



PV Days 2017

New Paths for the Mobility of Tomorrow. Vision and Realization of the
Research Project Adaptive City Mobility

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Green City Projekt

Green City
Mehr Umweltschutz.

Green City Energy





Green City  Projekt



CHANGE FOR THE BETTER

**Environmental protection and
climate change adaptation**

**Sustainable
Mobility**

**Urban
Culture and
public
Spaces**

**Renewable
Energy**

Quality of Life

CONSULTING & RESEARCH

Mobility

Energy

Partizipation

COMMUNICATION

Live
Communication

Campaigning
& Networking

Marketing

EXPERIENCE

KNOW HOW



CHANGE



EMOTION



REINVENT CITY AND PUBLIC SPACE



RETHINK TRAFFIC & MOBILITY



**INITIATE CLIMATE
PROTECTION PROCESSES
AND RENEWABLE ENERGY**



COMMUNICATION,
MARKETING AND PR FOR
ENVIRONMENTAL PROTECTION



DEVELOP SUSTAINABLE BUSINESS MODELS



Call a Bike

DB BAHN

07000-5225522
www.CALLABIKE.de

Call a Bike – ganz einfach

Zur Anmeldung und für weitere Informationen:
Telefon 07000 5225522* oder www.callabike.de

Entleihen: Telefonnummer auf dem Schlossdisplay anrufen, erhaltenen
Öffnungscodes ins Schloss Display eingeben, Sperrriegel entriegeln.

Rückgabe: CallaBike verriegeln, im Schloss Display
die Rückgabe mit „ja“ bestätigen, Quittungscodes
und Standort telefonisch durchgeben.

Call a Bike wünscht
Gute Fahrt!

Call a Bike ist ein Service der DB
Rathenau GmbH
Hannover

PROJECTS

KNOW HOW



CHANGE



EMOTION



**250,000 VISITORS,
1.5KM OF STREET, 2x PER
YEAR**

—
STREETLIFE FESTIVAL



ONE CITY EXPERIENCES THE BIKE

RADLHAUPTSTADT MÜNCHEN



50 “LIVING & MOBILITY” MEASURES IN 5 EU-CITIES

CIVITAS EU PROJECT “ECCENTRIC”



E-MOBILITY IN RURAL SPACE WITH 12 MODEL MUNICIPALITIES

PROJECT "LANDMOBILE"



**ONE MIGHT BE GLAD IF
THE AIR WERE AS PURE
AS THE BEER**

RICHARD FREIHERR VON
WEIZSÄCKER



**SAUBA
SOG I.**

• REINHEITSGEBOT •
FÜR MÜNCHNER LUFT

NOT A CAR – AN E-MOBILITY SYSTEM

ADAPTIVE CITY MOBILITY



 Die
Bundesregierung



Gefördert durch:

