

The logo for ZeEUS features the text 'ZeEUS' in a dark blue, sans-serif font. The letters are stylized with thick, magenta-colored lines that resemble circuit traces or bus lines. These lines connect the letters and extend outwards, ending in small colored dots (blue, yellow, red, purple). The background is a light blue with a grid of white lines and various colored dots, suggesting a technical or digital theme.

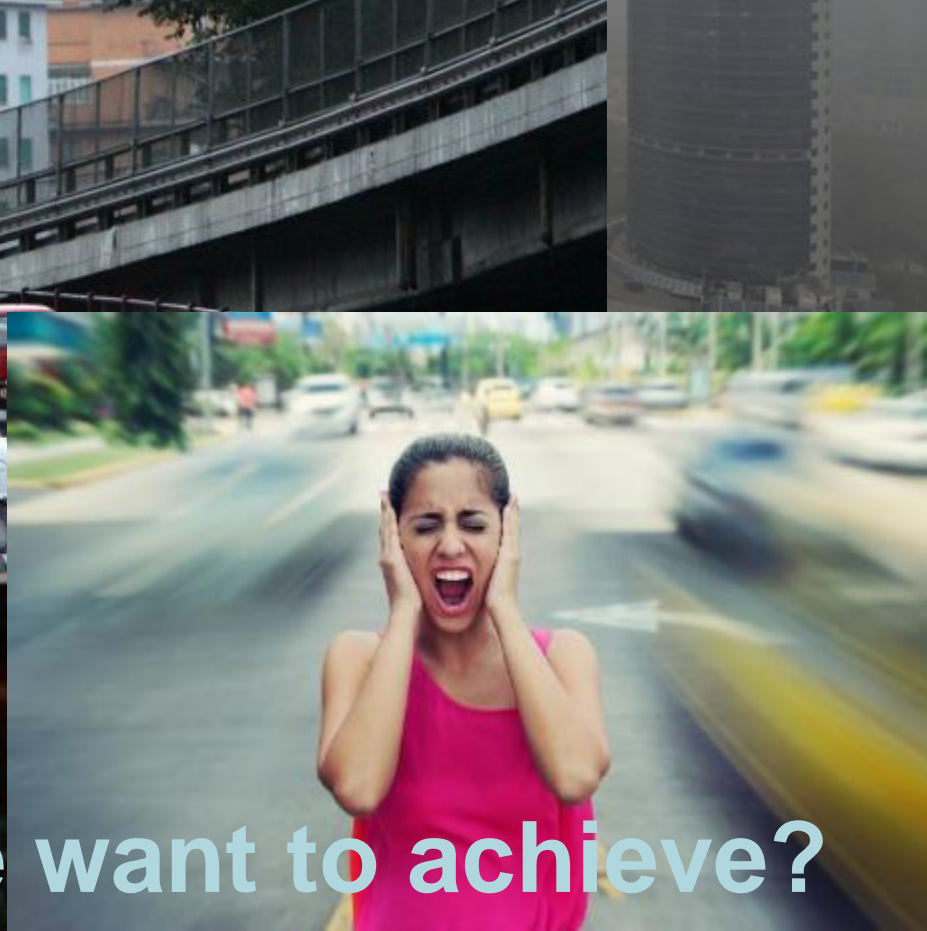
ZeEUS

EVS30 - Stuttgart, 10th October 2017

The future of urban buses is electric.

**Dr. Michael Faltenbacher, thinkstep AG
(on behalf of Umberto Guida, UITP Research & Innovation Director)**

Where we are:



What do we want to achieve?

