



INTELLIGENT URBAN MOBILITY SOLUTIONS

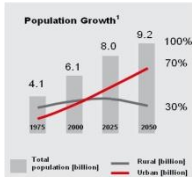
MARTIN ERTL
CHIEF INNOVATION OFFICER
BOMBARDIER TRANSPORTATION
BERLIN, 20.06.2013

BOMBARDIER
the evolution of mobility

We take care of cities

Challenges and solutions

Each city faces diverse challenges



Urbanization & population growth



CO₂ emission and pollution



Congestion



Real estate value and availability

Innovative mobility solutions



*eco*⁴
technologies



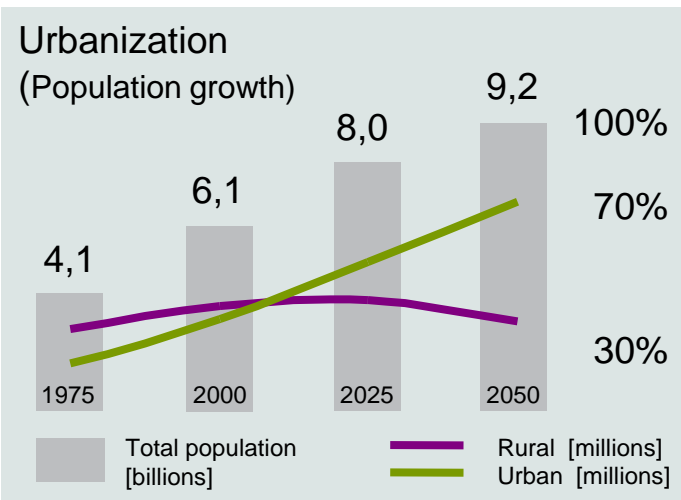
INNOVIA 300
automated transit systems



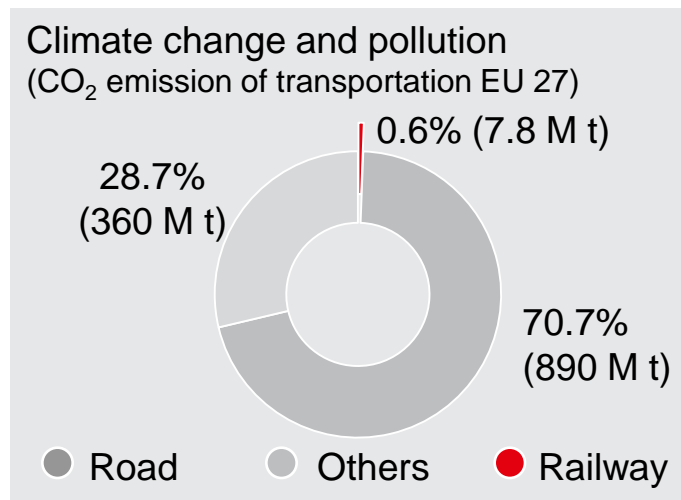
primoveCity
e-mobility program

“The Climate is Right for Trains” ... and for e-mobility

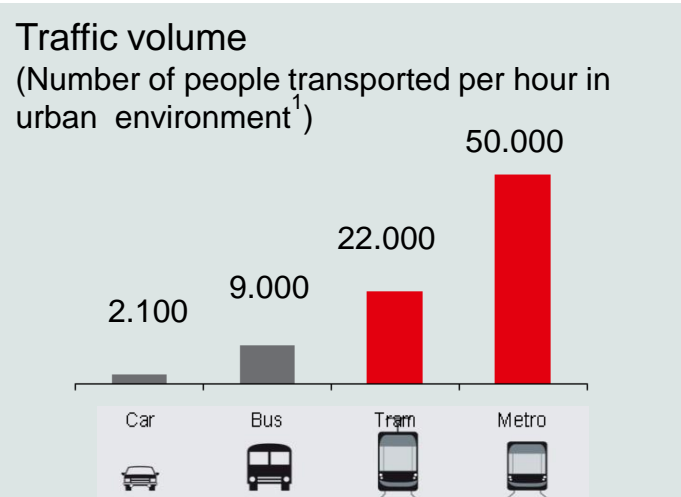
Worldwide trends



Source: United Nations Department of Economic and Social Affairs/Population Division: "World Urbanization Prospects: The 2007 Revision"



Source: EU 27 Transport in figures (2011)



Source: International Association of Public Transport (UITP)

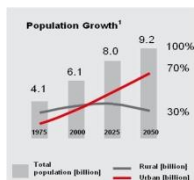


¹ Number of people crossing a 3 to 5 metre-wide space in an hour in an urban environment
Source: International Association of Public Transport (UITP)