 Bundesministerium
für Wirtschaft
und Energie

aufgrund eines Beschlusses
des Deutschen Bundestages

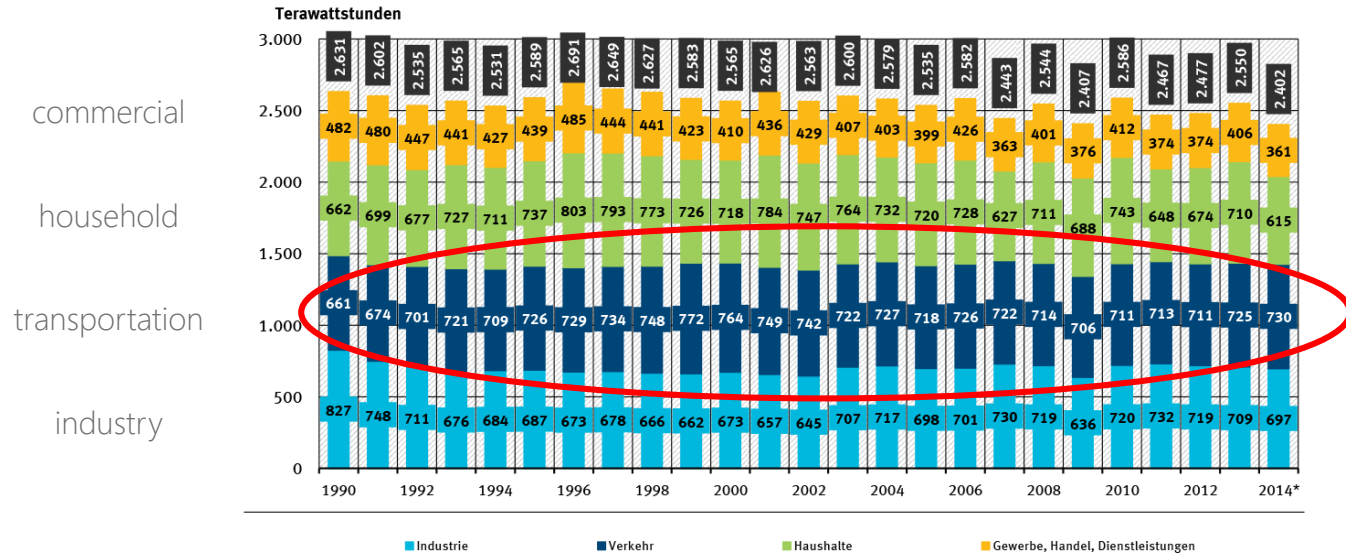


Vision

Competitive and emission-free
eMobility **system** for cities

eMobility: Why?

Development of energy consumption per sector: industry, transportation, household, and commercial (1990-2015)

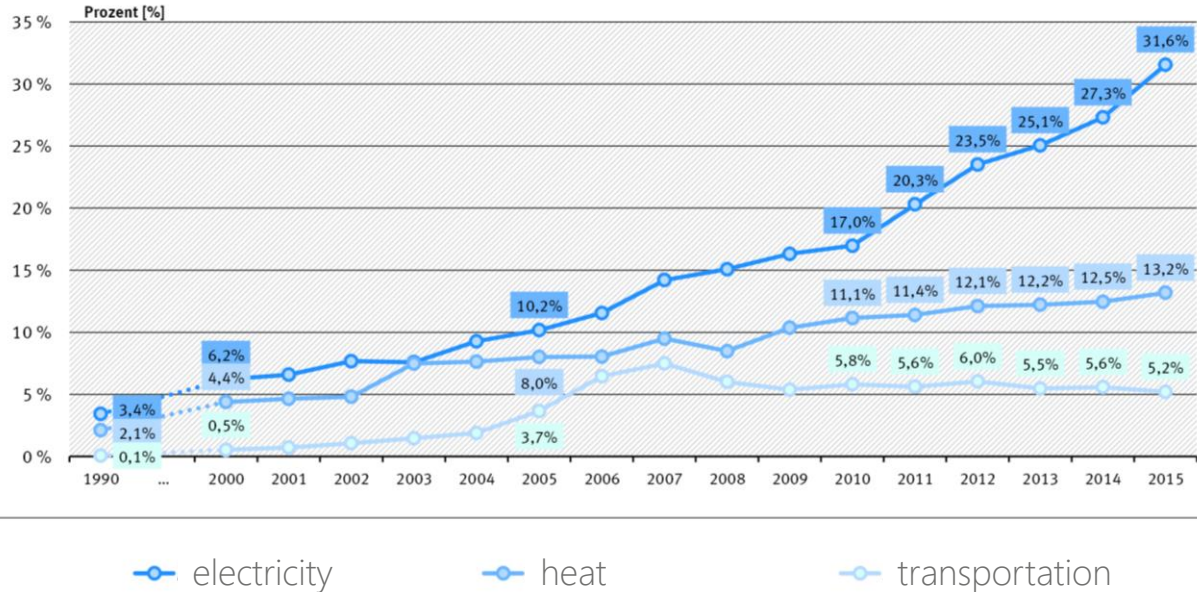


Transportation
is about 1/3 of
the total energy
consumption

(Umweltbundesamt, 2016)

eMobility: Why?

Share of renewable energy in gross electricity consumption, final energy consumption for heat, and transportation (1990-2015)



(Umweltbundesamt, 2016)



City eTAXI

Resource efficient. Environmentally Friendly. Low Price.



