



International Association of Public Transport  
Union Internationale des Transports Publics  
Internationaler Verband für öffentliches Verkehrswesen  
Unión Internacional de Transporte Público

## ***ZeEUS project***

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**UITP**

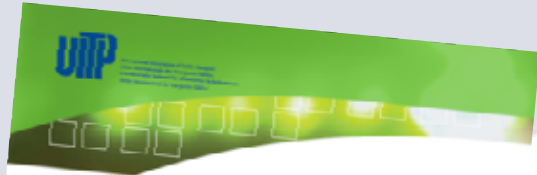
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**POLIS Conference**

**Brussels, 4th December**

**Connecting the world of public transport**

# UITP approach to CO<sub>2</sub> emission reduction of urban mobility



**Focus**  
Towards low/zero-carbon urban mobility in Europe



**Position paper**  
Prise de Position – Stellungnahme

**"A comprehensive approach for bus systems and CO<sub>2</sub> emission reduction"**

**I. Executive Summary**  
In view of ongoing discussions at European level to decarbonise transport (Transport White Paper) and related initiatives to give legal impetus to CO<sub>2</sub> emission reduction from heavy duty vehicles (HDV), the European bus sector (public transport undertakings and bus manufacturers) organised in UITP would like to highlight the following:

- A comprehensive approach for reduction of CO<sub>2</sub> emissions from buses is needed
- Attractive bus systems are a key solution (and not a problem) to achieve low-carbon urban mobility
- Promoting bus systems and modal shift to high quality multimodal and integrated public transport systems have very high impact to reduce CO<sub>2</sub> emissions in urban transport
- Increasing the commercial speed and reliability of bus systems is a key strategy to reduce CO<sub>2</sub> emissions from HDV, already existing legislation on CO<sub>2</sub> emissions for buses such as the "Green Public Procurement Directive" (2009/33/EC) should be taken into account. UITP has developed further bus tender recommendations on the basis of the Directive.
- In view of a possible CO<sub>2</sub> > HDV legislation, the European bus sector is open to future CO<sub>2</sub> declaration (calculation based on passenger km)
- Further funding and support from the European institutions is needed to develop attractive bus systems and to carry out future research. The large European R&D project EBSP (European Bus System of the Future) should be considered as a "lightbulb" project. The EBSPAC/EBSP roadmap gives important recommendations for future research for bus systems and the European bus sector is committed to contribute to the coming Framework Programme Horizon 2020.
- Employment in public transport should be recognized as Green Jobs

UITP together with the European public transport undertakings and bus manufacturers jointly produced an approach to "**decarbonisation of transport**" and GHG emission reduction:

Modal shift: the best carbon reducing strategy

Traffic management

Infrastructure and operational issues

Smart energy use in vehicles

**Electric Buses**

Combined mobility



# ZeEUS – Zero Emission Urban bus Systems

Extend fully-electric solution to the core part of the urban bus network

Evaluate the economic, environmental and societal feasibility of electric urban bus systems

Facilitate the market uptake of electric buses in Europe

Demonstration Project

13.5M€ EU fund (22.5M € total)

42 Months duration

Coordinated by UITP

40 Consortium members

Start 1<sup>st</sup> November 2013

**ZeEUS Launch event on  
23<sup>rd</sup> January 2014 in Brussels**

[www.uitp.org](http://www.uitp.org)



