

Promoting **clean** public transport

Trolley

Context of TROLLEY Research and Innovation Roadmap

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The TROLLEY Project

An INTERREG Project from Central Europe Programme, presenting a Research and Innovation Roadmap in Brussels?

The TROLLEY Project delivers

- strategies for **implementation** of trolleybus systems
- innovative trolleybus **promotion strategies**
- an **updated image** of trolleybuses

TROLLEY: "capitalisation activity" of the Central Europe Programme



Phase 1 (Feb 2010 – Jan 2013):

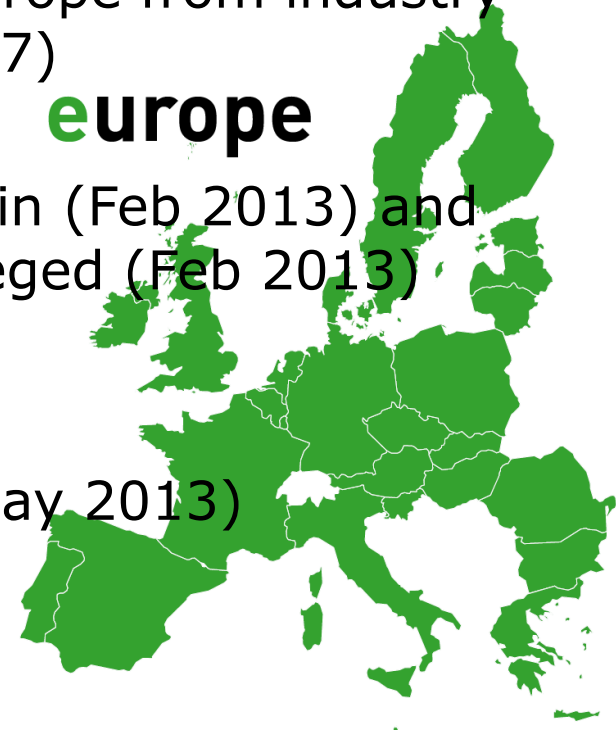
- Three TROLLEY **Advisory Board** Meetings
 - strategic focus of cooperation beyond the project
 - future research and policy needs
- Three TROLLEY **City-Industry** Summits
 - stakeholder dialogue: authorities, operators and industry
 - future needs for innovative trolleybus systems



Phase 2 (Jan 2013 – May 2013):

- TROLLEY adds a "capitalisation activity" (strategic label of CE Programme)
- **Interviews** with 25 stakeholders across Europe from industry (7), authorities/ operators (11), academia (7)
- **Verification & discussion** at
 - Round tables in Vienna (Feb 2013), Berlin (Feb 2013) and Gdynia (March 2013); conference in Szeged (Feb 2013)
 - Workshop today
- **Research and Innovation Roadmap**
 - Review and exchange with UITP (Apr/ May 2013)
 - Final version (May 2013)

europa



Phase 2 (Jan 2013 – May 2013):

- If you are interested to participate in the TROLLEY Roadmap process, please contact:

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Electromobility discussion since 2010

- ▶ from **e-car** to (also) **e-bus**
- ▶ from **(only) battery** to "**hybrid solutions**"
- ▶ from **smart grid** to **smart city**
- ▶ from being "the solution" to being part of a more **fundamental change process**



European transport goals

- ▶ mix of **policy** measures
 - ▶ increase energy efficiency
 - ▶ accelerate shift to clean modes
 - ▶ develop & use cleaner vehicles widely
- ▶ recent **strategic** EU initiatives
 - ▶ "Smart Cities & Communities" Innovation Partnership
 - ▶ Strategic Transport Technology Plan
 - ▶ "Clean Power for Europe"
- ▶ **how can we go from where we are now to where we need to be in 10, 20, 30 years?**
 - ▶ what are short and medium term **realistic impacts** of electrification of urban transport?
 - ▶ what is **working already** and can be used to build on?



Questions for today?

- ▶ what is a trolleybus/ **e-bus**?
 - ▶ innovation in e-bus models & infrastructure
- ▶ what are **costs** and **benefits** for operators and for society?
 - ▶ technical stability/ usability in day-to-day operation
 - ▶ cost effectiveness (vehicle and infrastructure)
 - ▶ energy and environmental impacts
 - ▶ external costs
- ▶ what are **regulatory** and standardisation requirements?
- ▶ what are **research** and **demonstration** needs?



The next generation "e-bus"

- ▶ **smart vehicle**: silent, emission-free (well-to-wheel), comfortable, energy & cost-effective
- ▶ fulfilling **EBSF** standards
- ▶ rational and context-aware **combination** of
 - ▶ flexible **energy supply & charging** concepts (grid-based, contactless, autonomous)
 - ▶ intelligent **energy storage** (batteries, supercaps, hydrogen/fuel cell, network, other)
- ▶ integral part of an intelligent **energy network**
- ▶ contributing significantly to a **sustainable city**
 - ▶ EU policy goals (White Paper, "smart cities")
 - ▶ cost-effective provision of personal mobility
- ▶ building on **existing know-how**:
 - ▶ today (almost all) e-buses are trolleybuses!



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