UITP Strategy for Decarbonisation

Global & integrated mobility vision

Better Quality of Life through high Quality service to passengers

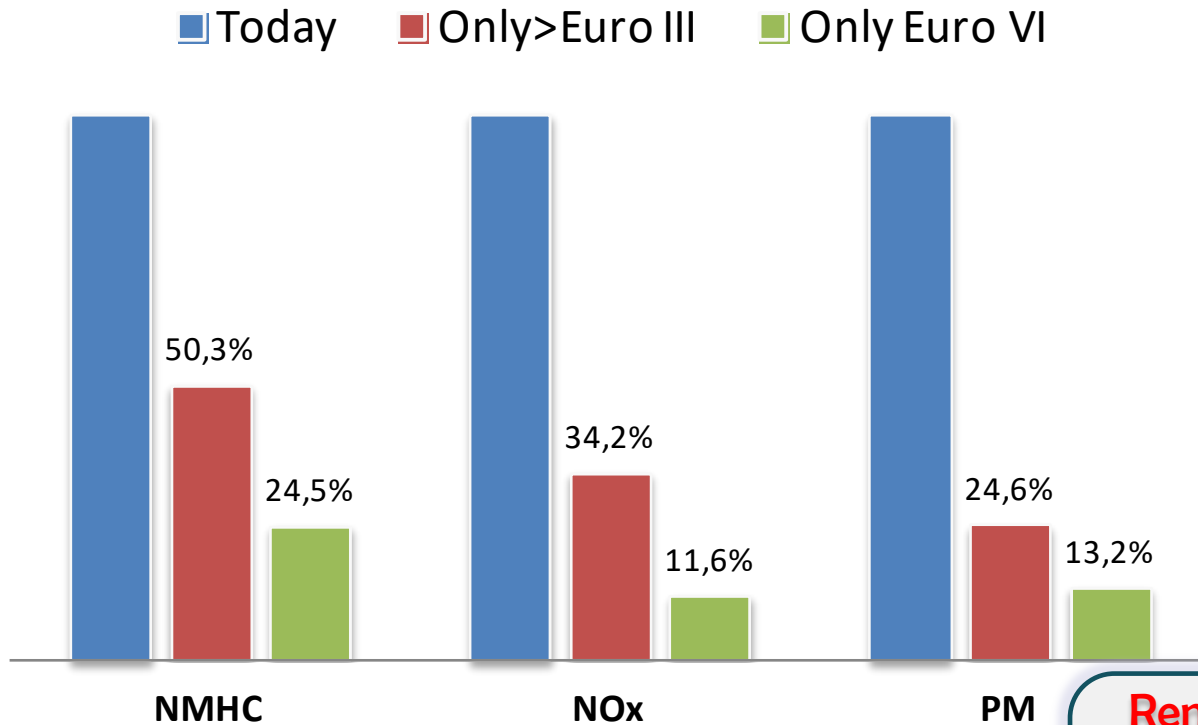
- Cleaner Vehicles
- Accessibility for all
- High commercial speed
- PT Dedicated Infrastructure
- Traffic & operations management
- Efficiently combined & shared mobility
- Smart use of energy in the System



Policies and strategies promoting Modal Shift

More: UITP «Connecting people and places, Integrated Mobility Plans for Sustainable Cities » - April 2014

European Clean fleets: what is the priority?



Estimated emissions reduction by renewing the fleet

Source: www.3ibs.eu

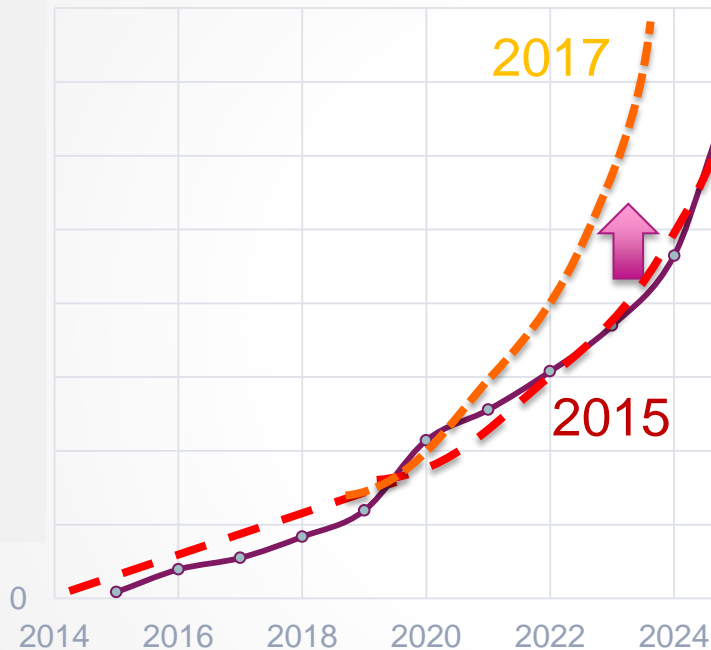
BUS IS CLEAN
 Urban Bus contribution to city transport pollution (25%) is **8%** calculated **per passenger per km**