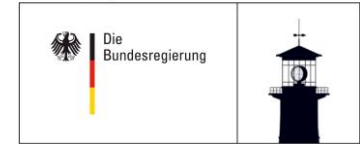
Gefördert durch:



aufgrund eines Beschlusses
des Deutschen Bundestages



Leuchtturmprojekt der Elektromobilität 2015



The Project Partners





The Challenges

Price

Range

Infrastructural Cost / Network Integration

Renewable Energy

Competitive Business Model



Three main innovations
to reach the ecological and economic goal



Innovation 1: City lightweight vehicle without „limitations“





Light Electric Vehicle

„Less is More“ – „Form Follows Function“

- Ample room for a driver, two passengers and their luggage
- 550 kg incl. Batteries / L7E classification
90 km/h max speed
- Removable Seats make room for a fully loaded Euro-palette
- Reduction of vehicle costs: up to 50%

Passenger compartment out of carbon (weighs only 40 kg)



Removable Seats make room for a fully loaded Euro-palette



Innovation 2: Manual Battery Swapping System



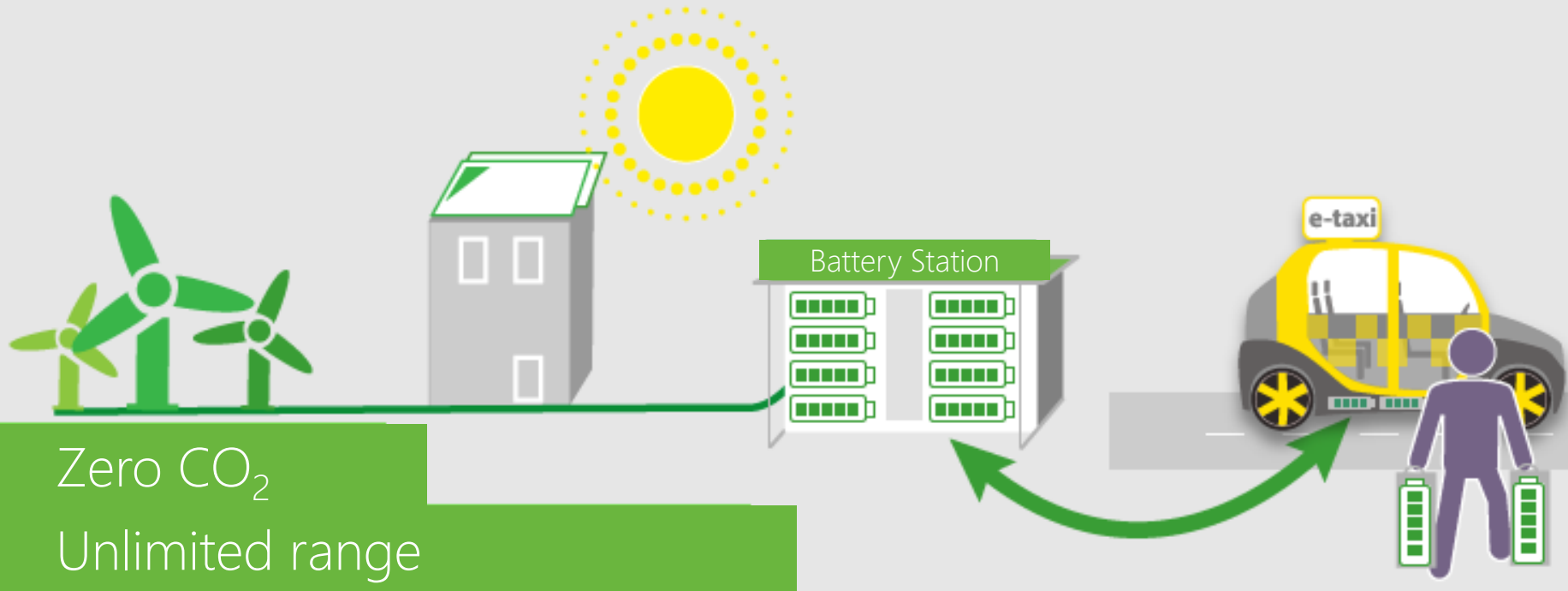


Manual Battery Swapping System

"Drive, don't charge"