We take care of cities

Challenges and **solutions**

Each city faces diverse challenges



Urbanization & population growth



CO₂ emission and pollution



Congestion



Real estate value and availability

Innovative mobility solutions



eco⁴
technologies



INNOVIA 300
automated transit systems

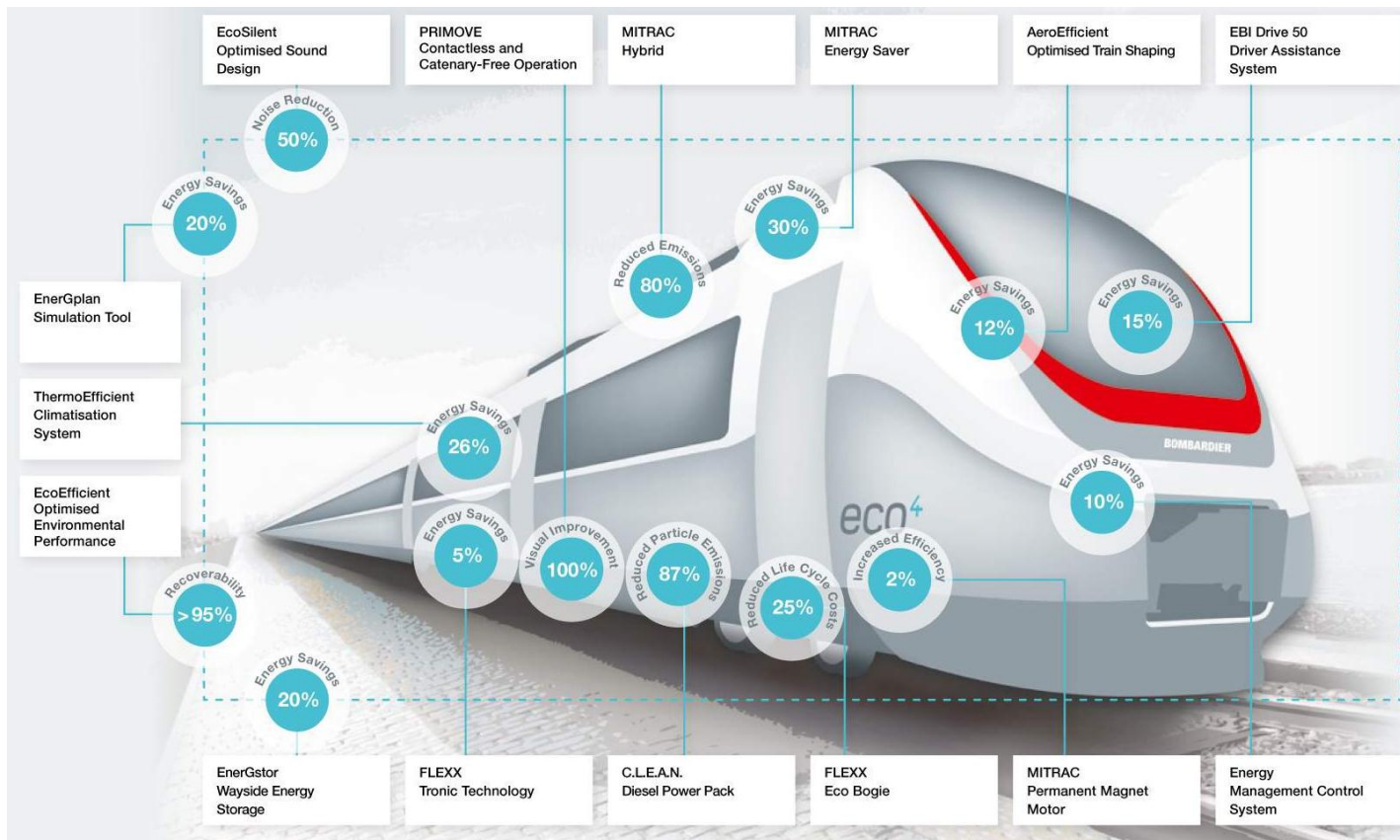


primoveCity
e-mobility program

ECO4

Innovative solutions in rail technology

Electric mobility has been the core business in the rail industry for over 100 years
BOMBARDIER ECO4 is a modular portfolio of innovative technologies



ECO4 technologies

- Enable energy savings of up to 50%¹
- Regenerate energy
- Reduce CO₂ emissions
- Improve passenger comfort

PRIVATE AND CONFIDENTIAL
© Bombardier Inc. or its subsidiaries. All rights reserved.