In Europe, **45%** - Euro III or older

Renewal of old-bus fleets is **a priority**

Renewal of bus fleet to low/zero emissions plus Modal Shift policies has a multiplier effect on air quality and urban mobility

Urban zero emission bus: European Cities Strategy



2015-2025 Strategies of zero emission bus deployment in European cities

- Data-set 43.000 buses

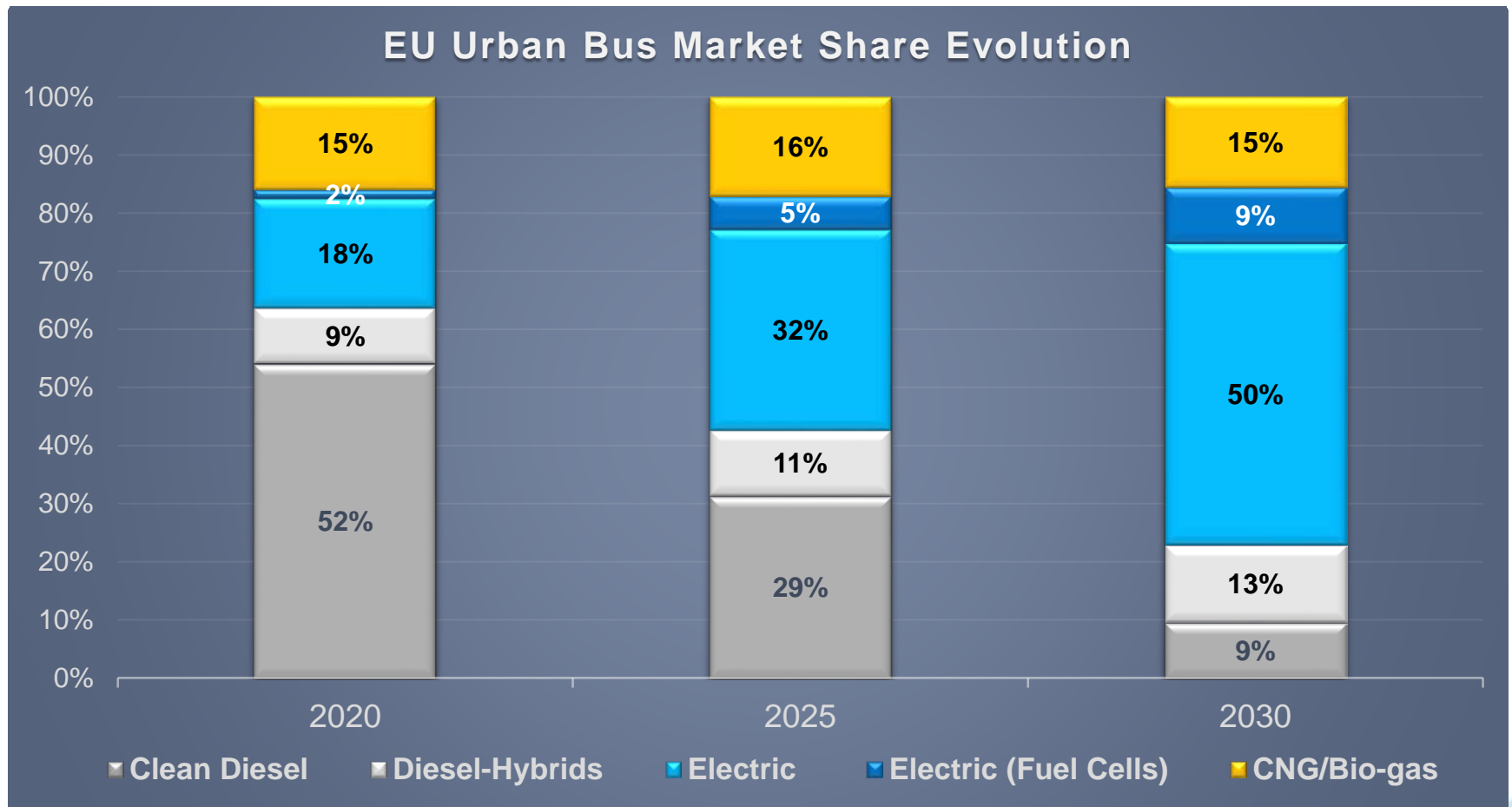
Rapid evolution in the last years

- 2014 – 2015 one / two test vehicles
- 2015 – 2016 first entirely electric bus-lines
- 2017 – subset of bus network (tens of vehicles)

Exercise done in 2015 –

Revision of forecast in 2017 shows higher growth-rate

Urban bus: market share projections by propulsion technology in Europe



5 challenges to address for eBus deployment in Europe

UITP tender structure document



