:</td>
<td>26.08.2010 – 24.08.2011</td>
</tr>
<tr>
<td>Country:</td>
<td>🇹🇷</td>
</tr>
</tbody>
</table>

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### short description

The aim is to be a pioneer in utilizing the electric vehicles in the sector. In total 10 battery electric vehicles are used for courier and parcel delivery.

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### stakeholders involved

<table>
<thead>
<tr>
<th>City:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy:</td>
<td>• local  ○ national</td>
</tr>
<tr>
<td>Industry:</td>
<td>○ OEM  • supplier</td>
</tr>
<tr>
<td>Research:</td>
<td>○</td>
</tr>
<tr>
<td>Fleet operator:</td>
<td>•</td>
</tr>
</tbody>
</table>

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### actors involved

TNT express  bd

---

### focus areas

- **Vehicle category:**  □ N1  □ N2  □ N3
- **Powertrain type:**  □ HEV  • BEV  ○ FCEV  ○ others: ____________
- **Transport task:**  • urban delivery  ○ regional delivery  ○ others: ____________  ○ bulk goods  ○ goods of high volume  ○ others: ____________

**Vehicles:** 1 Renault eTrafic (BDOTO)  9 Renault eKangoo (BDOTO)

---

### Notes:

- The company’s environmentally friendly policies implemented on the global scene
- The potential to reduce the operational costs.
**Inner-city parcel delivery (N1):**
BEVs fulfill the requirements for courier service within city limits; however; they are not suitable for intercity/rural delivery because of the lack of charging stations, long recharge duration, short driving range.

<table>
<thead>
<tr>
<th>Range (km) / Max Speed (km/h)</th>
<th>eKangoo: 100 / 100</th>
<th>eTrafic: 160 / 90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average distance traveled (km/day)</td>
<td>eKangoo: 35</td>
<td>eTrafic: 22</td>
</tr>
</tbody>
</table>