¹ Compared to current products
ECO4 is a trademark of Bombardier Inc. or its subsidiaries

ECO4

Innovative solutions

Lightweight aluminum vehicles

- Elegant design
- Reduced weight, increased recyclability
- Significantly reduced energy consumption

Aerodynamically optimized vehicle shaping

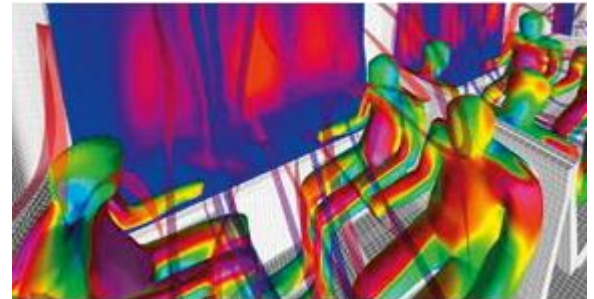
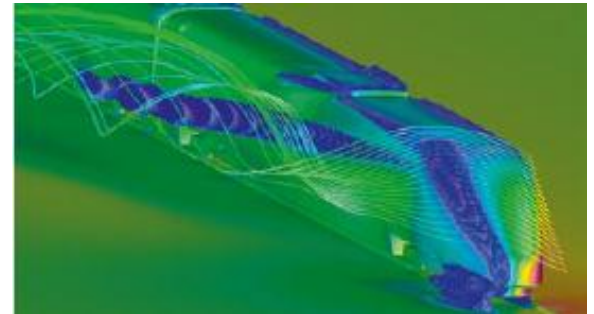
- Reduced of aerodynamic drag at maximum stability
- Reduced travel times due to higher acceleration
- Energy savings of up to 15%

Improved ride quality

- ThermoEfficient climatization systems
- ECOsilent technology reduces noise up to 50%
- Improved passenger flow

Recover energy

- Regenerative braking
- Onboard and wayside energy storage



PRIVATE AND CONFIDENTIAL
© Bombardier Inc. or its subsidiaries. All rights reserved.

INNOVIA 300 Automated Transit Systems

INNOVIA Monorail 300 system



PRIVATE AND CONFIDENTIAL
© Bombardier Inc. or its subsidiaries. All rights reserved.

INNOVIA Monorail 300 system

Higher capacity and lower land use



Monorail systems

- Mass transit capacity (up to 48,000 pphpd¹)
- Very low land use due to slender, elevated guideway structures
- No or minimal impact on existing road traffic
- Cost effective and faster construction (hence good alternative to metro)



Bus systems

- Buses are limited size vehicles, hence low capacity
- Higher capacity bus rapid transit (BRT) systems (max 30,000 pphpd¹) require large city space (15 meter dedicated lane)
- Dedicated bus lanes divide cities

PrimoveCity

The vision of easy urban mobility becomes reality



PRIVATE AND CONFIDENTIAL
© Bombardier Inc. or its subsidiaries. All rights reserved.

Bombardier's PrimoveCity concept

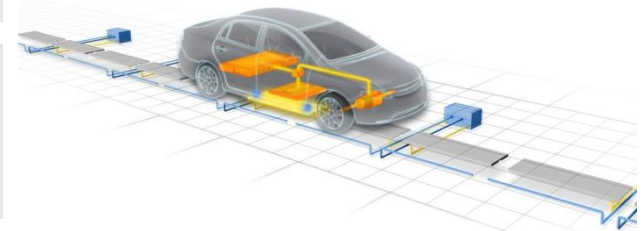
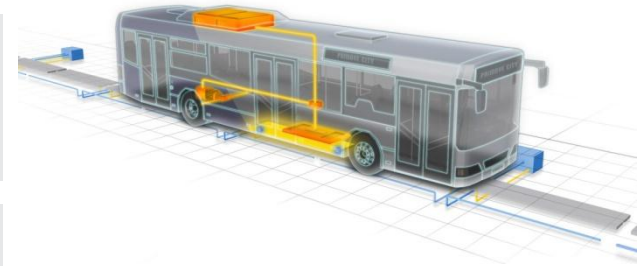
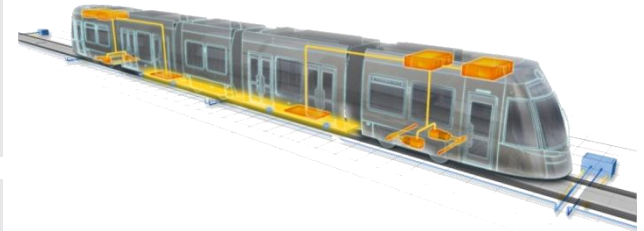
One infrastructure for all electric vehicles

Wireless inductive power transfer

For all types of vehicles (from 3 kW to 1,000 kW)

Underground - safe, invisible and tamper-proof

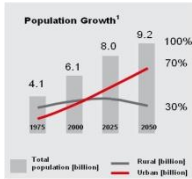
Zero emissions and low maintenance



➤ **PrimoveCity is a game changing solution for easy urban mobility**

Transportation solutions ready now for Ecocities!

Each city faces diverse challenges



Urbanization & population growth



CO₂ emission and pollution



Congestion



Real estate value and availability

Innovative mobility solutions



eco⁴ technologies



INNOVIA 300
automated transit systems



primoveCity
e-mobility program

BOMBARDIER

the evolution of mobility

martin.ertl@de.transport.bombardier.com