High upfront cost



New challenging operations



New ways to procure:

- Vehicles & Equipments
- Operation services



Standardisation / Interoperability



Reinforcing cooperation energy/bus

ZeEUS: a project to support electric bus deployment



40 Consortium Partners
20 User Group Members
50 Observatory Members
Coordinator: UITP



22,5 million€
EU funding: 13,5 million €



10 demo cities
~70 electric buses
90 observed cities
800 eBuses



1 evaluation methodology

If?
When?
What?
How?



A set of tools and guidelines to accompany bus stakeholders in ebus deployment

ZeEUS Demo Cities



ZeEUS eBus Report

An overview of electric
buses in Europe

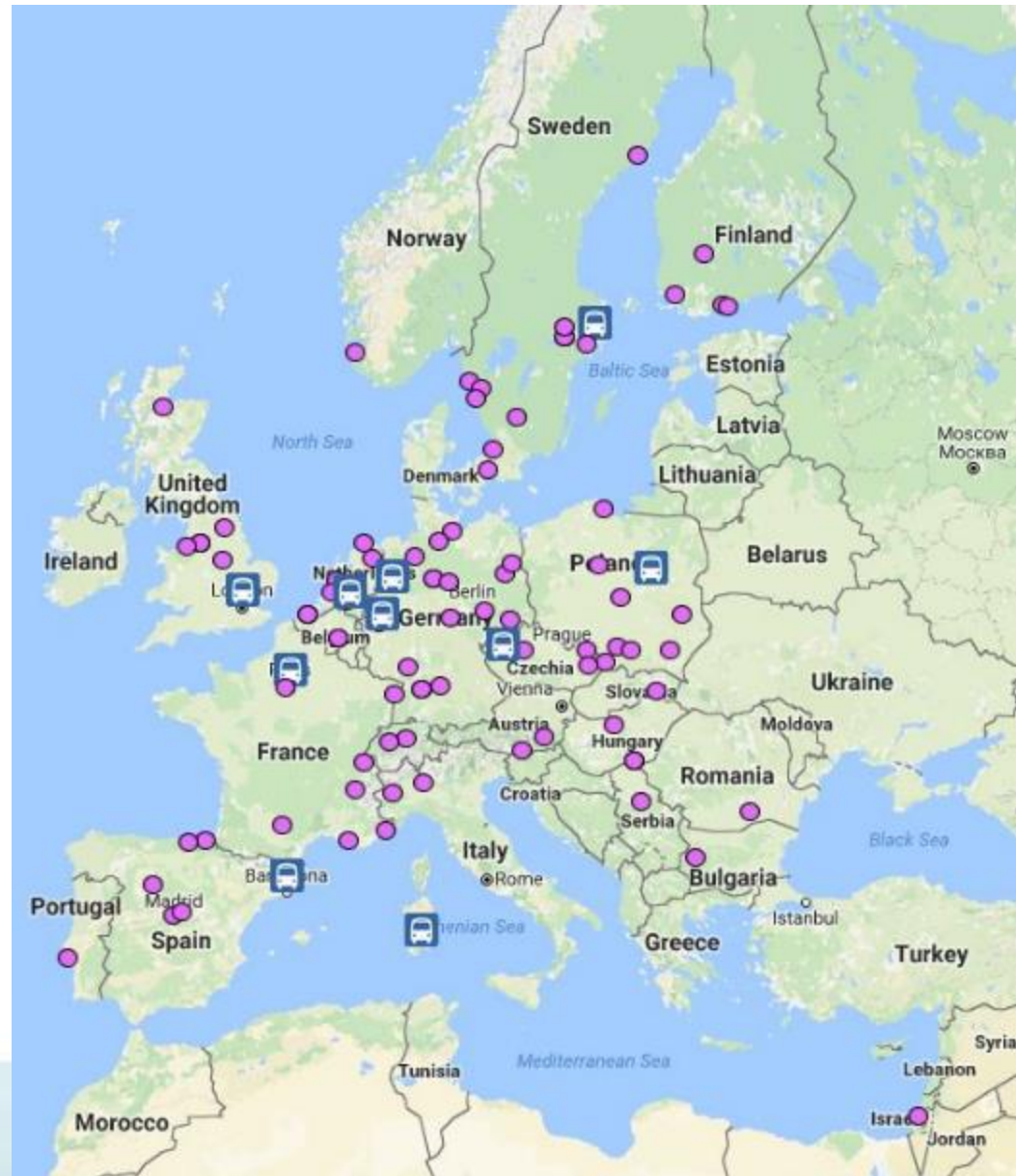
- BEV, PHEV & Battery Trolley
- 90 cities, 800 vehicles
- 32 electric bus manufacturers
- 8 charging system industries