# ZeEUS – Objectives

*Extend fully-electric solution to the core part of the urban bus network*

**Core Demonstrations**

**Observatory of Electric Urban Bus Systems**

**Networking**

**Guidelines and Tools for Pre-Commercial Support**

# ZeEUS Core Demonstrations



## 8 Demonstrations / 6 Countries

South Europe - **Barcelona, Rome**

Mid Europe – **London, Muenster, Bonn, Piltzen**

North Europe – **Glasgow, Stockholm**

## 35 electric buses 12 meters

Hybrid plug-in

Full-electric

Trolleys full-electric

## Charging points

**Slow charging** – bus depot

**Fast charging** – bus stations, terminals, stops – induction, catenary, contacts

## Different OEMs

Alexander Dennis, Irizar, Skoda, Solaris, Volvo, VDL

## Different Technology Providers

● Core Demonstrations

# ZeEUS - Observatory of Electric Urban Bus Systems 1/2

**ZeEUS will closely follow what happen worldwide about electric bus systems**

## **ZeEUS Electric-Bus Observatory**

### **Observed Demonstrations**

Demonstrations and pilots funded by other National or European programs

Purchases of electric buses

Key research & development activities about electric urban buses

### **Monitored Demonstrations**

Selected periodically within the Observed Demonstrations

More active participation to ZeEUS project

Local use of some KPI within the set defined by ZeEUS

Contribute to the UITP E-SORT validation



# ZeEUS - Observatory of Electric Urban Bus Systems 2/2

## Want to propose Monitored / Observed demonstrations?



Leipzig, Hamburg, Augsburg, Osnabrueck, *Mannheim* (Germany)

Den Bosch, Utrecht, *Maastricht* (Nederland)

San Sebastian, Madrid, *Seville*, *Zaragoza* (Spain)

Parma (Italy)

Grenoble, *Albi* (France)

Helsinki (Finland)

Milton-Keynes, *Aberdeen* (UK)

*Wien* (Austria)

*Knokke*, *Kortrijk* (B)

+ *ARRIVA*, *KEOLIS*

● Core Demonstrations

● Monitored/Observed Demo in list

# ZeEUS - Networking Activities

*ZeEUS aims to be the main EU activity for following experiences and developments of electric urban bus systems*

Developments, pilots, demos, procurements  
Observatory of electric bus systems activities

## EU Projects and Initiatives

Bus involving Projects (CAPIRE, 3iBS...)  
Initiatives (Smart Cities & Communities, EGVI)  
Private transport electromobility (Green-eMotion)  
Electromobility in Freight transport (FR EVUE)

## Urban electro-mobility Stakeholders

European Electro-mobility Observatory by EC  
Joint Forum with private and freight electromobility

## European Associations & Networks

Members Forums (POLIS, EARPA, HyER...)  
Outreach of the Electricity Industry (EURELECTRIC)

## UITP members network

UITP Commission and Committees (Bus, Industry...)  
ZeEUS PT Working Group  
Involvement of Y4PT (Youth for Public Transport)  
Liaison with UITP Regions





# ZeEUS - Guidelines and Tools for Pre-Commercial Support 1/2

*Support decision makers to decide "if", "how" and "when" to introduce electric bus systems in the Public Transport network*

**Regulatory frame** including operational aspects and standards

Link with proposed EU Directive on *"Deployment of alternative fuels infrastructure"*

**Funding schemes**, tools and procurement guidelines

Interaction with EIB and other funding entities

Recommendations for **urban / spatial planning**

**Operational concepts** and **migration scenarios**

Electric Bus System **Roadmap**



# ZeEUS - Guidelines and Tools for Pre-Commercial Support 2/2

*Support decision makers to decide "if", "how" and "when" to introduce electric bus systems in the Public Transport network*

Strategy for **optimised interaction** with the power grid

Slow charging (overnight bus-depot)

- Optimised charging strategy / business model

Fast charging at bus-terminal / bus-stop

- Strategy for re-using existing PT power network

## Standardisation

Identification of priorities for standard (WHAT?)

- Interfaces, protocols...?

UITP **E-SORT** Validation

- New chapter of UITP SORT cycle for full-electric



**Training** guidelines for PT personnel

Drivers, maintenance

## Education

Education modules and workshops for university students

**ZeEUS Launch event!**  
**23<sup>rd</sup> January 2014, Brussels**  
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**Thanks for your attention!**  
**[www.uitp.org](http://www.uitp.org)**

**Want to propose Observed/Monitored  
demonstrations?**  
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