- Empty batteries are exchanged manually at the appropriate stations
- Additional charging times and infrastructure bottlenecks are avoided
- Maximum turnover through 24/7 operation
- Implementation of renewable energy during "off hours"

Easy integration from renewable energy sources



Mobile battery cart allows for flexible installation and assists in swap



Source: E. ZIEGLER Metallbearbeitung AG

Innovation 3: Intelligent eFLEET network with live data





Intelligent Networking and Sharing

"Share instead of own" - "Mobility as a service"

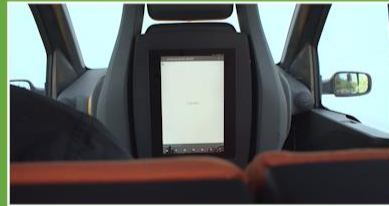
- The CITY eTAXI represents a partial element of an entire CITY eFleet
- Costs are shared lowering the TCO
- Real-time data also brings added value via digital advertising and a comprehensive billing software

Fleet Controlling

Advertisement



App



Passenger Entertainment



Driver Support



Energy management

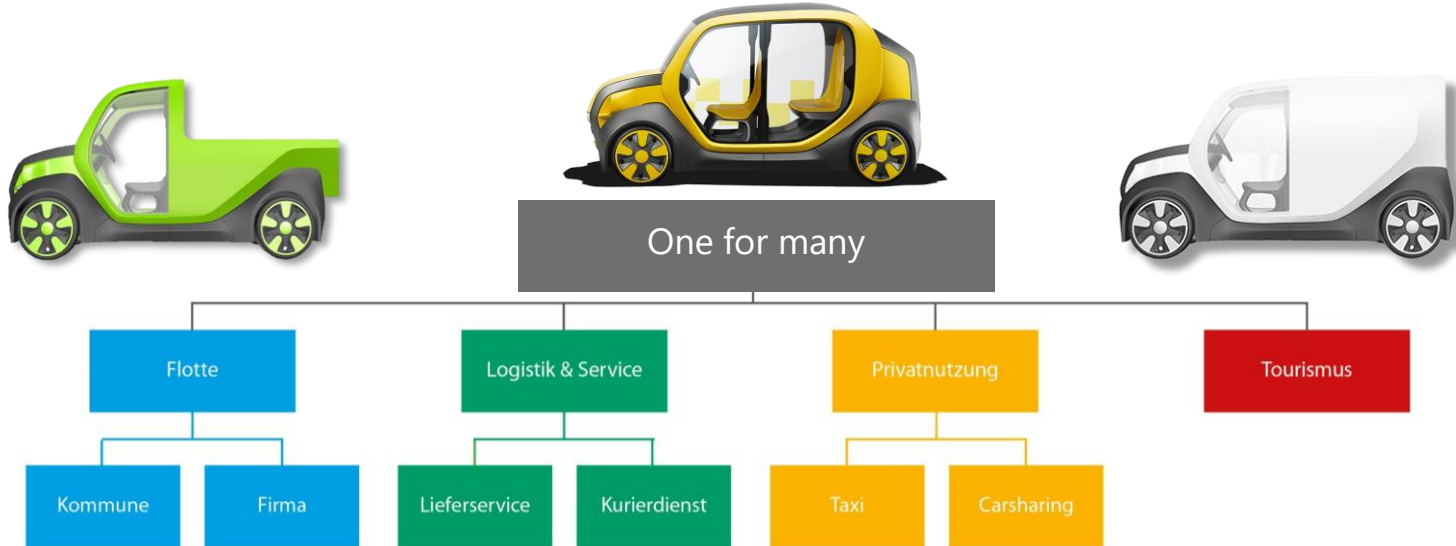


ACM Multi-Mode



ACM Multi-Mode

a system platform that allows various uses and can be flexibly combined and easily implemented