www.zeeus.eu

Second Edition
October 2017

UITP Bus Conference (Busworld)

Observed cities



ZeEUS eBus Performances

ZERO EMISSION URBAN BUS SYSTEM (ZeEUS) PROJECT For the period Aug 2015 - Aug 2016

Figures coming from 7 cities across Europe



**1,458,161
km**

The distance travelled by
ZeEUS buses running in
pure electric mode¹



**523,998
litres²**

The amount of diesel fuel
saved by the ZeEUS bus
project¹



752 tons³

The amount of carbon
dioxide emissions
prevented by the ZeEUS
bus project¹

¹ For vehicles increasing from 12 to 32 (21 BEV and 11 PHEV)

² Assuming 38l/100 km

³ ISO 16258 factor for Diesel and GaBi factor for EU electricity grid mix (2014) and diesel supply

Information based on the 2017 ZeEUS eBus Report: An overview of electric buses in Europe

Ebus deployment

IF – Know & Decide



- Develop clean-buses deployment strategy
- Exchange of experiences
- Define own operation needs

WHEN – Plan & Regulate



- System approach
- Urban policies
- Funding & Financing
- Project governance

WHAT – Select & Procure



- Standardised/ interoperable solutions
- Procurement process principles
- Indicators for procurement evaluation
- Relationship with energy providers

HOW – Operate & Maintain



- Training (new competencies, processes)
- Operations (including charging operations)
- Maintenance (new garage settings)
- Decommissioning (battery after-life)

Action lines to Support PT stakeholders to deploy ZeB

Joint Effort of Institutions Stakeholders Cities

CONCLUSION: Is electrification a Revolution?

Electrification already
produced a revolution
in public transport

From horse-powered to electric trams

UITP was already following this trend:
*The “high cost of horses’ maintenance
vs. electricity traction” was one of the
key topics discussed at the UITP’s
Berlin Congress in 1886.*



THANK YOU



UITP - BUSWORLD INTERNATIONAL BUS CONFERENCE

*In collaboration with
Busworld Europe,
(Kortrijk) 2017
23rd-24th October 2017*

ZeEUS and Bus R&I Day

In Busworld Europe (Kortrijk) 25th October 2017

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