Information and advertising displays



Job control application for the driver

Neue Buchungs-Anfrage
Hbf München >> Theresienhöhe 4
Jetzt

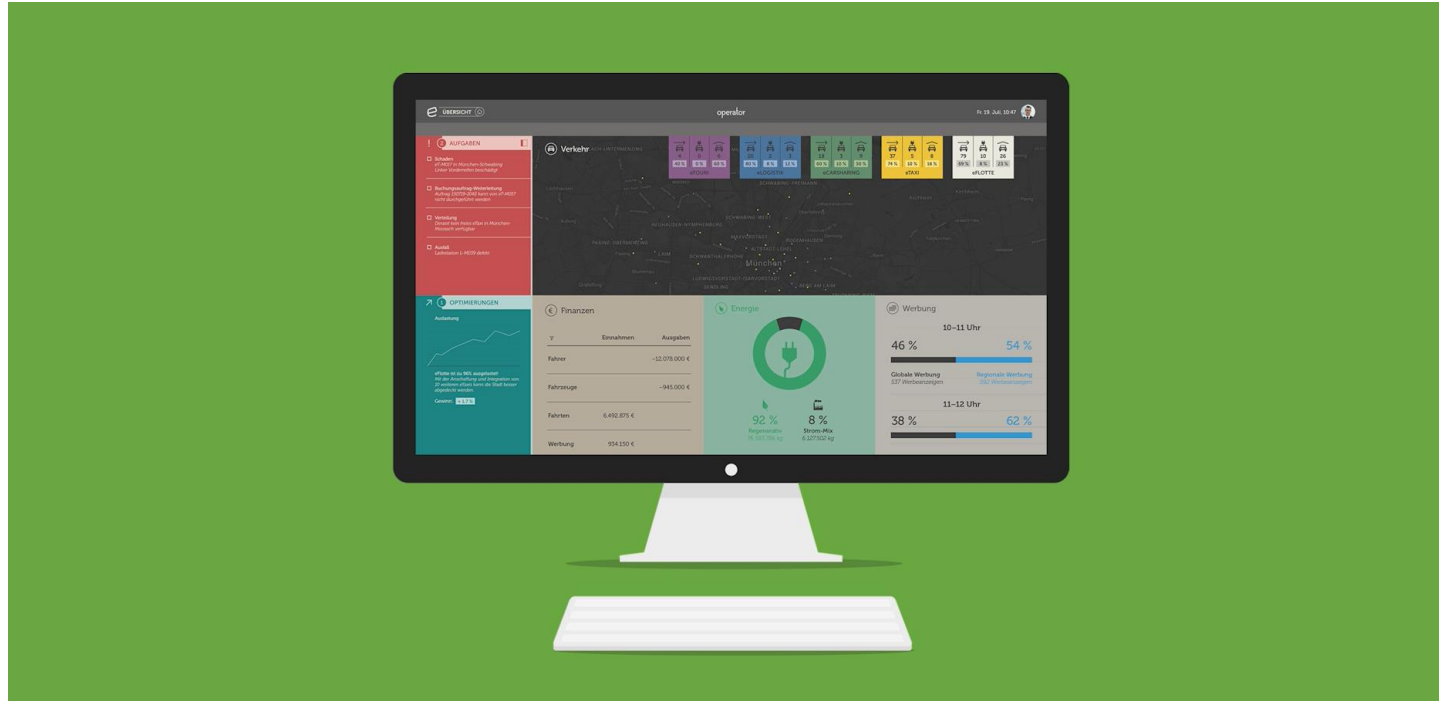
2014 ★ Do. 18.12.2014 Fr. 19.12.2014 Sa. 20.12.2014 >

Route anzeigen ✓ Anfrage annehmen

Datum	Uhrzeit	Kunde	Annahme
18.12.2014	13:45	👑	
18.12.2014	13:50		
18.12.2014	15:05		●
18.12.2014	15:45		
18.12.2014	16:10	👑	
18.12.2014	17:35		●

✕ Abbrechen ✓ Bestätigen

Central processing unit for the eFLEET



Unique Selling Point

Infrastructure: Easy-to-implement + independent energy system

Design: Space miracle + driving experience

Application: Flexible ranges > > Multifunctional use



eTAXI



eTOUR



eSHARING



eLOGISTICS

One for many. Eins für vieles. Oans fña ois.



Adaptive City Mobility

Reality vs. Vision:

Planned multimode form does not fit Munich law

Regulations limit sharing possibilities

Future mobility options need to be addressed on a political level

Next Step: Participation!
8 "Pilot cars" in Munich 2018



Gefördert durch:



aufgrund eines Beschlusses
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